

Altivar Process ATV6000

Variable Speed Drives

Programming Manual For Operator and Advanced Operator

QGH83265-08
07/2025



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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Qualification Of Personnel

Only appropriately trained persons who are familiar with and understand the contents of this manual and all other pertinent product documentation are authorized to work on and with this product. In addition, these persons must have received safety training to recognize and avoid hazards involved. These persons must have sufficient technical training, knowledge and experience and be able to foresee and detect potential hazards that may be caused by using the product, by changing the settings and by the mechanical, electrical and electronic equipment

of the entire system in which the product is used. All persons working on and with the product must be fully familiar with all applicable standards, directives, and accident prevention regulations when performing such work.

Intended Use

This product is a drive for three-phase synchronous, asynchronous motors and intended for industrial use according to this manual.

The product may only be used in compliance with all applicable safety standard and local regulations and directives, the specified requirements and the technical data. The product must be installed outside the hazardous ATEX zone. Prior to using the product, you must perform a risk assessment in view of the planned application. Based on the results, the appropriate safety measures must be implemented. Since the product is used as a component in an entire system, you must ensure the safety of persons by means of the design of this entire system (for example, machine design). Any use other than the use explicitly permitted is prohibited and can result in hazards.

Product Related Information

Read and understand these instructions before performing any procedure with this drive.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Before performing work on the drive system:

- Follow the instructions given in the section "Complete drive system power Off procedure" of the installation manual.

Before applying voltage to the drive system:

- Verify that the work has been completed and that the entire installation cannot cause hazards.
- Remove the ground and the short circuits on the mains input terminals and the motor output terminals.
- Verify proper grounding of all equipment.
- Verify that all protective equipment such as covers, doors, grids is installed and/or closed.

Failure to follow these instructions will result in death or serious injury.

⚠ ⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Only appropriately trained persons who are familiar with and fully understand the contents of the present manual and all other pertinent product documentation and who have received all necessary training to recognize and avoid hazards involved are authorized to work on and with this drive system.
- Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- Verify compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment.
- Only use properly rated, electrically insulated tools and measuring equipment.
- Do not touch unshielded components or terminals with voltage present.
- Prior to performing any type of work on the drive system, block the motor shaft to prevent rotation.
- Insulate both ends of unused conductors of the motor cable
- Do not create short circuits across the DC bus terminals or the DC bus capacitors.

Failure to follow these instructions will result in death or serious injury.

Damaged products or accessories may cause electric shock or unanticipated equipment operation.

⚠ ⚠ DANGER**ELECTRIC SHOCK OR UNANTICIPATED EQUIPMENT OPERATION**

Do not use damaged products or accessories.

Failure to follow these instructions will result in death or serious injury.

Contact your local Schneider Electric sales office if you detect any damage whatsoever.

This equipment has been designed to operate outside of any hazardous location. Only install this equipment in zones known to be free of a hazardous atmosphere.

⚠ DANGER**POTENTIAL FOR EXPLOSION**

Install and use this equipment in non-hazardous locations only.

Failure to follow these instructions will result in death or serious injury.

Your application consists of a whole range of different interrelated mechanical, electrical, and electronic components, the device being just one part of the application. The device by itself is neither intended to nor capable of providing the entire functionality to meet all safety-related requirements that apply to your application. Depending on the application and the corresponding risk assessment to be conducted by you, a whole variety of additional equipment is required such as, but not limited to, external encoders, external brakes, external monitoring devices, guards, etc.

As a designer/manufacturer of machines, you must be familiar with and observe all standards that apply to your machine. You must conduct a risk assessment and determine the appropriate Performance Level (PL) and/or Safety Integrity Level (SIL) and design and build your machine in compliance with all applicable standards. In doing so, you must consider the interrelation of all components of the machine. In addition, you must provide instructions for use that enable the user of your machine to perform any type of work on and with the machine such as operation and maintenance in a safe manner.

The present document assumes that you are fully aware of all normative standards and requirements that apply to your application. Since the device cannot provide all safety-related functionality for your entire application, you must ensure that the required Performance Level and/or Safety Integrity Level is reached by installing all necessary additional equipment.

WARNING

INSUFFICIENT PERFORMANCE LEVEL/SAFETY INTEGRITY LEVEL AND/OR UNINTENDED EQUIPMENT OPERATION

- Conduct a risk assessment according to EN ISO 12100 and all other standards that apply to your application.
- Use redundant components and/or control paths for all critical control functions identified in your risk assessment.
- Implement all monitoring functions required to avoid any type of hazard identified in your risk assessment, for example, slipping or falling loads.
- Verify that the service life of all individual components used in your application is sufficient for the intended service life of your overall application.
- Perform extensive commissioning tests for all potential error situations to verify the effectiveness of the safety-related functions and monitoring functions implemented, for example, but not limited to, speed monitoring by means of encoders, short circuit monitoring for all connected equipment, correct operation of brakes and guards.
- Perform extensive commissioning tests for all potential error situations to verify that the load can be brought to a safe stop under all conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Product may perform unexpected movements because of incorrect wiring, incorrect settings, incorrect data or other errors.

WARNING

UNANTICIPATED EQUIPMENT OPERATION

- Carefully install the wiring in accordance with the EMC requirements.
- Do not operate the product with unknown or unsuitable settings or data.
- Perform a comprehensive commissioning test.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop, overtravel stop, power outage and restart.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.
- Observe all accident prevention regulations and local safety guidelines (1).
- Each implementation of the product must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(1) For USA: Additional information, refer to NEMA ICS 1.1 (latest edition), Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control and to NEMA ICS 7.1 (latest edition), Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems.

Machines, controllers, and related equipment are usually integrated into networks. Unauthorized persons and malware may gain access to the machine as well as to other devices on the network/fieldbus of the machine and connected networks via insufficiently secure access to software and networks.

⚠ WARNING

UNAUTHORIZED ACCESS TO THE MACHINE VIA SOFTWARE AND NETWORKS

- In your hazard and risk analysis, consider all hazards that result from access to and operation on the network/fieldbus and develop an appropriate cyber security concept.
- Verify that the hardware infrastructure and the software infrastructure into which the machine is integrated as well as all organizational measures and rules covering access to this infrastructure consider the results of the hazard and risk analysis and are implemented according to best practices and standards covering IT security and cyber security (such as: ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security, SE recommended Cybersecurity Best Practices*).
- Verify the effectiveness of your IT security and cyber security systems using appropriate, proven methods.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(*) : SE Recommended Cybersecurity Best Practices can be downloaded on [SE.com](https://www.se.com).

⚠ WARNING**LOSS OF CONTROL**

Perform a comprehensive commissioning test to verify that communication monitoring properly detects communication interruptions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE**DESTRUCTION DUE TO INCORRECT MAINS VOLTAGE**

Before switching on and configuring the product, verify that it is approved for the mains voltage.

Failure to follow these instructions can result in equipment damage.

About the Book

Document Scope

The purpose of this document is to:

- show you the different menus, modes, and parameters based on HMI Panel with restricted access,
- show you the different menus, modes, and parameters based on DTM with restricted access,
- show you the different functions and parameters displayed ,
- show you how to set functions and parameters,
- help you in maintenance and diagnostics.

Validity Note

This documentation is valid for the Altivar Process ATV6000 drives drives.

The characteristics of the products described in this document are intended to match the characteristics that are available on www.se.com. As part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on www.se.com, consider www.se.com to contain the latest information.

Step	Action
1	Go to the Schneider Electric home page www.se.com .
2	In the Search box type the reference of the product or the name of a product range. <ul style="list-style-type: none">• Do not include blank spaces in the reference or product range.• To get information on grouping similar modules, use asterisks (*).
3	If you entered a reference, go to the Product Datasheets search results and click on the reference that interests you. If you entered the name of a product range, go to the Product Ranges search results and click on the product range that interests you.
4	If more than one reference appears in the Products search results, click on the reference that interests you.
5	Depending on the size of your screen, you may need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click Download XXX product datasheet .

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Related Documents

Use your tablet or your PC to quickly access detailed and comprehensive information on all our products on www.se.com.

The Internet site provides the information you need for products and solutions:

- The Handbook for detailed characteristics and selection guides,
- The CAD files to help design your installation,
- All software and firmware to maintain your installation up to date,
- Additional documents for better understanding of drive systems and applications
- And finally all the User Guides related to your drive, listed below:

Title of Documentation	Reference number
Altivar Process range brochure	998-20307132 (English)
Recommended Cybersecurity Best Practices	CS-Best-Practices-2019-340 (English)
ATV6000 Handbook	QGH83255 (English), PHA51119 (French), PHA51121 (German), PHA51120 (Spanish), GDE94089 (Italian), PHA51122 (Russian), PHA51118 (Chinese)
ATV6000 Installation Manual	QGH83258 (English), QGH83259 (French), QGH83261 (German), QGH83260 (Spanish), GDE94087 (Italian), QGH83257 (Chinese)
ATV6000 Programming Manual for Operator and Advanced Operator	QGH83265 (English), QGH83266 (French), QGH83268 (German), QGH83267 (Spanish), GDE94088 (Italian)
ATV6000 Embedded Safety Function Manual	BQT43422 (English)
ATV6000 Communication Parameters	MFR82761 (English)
ATV6000 Embedded Ethernet Manual	PHA30472 (English)
ATV6000 Modbus SL Manual	MFR24213 (English)
ATV6000 PROFIBUS Manual	PHA30474 (English)
ATV6000 DeviceNet Manual	PHA30471 (English)
ATV6000 EtherCAT Manual	PHA30473 (English)
ATV6000 Profinet Manual - VW3A3627	PHA30475 (English)
ATV6000 Profinet Manual - VW3A3647	TME79313 (English)
ATV6000 CANopen Manual	PHA30470 (English)
SoMove: FDT	SoMove_FDT (English, French, German, Spanish, Italian, Chinese)
Altivar Process ATV6000: DTM	ATV6000 DTM Library EN (English)

You can download these technical publications and other technical information from our website at www.se.com/en/download

Terminology Used In This Document

The technical terms, terminology, and the corresponding descriptions in this manual normally use the terms or definitions in the relevant standards.

In the area of drive systems this includes, but is not limited to, terms such as **error**, **error message**, **failure**, **fault**, **fault reset**, **protection**, **safe state**, **safety function**, **warning**, **warning message**, and so on.

This terminology is used and defined, among others, in these following standards:

- IEC 61800 series: Adjustable speed electrical power drive systems
- IEC 61508 Ed.2 series: Functional safety of electrical/electronic/programmable electronic safety-related
- EN 954-1 Safety of machinery - safety-related parts of control systems
- ISO 13849-1 & 2 Safety of machinery - safety related parts of control systems
- IEC 61158 series: Industrial communication networks - Fieldbus specifications
- IEC 61784 series: Industrial communication networks - Profiles
- IEC 60204-1: Safety of machinery - Electrical equipment of machines – Part 1: General requirements

In addition, the term **zone of operation** is used in conjunction with the description of specific hazards, and is defined as it is for a **hazard zone** or **danger zone** in the EC Machinery Directive (2006/42/EC) and in ISO 12100-1.

Contact Us

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Introduction

What's in This Part

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Application Functions

ATV6000 is designed to fit a variety of applications in different segments. The following list shows some typical applications which are possible to be operated by ATV6000.

The functions in the tables below relate to the following applications:

- Mining, Mineral, and Metal (MMM):
 - Long-distance conveyor
 - Slurry pump
 - SAG/ball mill
 - HPGR
 - ID/FD fans
- Water and Wastewater:
 - Raw water pump
 - Lifting station
 - Blower/compressor
 - Booster pump
 - High-pressure pumps
- Oil & Gas:
 - ESP
 - Crude oil transfer pump
 - Pipeline compressor
 - ID/FD fans
 - FPSO
 - Mixer
- Power plants:
 - Feed water pump
 - ID/FD fans
 - Coal mill
 - Cooling water circulation pump
 - Fuel gas compressor

Each application has its own special features, which will be set during commissioning.

⚠ WARNING

UNANTICIPATED EQUIPMENT OPERATION

Multiple functions can be assigned to and simultaneously activated via a single input.

- Verify that assigning multiple functions to a single input does not result in unsafe conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

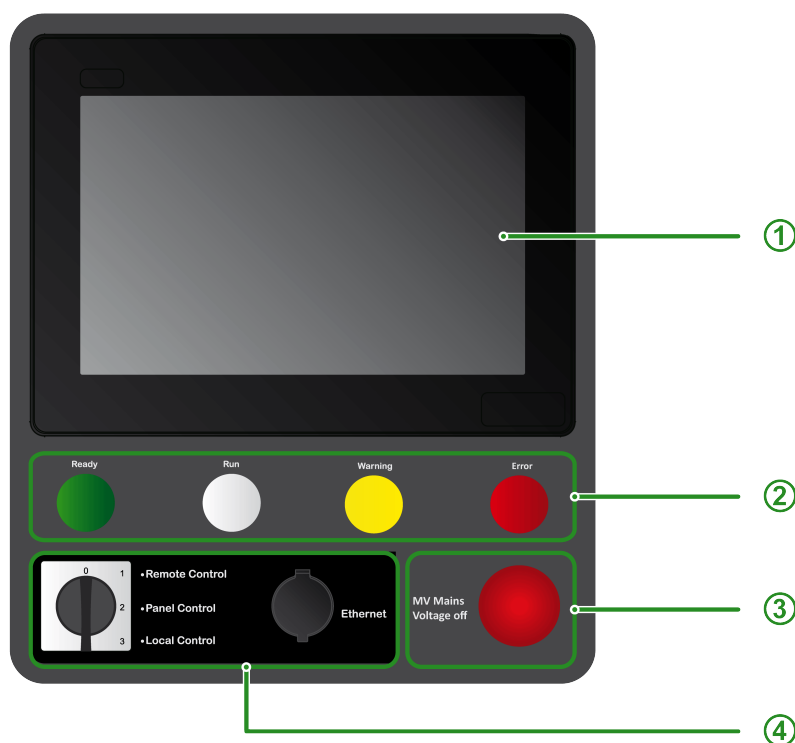
Interface

Introduction

Functions and parameters described in this document are based on the ATV6000 HMI and ATV6000 DTM for operator and advanced operator.

HMI Panel

The HMI Panel is a local control unit which is mounted on the front door of the product. The HMI Panel embeds a real time clock used for the time stamping of logged data and all other functions which require time information.



The HMI Panel is divided into 4 zones

Number	Description
1	Interface display: 10" Touch advanced display
2	Drive status pilots light: <ul style="list-style-type: none"> • Ready: Indicates that the drive is not running, ready to start. • Run: Indicates that the drive is running. • Warning: Indicates a drive detected warning. • Error: Indicates a drive detected error.
3	MV Mains Voltage Off: Pushing the button will disable the output and open the user's MV switch.
4	Front HMI options: <ul style="list-style-type: none"> • Local/Remote/Panel Switch: Used to switch between local, remote and panel control of the drive. See <i>Command Status</i>, page 280 Menu. • Ethernet Socket: RJ45 port for Ethernet IP or Modbus TCP. Allows access to the frequency inverter without opening the enclosure door, the plug must be covered by the dust protection cap when the port is not used.

NOTE: In this manual, the terms HMI Panel and Graphic display terminal can be used interchangeably when referring to the HMI Magelis terminal.

SoMove Software

The use of SoMove FDT and Altivar DTM is required to perform the actions described in this Manual.

Use the links below to download these files:

File	Links
SoMove: FDT	SoMove_FDT (English, French, German, Spanish, Italian, Chinese)
Altivar Process ATV6000: DTM	ATV6000 DTM Library EN (English)

NOTE: The working space description is available and described on ATV6000 DTM.

Structure of the Parameter Table

General Legend for DTM

Pictogram	Description
★	These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and adjusted from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.
()	Setting of this parameter can be done during operation or when stopped. NOTE: It is advisable to stop the motor before modifying any of the settings.
⌚	To modify the assignment of the parameter, reinforced validation is required.

Parameter Presentation for DTM and HMI Panel

Below is an example of a parameter presentation:

[Sample Menu] CODE– Menu

Access

Parameters described below can be accessed by:

[Path] ➡ [Sub-path]

About This Menu

Description of the menu or function

[Short Label for Parameter 1] CODE1

Long Label for parameter 1

Description of the parameter

Example of a table with a setting range:

Setting ()	Description
0.0... 10,000.0	Setting range Factory setting: 50.0

Example of a table with a value range (For display parameters):

Value range	Description
0.0... 10,000.0	Factory setting: _

[Short Label for Parameter 2] CODE2

Long Label for parameter 2

Description of the parameter

Example of a table with a list of choices:

Setting ()	Code / Value	Description
[50 Hz IEC]	50	IEC Factory setting
[60 Hz NEMA]	60	NEMA

Example of a table with a list of possible value (For display parameters):

Value range	Code / Value	Description
[50 Hz IEC]	50	IEC
[60 Hz NEMA]	60	NEMA

Finding a Parameter in This Document

With the Manual

It is possible to use either the parameter name or the parameter code to search in the manual the page giving details about the selected parameter.

Difference Between Menu and Parameter

A dash after menu and submenu codes is used to differentiate menu commands from parameter codes.

Example:

Level	Name	Code
Menu	[Ramp]	<i>r R P P -</i>
Parameter	[Acceleration]	<i>R L L</i>

NOTE: The code shown in this manual, is used to be consistent with the Altivar process platform, it is also more convenient for multi languages support.

Cyber Security

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Overview

The objective of Cybersecurity is to help provide increased levels of protection for information and physical assets from theft, corruption, misuse, or accidents while maintaining access for their intended users.

No single Cybersecurity approach is adequate. Schneider Electric recommends a defense-in-depth approach. Conceived by the National Security Agency (NSA), this approach layers the network with security features, appliances, and processes.

The basic components of this approach are:

- Risk assessment
- A security plan built on the results of the risk assessment
- A multi-phase training campaign
- Physical separation of the industrial networks from enterprise networks using a demilitarized zone (DMZ) and the use of firewalls and routing to establish other security zones
- System access control
- Device hardening
- Network monitoring and maintenance


This chapter defines the elements that help you configure a system that is less susceptible to cyber-attacks.

Network administrators, system integrators and personnel that commission, maintain or dispose of a device should:

- Apply and maintain the device's security capabilities. See Device Security Capabilities sub-chapter for details
- Review assumptions about protected environments. See Protected Environment Assumptions sub-chapter for details
- Address potential risks and mitigation strategies. See Product Defense-in-Depth sub-chapter for details
- Follow recommendations to optimize cybersecurity

For detailed information on the system defense-in-depth approach, refer to the TVDA: How Can I Reduce Vulnerability to Cyber Attacks in the Control Room (STN V2) on se.com.

To submit a Cybersecurity question, report security issues, or get the latest news from Schneider Electric, visit the [Schneider Electric website](#).

 **WARNING**


POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Change default password to help prevent unauthorized access to device settings and information.
- Disable unused ports/services and default accounts, where possible, to minimize pathways for malicious attacks.
- Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection).
- Use cybersecurity best practices (for example: least rights, separation of duties) to help prevent unauthorized exposure, loss or modification of data and logs, interruption of services, or unintended operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Protected Environment Assumptions

Machines, controllers, and related equipment are usually integrated into networks. Unauthorized persons and malware may gain access to the machine as well as to other devices on the network/fieldbus of the machine and connected networks via insufficiently secure access to software and networks.

 **WARNING**

UNAUTHORIZED ACCESS TO THE MACHINE VIA SOFTWARE AND NETWORKS

- In your hazard and risk analysis, consider all hazards that result from access to and operation on the network/fieldbus and develop an appropriate cyber security concept.
- Verify that the hardware infrastructure and the software infrastructure into which the machine is integrated as well as all organizational measures and rules covering access to this infrastructure consider the results of the hazard and risk analysis and are implemented according to best practices and standards covering IT security and cyber security (such as: ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/ IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security, SE recommended Cybersecurity Best Practices*).
- Verify the effectiveness of your IT security and cyber security systems using appropriate, proven methods.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(*) : SE Recommended Cybersecurity Best Practices can be downloaded on [SE.com](#).

Before considering cybersecurity practices on the device, please pay attention to following points:

- Cybersecurity governance – available and up-to-date guidance on governing the use of information and technology assets in your company.
- Perimeter security – installed devices, and devices that are not in service, are in an access-controlled or monitored location.

- Emergency power – the control system provides the capability to switch to and from an emergency power supply without affecting the existing security state or a documented degraded mode.
- Firmware upgrades – the ATV6000 upgrades are implemented consistently to the current version of firmware available on request from Schneider Electric Customer Care Center.
- Controls against malware – detection, prevention, and recovery controls to help protect against malware are implemented and combined with appropriate user awareness.
- Physical network segmentation – the control system provides the capability to:
 - Physically segment control system networks from non-control system networks.
 - Physically segment critical control system networks from non-critical control system networks.
- Logical isolation of critical networks – the control system provides the capability to logically and physically isolate critical control system networks from non-critical control system networks. For example, using VLANs.
- Independence from non-control system networks – the control system provides network services to control system networks, critical or non-critical, without a connection to non-control system networks.
- Encrypt protocol transmissions over all external connections using an encrypted tunnel, TLS wrapper or a similar solution.
- Zone boundary protection – the control system provides the capability to:
 - Manage connections through managed interfaces consisting of appropriate boundary protection devices, such as: proxies, gateways, routers, firewalls, and encrypted tunnels.
 - Use an effective architecture, for example, firewalls protecting application gateways residing in a DMZ.
 - Control system boundary protections at any designated alternate processing sites should provide the same levels of protection as that of the primary site, for example, data centers.
- No public internet connectivity – access from the control system to the internet is not recommended. If a remote site connection is needed, for example, encrypt protocol transmissions.
- Resource availability and redundancy – ability to break the connections between different network segments or use duplicate devices in response to an incident.
- Manage communication loads – the control system provides the capability to manage communication loads to mitigate the effects of information flooding types of DoS (Denial of Service) events.
- Control system backup – available and up-to-date backups for recovery from a control system failure

Security Policy

⚠ WARNING

ACCESSIBILITY LOSS

- Setup a security policy to your device and backup the device image with security administrator user account.
- Define and regularly review the password policy.
- Periodic change of the passwords, Schneider Electric recommends a modification of the password each 90 days.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Cybersecurity helps to provide:

- Confidentiality (to help prevent unauthorized access)
- Integrity (to help prevent unauthorized modification)
- Availability/authentication (preventing the denial of service and assuring authorized access)
- Non-repudiation (preventing the denial of an action that took place)
- Traceability/detection (logging and monitoring)

For an efficient security, the instructions and procedures should structure the roles and responsibilities in terms of security within the organization, in other words, who is authorized to perform what and when? These should be known by the users.

The anti-intrusion and anti-physical access to any sensitive installation should be set up.

All the security rules implemented in the ATV6000 are in complement of the points above.

The device does not have the capability to transmit data encrypted using the following protocols: HTTP, Modbus slave over serial, Modbus slave over Ethernet, EtherNet/IP, SNMP, SNTP. If other users gained access to your network, transmitted information can be disclosed or subject to tampering.

⚠ WARNING

CYBERSECURITY HAZARD

- For transmitting data over an internal network, physically or logically segment the network, the access to the internal network needs to be restricted by using standard controls such as firewalls.
- For transmitting data over an external network, encrypt protocol transmissions over all external connections using an encrypted tunnel, TLS wrapper or a similar solution.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The access through the digital inputs is not controlled.

Any computer using SoMove, DTM, Webserver or EcoStruxure Control Expert should have an updated anti-virus, anti-malware, anti-ransomware application activated during the use.

The ATV6000 have the capability to export its settings and files manually or automatically. It is recommended to archive any settings and files (device backup images, device configuration, device security policies) in a secure area.

Product Defense-in-Depth

Use a layered network approach with multiple security and defense controls in your IT and control system to minimize data protection gaps, reduce single-points of failure and create a strong cybersecurity posture. The more layers of security in your network, the harder it is to breach defenses, take digital assets or cause disruption.

Device Security Capabilities

ATV6000 offers the following security features (available with Ethernet connection):

Threats	Desired security property on Embedded Device	security features
Information disclosure	Confidentiality	Password encrypted in a non-reversible way
		User access control
Denial of Service	Availability	Device backup/restore
		Achilles Level 2
Spoofing/Elevation of privilege	User Authenticity / Authorization	Strong password policy
		Access control commissioning tools Modbus TCP
		Access control commissioning tools Web Server

Confidentiality

Information confidentiality capacity prevents unauthorized access to the device and information disclosure.

- The user access control helps on managing users that are authorized to access the device. Protect user credential at usage.
- The user's passwords are encrypted in non-reversible way at rest

Information affecting the security policy of the device is encrypted in transit.

Device Integrity Protection

The device integrity protection prevents unauthorized modification of the device with tampered or spoofed information.

This security capability helps protect the authenticity and integrity of the firmware running on the ATV6000 and facilitates protected file transfer: digitally signed firmware is used to help protect the authenticity of the firmware running on the ATV6000 and only allows firmware generated and signed by Schneider Electric.

- Cryptographic signature of the firmware package executed at the firmware update

Availability

The control system backup is essential for recovery from a control system failure and/or misconfiguration and participate on preventing denial of service. It also helps ensure global availability of the device by reducing operator overhead on security application/deployment.

These security capabilities help manage control system backup with the device:

- Complete device backup/restore available on local HMI, DTM and FDR. Regarding the communication robustness, the ATV6000 embedded Ethernet fieldbus successfully passed the certification Achilles L2.

User Authenticity and Authorization

The user authentication helps prevent the repudiation issue by managing user identification and prevents information disclosure and device integrity issues by unauthorized users.

These security capabilities help enforce authorizations assigned to users, segregation of duties and least rights:

- User authentication is used to identify and authenticate software processes and devices managing accounts
- Device Password policy and password strength configurable using SoMove, DTM or EcoStruxure Control Expert
- Authorization managed according to channels

In line with user authentication and authorization, the device has access control cryptographic features to check user credential before access is granted to the system.

In the ATV6000, the control of accessibility to the settings, parameters, configuration, and logging database is done with a user authentication after "Log in", with a name and password.

The ATV6000 controls the access through:

- SoMove DTM (Ethernet connection)
- EcoStruxure Control Expert

Potential Risks and Compensating Controls

Address potential risks using these compensating controls:

Area	Issue	Risk	Compensating controls
User accounts.	Default account settings are often the source of unauthorized access by malicious users.	If you do not change default password or disable the user access control, unauthorized access can occur.	Ensure User access control is enabled on all the communication ports and change the default passwords to help reduce unauthorized access to your device.
Secure protocols.	Modbus serial, Modbus TCP, EtherNet/IP, PROFINET, SNMP, SNTP, HTTP protocols are insecure. The device does not have the capability to transmit data encrypted using these protocols.	If a malicious user gained access to your network, they could intercept communication.	For transmitting data over internal network, physically or logically segment your network. For transmitting data over external network, encrypt protocol transmissions over all external connections using an encrypted tunnel, TLS wrapper or a similar solution. See Protected Environment Assumptions, page 26.

Data Flow Restriction

A firewall device is required to secure the access to the device and limit the data flow.

For detailed information, refer to the TVDA: How can I Reduce Vulnerability to Cyber Attacks.

Cyber Attacks in the Control Room (STN V2) on the Schneider Electric website.

Password

Changing Password

The user password can be changed from the DTM Admin options screen.

Reset Password

User and password are stored during commissioning, before reset password, contact your local Schneider representative.

If user forgets or has lost the user authentication password, user can restore the default password regarding his access level control .

- Standard Level access: contact your local Schneider representative
- Expert Level access: reset password using HMI Panel

Using HMI panel:

Go to the menu **Settings > My Preferences > Communication** and push the Reset button to reset the embedded Ethernet password.

NOTE: Upon first use, the commissioning tools and webserver requests the user to change this password prior to connecting. The cybersecurity policy does not change when the password is reset.

NOTE: When password is reset, the old password saved during commissioning (and also available at your Local Schneider Electric Representative) does not work anymore.

Password Policy

By default, the password policy of the ATV6000 complies with IEEE 1686–2013 as following:

- 8 characters minimum with ASCII [32 to 122] characters
- At least one digit (0-9)
- At least one special character (for example @, \$)

In addition, for password changes, the password history is saved and help prevent the reuse of a password that has been set at least once in the last 5 times.

The password policy can be customized or totally disabled to match with password policy in place in the system of which the device is part.

The following settings are available:

- Password policy: enabled/disabled. If disabled, a password is requested as authentication factor but there is no specific rule defined regarding the password robustness
- Password history: No restriction, Exclude last 3, Exclude last 5
- Special character required: YES/NO
- Numeric character required: YES/NO
- Alphabetic character required: YES/NO
- Minimum password length: any value between 6 and 20

This password policy customization can only be done with SoMove, DTM or EcoStruxure Control Expert. Please refer to DTM online help for details.

NOTE: The HMI password requirements do not follow the password policy defined above.

Upgrades Management

When the ATV6000 firmware is upgraded, security configuration remains the same until changed, including usernames and passwords.

It is recommended that security configuration is reviewed after an upgrade to analyze rights for new or changed device features and revoke or apply them according to your company's policies and standards.

Access Level Control

What's in This Chapter

Access Level Control on HMI	33
Access Level Control on DTM	33

Programming manual show you the different menus and parameters related to the HMI Panel and DTM. Each menu has an access Level, this access level is password protected and defined during the commissioning.

Access Level Control on HMI

Overview

Operator, advanced operator and expert users are allowed to use HMI panel and related functions.

For more details regarding access level refer to **[User Login]** Menu, page 311

NOTE: Only the Commissioning Engineers certified by Schneider Electric are allowed to perform commissioning action.

Access Level Control on DTM

Overview

There are Three types of Access levels:

- Standard Level access
- Expert Level access
- Services Level access

NOTE: Standard Level and Expert Level does not have access to Commissioning Engineer/Service Engineer specific parameters.

NOTE: Only the Commissioning Engineers certified by Schneider Electric are allowed to perform commissioning action.

NOTE: Refer to DTM Online Help for more details.

Standard Level Access

The Standard Level access provides restricted access to the DTM. You have the Read-only access to the tabs and drive-functionalities, predefined for Standard Level Access.

Expert level Access

Expert level access allows you to configure the drive and access device related functions. Only a user, certified by Schneider Electric or a Support Engineer are provided Expert Level access.

Service level Access

Service Engineer, commissioning Engineer responsible to commission, configure and set the drive regarding user requirements.

Description of the Main HMI Screens

What's in This Part

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Toolbars and Status Bar	39
Home Menu Panel	44
Display Menu Panel	79
Diagnostic Menu Panel	81
Settings Menu Panel	83

Working Area

What's in This Chapter

Before you begin 37

Working Space Description 38

Before you begin

Before Powering up the Drive

⚠ WARNING

UNANTICIPATED EQUIPMENT OPERATION

Before switching on the device, verify that no unintended signals can be applied to the digital inputs that could cause unintended movements.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

General Information

Drive systems may perform unexpected movements because of incorrect wiring, incorrect settings, incorrect data or other errors.

⚠ WARNING

UNANTICIPATED EQUIPMENT OPERATION

- Only appropriately trained persons who are familiar with and understand the contents of all pertinent product documentation and who have received safety training to recognize and avoid hazards involved are authorized to work on and with this drive system.
- Only use this software for setup and commissioning tasks and to display status information.
- Verify that other applications on your computer such as, but not limited to, screensavers, cannot interfere with the proper operation of this software.
- Verify that an integrated and functioning emergency stop push-button is within reach.
- Verify that all parameter settings are suitable for the application.
- Do not operate the product with unknown and unsuitable settings or data.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

User Log-in

Click on **Settings > My preferences** tab, then select the user type and the password:

- Basic users
- Expert users
- Services expert users

Parameter	Label	Value
User	Login / Username	<input type="text"/>
Password	Password	<input type="password"/>
		<input type="button" value="Login"/>

You can login to the system to set the corresponding parameters , page 311.

Note: These access levels are defined during the commissioning.

Working Space Description



The main works area is divided into 3 main zones:

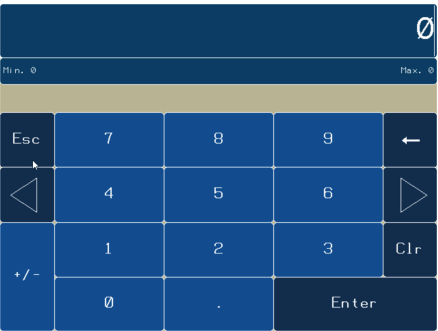
- 1. A **Status bar** at the top
For details, refer to **Status Bar**, page 40.
- 2. **Screens area**
For details, refer to:
 - **Home Panel**, page 44
 - **Display Panel**, page 79
 - **Diagnostics Panel**, page 81
 - **Settings Panel**, page 83
- 3. A **Toolbar** at the bottom of the working area.
For details, refer to **Toolbar**, page 42.

General current information

A	Display the current Menu Path Display the current User profile , page 311. Display the actual date and times , page 310.
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Keyboard

The keyboard is available on various dialogs and screens by pressing the touch Screen.
(Numeric or Alphanumeric Keyboard)



Toolbars and Status Bar

What's in This Chapter

Status Bar.....	40
Toolbar	42

Status Bar

Description



The status bar, located at the top of the working area, is divided in 6 zones:

Items	Description
①	Indicates the drive status: <ul style="list-style-type: none"> TUN: Autotuning RDY: Drive Ready NST: Freewheel stop control RUN: Motor in steady state ACC: Acceleration ... For more status and details, see [Device State] HMIS , page 98
②	Indicates whether the motor is stopped or running.
③	Indicates your actual configurable values: <ul style="list-style-type: none"> Motor frequency Motor current ... NOTE: Note: Can be customized from predefined elements, page 46.
④	Indicates your drive part number
⑤	Indicates your application name. For more details , page 310
⑥	Click on the Schneider-Electric Logo opens "About" page with: <ul style="list-style-type: none"> Languages selection QR code

Color of Status Bar

Displays color bar during operating by customer.

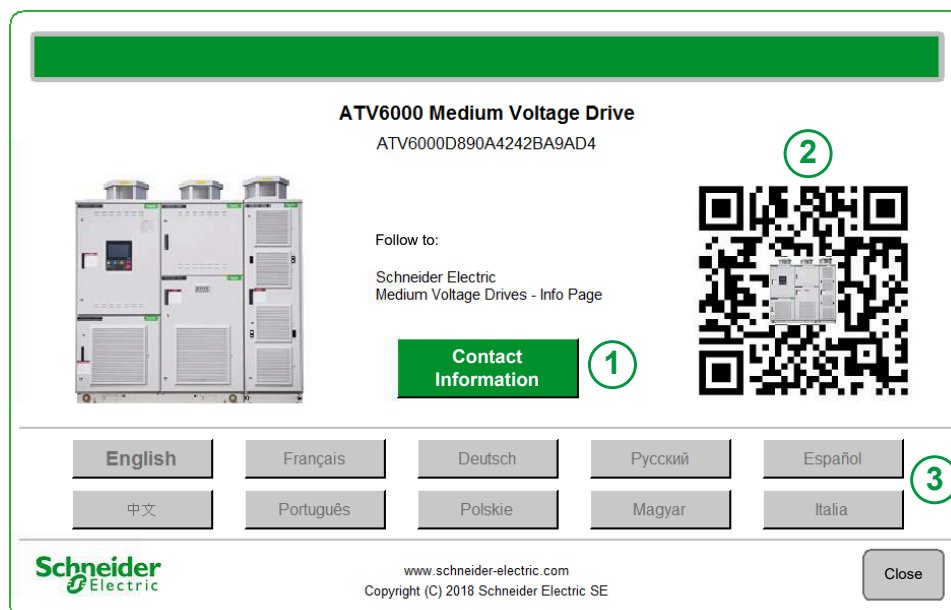
State	Description
No error detected	<ul style="list-style-type: none"> A green banner is displayed.
Error detected	<ul style="list-style-type: none"> A red banner is displayed to indicate a detected error.
Internal Communication interruption	<ul style="list-style-type: none"> An orange banner is displayed over the header to indicate an internal communication interruption between HMI and Master Controller (Modbus SL Internal / Ethernet Internal).

Displays color bar with simulation mode activate during commissioning

State	Description
In Simulation and no error detected.	<ul style="list-style-type: none"> In simulation mode (and no error in master controller) green banner is replaced by a dedicated blue banner.

“About” Menu

Click on the Schneider logo opens this Menu. It allows user to select HMI languages and QR Code for extended information.

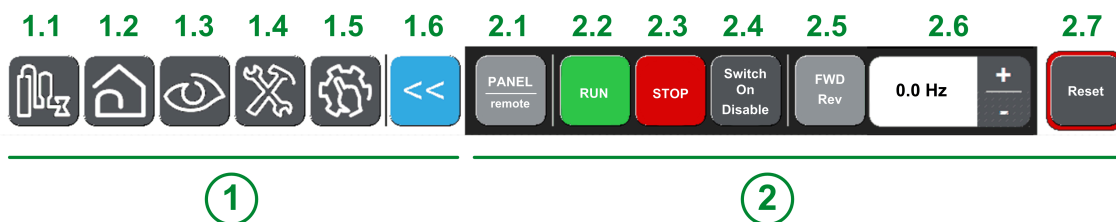


Items	Description
①	<ul style="list-style-type: none"> Contact information: By pushing the respective button, the contact information panel opens. NOTE: The contact information message is managed by service team during the commissioning .
②	<ul style="list-style-type: none"> QR Code Scan of this QR code brings to a landing page on Internet with the information on: <ul style="list-style-type: none"> General Characteristics of the product. Presentation Connections and Schema Diagnostics (all error codes)
③	<ul style="list-style-type: none"> Languages selection: By pushing the respective button, HMI language is changed accordingly.
④	<ul style="list-style-type: none"> Tech: By pushing the respective button, all labels are replaced by technical label/Code. (For service only)

Toolbar

Description

This first bar, located at the bottom of the working area, can be used to access the device-specific Menu and functions. This bar is divided in 2 zones:



①

②

① Navigation area: Allow the user to navigate among the main pages.

Items	Description
1.1	Application: used to access directly the application page. Dedicated for your application, this panel is only available if customized applications are programmed. It is managed during commissioning.
1.2	Home: used to access directly the home page. For details, refer to Home , page 44 Tab.
1.3	Display: used to access directly the display page. For details, refer to Display , page 79 Tab.
1.4	Diagnostics: used to access directly the diagnostics page. For details, refer to Diagnostics , page 81 Tab.
1.5	Settings: used to access directly the settings page. For details, refer to Settings , page 83 Tab.
1.6	Back: used to quit a menu/parameter or remove the currently displayed value. Used to go back to the previous Screen.

② Control/Command Panel: Allows the user to control/command the motor.

Items	Description
2.1	Panel/Remote: used to switch between local and remote control of the drive. (Optional, for more details see Command Status , page 280 Menu.) Panel: Control system drive receives inputs via HMI Panel. Remote: Control system drive receives start/stop inputs via IO or fieldbus.
2.2	Run: run command.
2.3	Stop: stop command.
2.4	Switch On Disable/Switch On Disabled: used to stop the motor in freewheel. The stop command is sent when the button is pressed, the drive locks into NST, until the button is pressed again. When the button is released, a new Run order is needed to start the motor. NOTE: This button is only available if [Stop Key Enable] PST is set to [Stop Key Priority] YES . (Settings managed during commissioning). NOTE: The stop command is sent when the button is pressed, the drive Locks into NST, until the button is pressed again. If the input returns to state 1 and the run command is still active, the motor only restarts if [2/3-Wire Control] TCC is set to [2-Wire Control] 2C and if [2-wire type] TCT is set to [Level] LEL or [Level With Fwd Priority] PFO . If not, a new run command must be sent.
2.5	Forward/Reverse: used to reverse the direction of the motor.

Items	Description
	Active if [Reverse Disable] RIN is set to [No] NO . (Settings managed during commissioning).
2.6	Button "+" and "-" with scaling to 0.1 or 1 Hz
2.7	Reset: apply a Fault Reset. NOTE: Fault Reset mode is always active regardless of which Command channel has been selected.
NOTE: Depending on operating condition and settings, some buttons can be unavailable.	

The button Reset available on the HMI Panel applied a Fault Reset on the drive whatever the active control mode selected with the Local/Remote/Panel switch or with the Panel/Remote button available on the HMI panel. Depending on the wiring and the configuration of the drive, this may result in immediate and unanticipated operation.

⚠ WARNING
UNANTICIPATED EQUIPMENT OPERATION Verify that using the button Reset cannot result in unsafe conditions. Failure to follow these instructions can result in death, serious injury, or equipment damage.

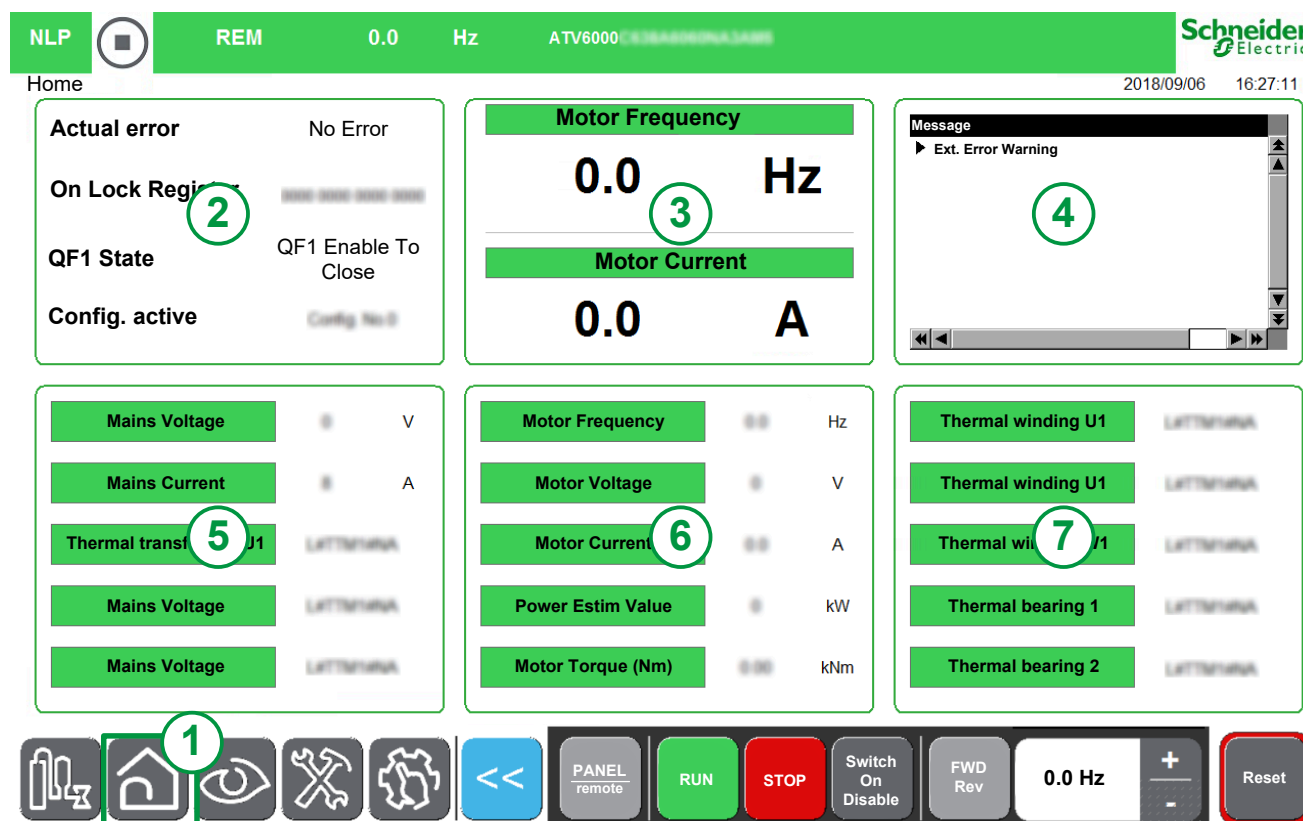
Home Menu Panel

What's in This Chapter

- Overview 45
- [Mains Data] Menu 49
- [Power Stage data] Menu 52
- [Motor Parameters] Menu 55
- [Motor thermal data] Menu 59
- [Drive Parameters] Menu 62
- [Thermal System] Menu 66
- [Bypass Drive] Menu 70
- [Bypass PoC] Menu 74
- [PID Display] Menu 75
- [Pump Display] Menu 76
- [Analog Input Function] Menu 77
- [UPS Data] Menu 78

Overview

Description



The **Home page** area is divided into 7 zones:

Items	Description
1	Actual position (Home Page)
2, 3	Displays the real-time value of the selected parameters (bigger size), allowing you to monitor the aspects of your system operation. ⁽¹⁾
4	Displays all active warnings, error codes, Onlock and freewheel status.
5, 6, 7	Displays the real-time value of the selected parameters (lower size), allowing you to monitor the aspects of your system operation. ⁽¹⁾

NOTE: (1) These parameters can be customized from predefined elements (see procedure below).

Display Customized Monitoring Parameters

The following table details the procedure to add or change Elements to this Home page:

Step	Action
1	Click on the actual element to be changed. Result: New page is opened with all Elements available.
2	Select the new element needed. Result: Home page is updated with your Element.

Selectable List of Elements.

This table describes the predefined list which could be used to select actual values to be displayed.

Menu	Code	Label	Units
[Mains Data], page 49	ULN	[Mains Voltage]	V
	UL1	[Mains voltage phase 1-2]	V
	UL2	[Mains voltage phase 2-3]	V
	UL3	[Mains voltage phase 3-1]	V
	ILN	[Mains Current]	A
	IL1	[Mains Current L1]	A
	IL2	[Mains Current L2]	A
	IL3	[Mains Current L3]	A
	GIVD	[Input Ground Value]	%
	UMV	[Mains Unbalance Ratio]	%
	ISRW	[Apparent Input Power]	kW
	IPRW	[Active Input Power]	kW
	IQRW	[Input Reactive Power]	kW
	PWF	[Input Power Factor]	%
	FAC	[Mains Frequency]	Hz
[Power stage Data], page 52	TT1M	[Transfo Cab Temp 1]	°C
	TP1U	[Thermal transformer U1]	°C
	TP1V	[Thermal transformer V1]	°C
	TP1W	[Thermal transformer W1]	°C
	TT2M	[Transfo Cab Temp 2]	°C
	TP2U	[Thermal transformer U2]	°C
	TP2V	[Thermal transformer V2]	°C
	TP2W	[Thermal transformer W2]	°C
[Motor Parameters], page 55	RFR	[Motor Frequency]	Hz
	FRH	[Pre-Ramp Ref Freq]	Hz
	FRO	[Frequency Reference After Ramp]	-
	SPD1	[Signed Mech Speed]	-
	SPDM	[Motor Mechanical speed]	rpm
	UOP	[Motor voltage]	V
	LCR	[Motor Current]	A
	GOVD	[Output Ground Value]	%
	EPR	[Acv Elc Out Pwr in %]	%
	EPRW	[Acv Elc Out Pwr in kW]	kW
	OPR	[Mot Mech Power in %]	%
	OPRW	[Power Estim Value]	kW
	OTR	[Motor torque]	%
	OTQN	[Motor Torque (Nm)]	Nm
	TRR	[Torque reference]	%

Menu	Code	Label	Units
	EXCR	[Excitation Current Ref]	A
[Motor Thermal data], page 59	THM1	[Thermal winding U1]	°C
	THM2	[Thermal winding V1]	°C
	THM3	[Thermal winding W1]	°C
	THM5	[Thermal winding U2]	°C
	THM6	[Thermal winding V2]	°C
	THM7	[Thermal winding W2]	°C
	THM4	[Thermal bearing 1]	°C
	THM8	[Thermal bearing 2]	°C
[Drive Parameters], page 62	LFRA	[Line Ref Frequency]	Hz
	LTRA	[Line Ref Torque]	%
	RFCC	[Ref Freq Channel]	-
	CMDC	[Command Channel]	-
	CMDS	[Cabinet Switch Status]	-
	PLO1	[On Lock Register]	Bit
	DP0	[Actual Error]	-
	CNFS	[Config. active]	-
	FCSR	[Restored Config]	-
	MVCB	[QF1 State]	-
	QF0S	[QF1 Command State]	-
	QF4S	[QF91 Command State]	-
	TLS1	[Overload State 1]	%
	TLS2	[Overload State 2]	%
	EXCS	[Excitation Cabinet Status]	-
[Thermal System], page 66	TH1V	[AI1 Th Value]	°C
	TH3V	[AI3 Th Value]	°C
	TH4V	[AI4 Th Value]	°C
	TH5V	[AI5 Th Value]	°C
	THEV	[Enc Th Value]	°C
	THM9	[Thermal Sensor 9]	°C
	THMA	[Thermal Sensor 10]	°C
	THMB	[Thermal Sensor 11]	°C
	THMC	[Thermal Sensor 12]	°C
	THMD	[Thermal Sensor 13]	°C
	THME	[Thermal Sensor 14]	°C
	THMF	[Thermal Sensor 15]	°C
	THMG	[Thermal Sensor 16]	°C
[Bypass Drive], page 70	BYS0	[Drive Bypass Status]	-
	BYS1	[Bypass Circuit Breaker Status]	-
	PLO2	[Drive Bypass On Lock Register]	-
	STMM	[SM Monitoring]	-
	STDm	[SD Monitoring]	-

Menu	Code	Label	Units
	QF1S	[QF11 Command State]	-
	QF2S	[QF2 Command State]	-
	QF3S	[QF3 Command State]	-
	QF5S	[QF5 Command State]	-
[Bypass PoC], page 74	BYPS	[Bypass PoC Status]	-
	POCR	[PoC Load Ratio]	-
[PID display], page 75	RPI	[Internal PID ref]	-
	RPC	[PID reference]	-
	RPF	[PID feedback]	-
	RPE	[PID Error]	-
	RPO	[PID Output]	-
[Pump Display], page 76	SLFV	[Est. Pump Flow]	-
	SLHV	[Est. Pump Head]	-
	EFY	[Efficiency]	%
	ECI	[Energy Cons. Ind.]	-
[Analog Input Function], page 77	AM1P	[AI Monitor 1 Process Value]	-
	AM2P	[AI Monitor 2 Process Value]	-
	AM3P	[AI Monitor 3 Process Value]	-
	AM4P	[AI Monitor 4 Process Value]	-
	AM5P	[AI Monitor 5 Process Value]	-
	AM6P	[AI Monitor 6 Process Value]	-
	AM7P	[AI Monitor 7 Process Value]	-
	AM8P	[AI Monitor 8 Process Value]	-
[UPS Data], page 78	UPSB	[UPS Battery Charge State]	%
	UPSR	[UPS Remaining Runtime]	Minutes

[Mains Data] Menu

About This Menu

This menu shows the mains-related parameters displayed from the **Home Page**, page 45.

Read-only parameters cannot be configured.

[Mains Voltage] U_{LN}

Mains voltage based on AC bus measurement, motor running or stopped.

Setting	Description
According to nominal input voltage of product.	Setting range: [No meas.] U_{LNUNK} is displayed if no value is measured. Factory setting: –

[Mains voltage phase 1-2] U_{L1}

Mains voltage phase 1-2.

Setting	Description
According to nominal input voltage of product.	Setting range Factory setting: –

[Mains voltage phase 2-3] U_{L2}

Mains voltage phase 2-3.

Setting	Description
According to nominal input voltage of product.	Setting range Factory setting: –

[Mains voltage phase 3-1] U_{L3}

Mains voltage phase 3-1.

Setting	Description
According to nominal input voltage of product.	Setting range Factory setting: –

[Mains Current] I_{LN}

Mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Setting	Description
According to drive rating	Setting range Factory setting: –

[Mains Current L1] IL1

Mains current L1.

Setting	Description
According to drive rating	Setting range Factory setting: –

[Mains Current L2] IL2

Mains current L2.

Setting	Description
According to drive rating	Setting range Factory setting: –

[Mains Current L3] IL3

Mains current L3.

Setting	Description
According to drive rating	Setting range Factory setting: –

[Mains Frequency] FAC

Mains frequency.

Setting	Description
-3476.7...3276.7 Hz	Setting range Factory setting: –

[Active Input Power] IPRW

Instantaneous active input power.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Input Reactive Power] I_{QRW}

Input reactive power.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Apparent Input Power] I_{SRW}

Apparent input power.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Input Power Factor] PWF

Input power factor.

Setting	Description
According to the drive rating	Setting range displayed as a percentage Factory setting: _

[Mains Unbalance Ratio] UMV

Mains unbalance ratio.

Setting	Description
-327.67...327.67%	Setting range Factory setting: –

[Power Stage data] Menu

About This Menu

This menu shows the transformer-related parameters displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[Transfo Cab Temp 1] TT1M

Transformer cabinet temperature 1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer U1] TP1U

Thermal transformer U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer V1] TP1V

Thermal transformer V1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer W1] TP1W

Thermal transformer W1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Transfo Cab Temp 2] TT2M

Transformer cabinet temperature 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer U2] TP2U

Thermal transformer U2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer V2] TP2V

Thermal transformer V2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer W2] TP2W

Thermal transformer W2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Motor Parameters] Menu

About This Menu

This menu shows the motor-related parameters from the **Home Page**, page 45. Read-only parameters cannot be configured.

[Motor Frequency] RFR

This parameter displays the estimated rotor frequency without motor slip.

Setting	Description
-3,276.7...3,276.7 Hz	Setting range Factory setting: 0.0 Hz

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: _

[Frequency Reference After Ramp] FRO

Frequency reference after ramp.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: _

[Signed Mech Speed] SPD1

Signed mechanical speed

Setting	Description
[Undefined] UND...32,767 rpm	Setting range Factory setting: —

[Motor Mechanical speed] SPDM

This parameter displays the estimated rotor speed with motor slip.

Setting	Description
[Undefined] UND or -32,767...32,765 rpm	Setting range Factory setting: –

[Motor voltage] **UOP**

Motor voltage.

Setting	Description
0...65,535 V	Setting range Factory setting: –

[Motor Current] **LCR**

Motor current.

Setting	Description
0.00...65,535 A	Setting range according to drive ratings Factory setting: –

[Output Ground Value] **GOVD**

Output ground value.

Setting	Description
0...32767	Read only, unit: 0.1% output reference voltage Factory setting: _
Output reference voltage : example for “ATV6000••••A••66” = 6.6 kV	

[Acv Elc Out Pwr in kW] **EPRW**

Active Electrical output power in kW.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Mot Mech Power in %] **OPR**

Output power in % (100% = nominal motor power).

Setting	Description
-300...300 %	Setting range Factory setting: –

[Power Estim Value] OPRW

Motor mechanical power estimation.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Motor torque] OTR

Output torque value (100% = **[Nom Motor torque] TQN**).

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-300.0... 300.0 %	Setting range Factory setting: –

[Motor Torque (Nm)] OTQN

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-32,767 Nm...32,767 Nm	Setting range: according to drive ratings Factory setting: –

[Motor Torque (Nm)] OTRN

Motor torque in Nm

Setting	Description
-32,767 Nm...32,767 Nm	Setting range according to drive ratings Factory setting: –

[Torque reference] TRR

Torque reference before ramp.

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[Excitation Current Ref] EXCR

Excitation current reference.

Value range	Description
0...65535 A (1)	Factory setting: _
(1) Range 0.1 A to 1 A according to the scaling (INRC)	

[Motor thermal data] Menu

About This Menu

This menu shows the thermal motor-related parameters displayed from the **Home Page**, page 45.

Read-only parameters cannot be configured.

For the thermal monitoring, up to 8 PT 100 sensors are available for thermal motor winding and bearing.

[Thermal winding U1] THM1

Thermal winding U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V1] THM2

Thermal winding V1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W1] THM3

Thermal winding W1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 1] THM4

Thermal bearing 1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding U2] THM5

Thermal winding U2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V2] THM6

Thermal winding V2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W2] THM7

Thermal winding W2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 2] THM8

Thermal bearing 2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Drive Parameters] Menu

About This Menu

This menu shows the drive-related parameters displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[Line Ref Frequency] LFRA

This parameter only appears if the function has been enabled. It is used to change the reference frequency from the remote control.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: –

[Ref Freq Channel] RFCC

Channel for reference frequency.

Identical to [Command Channel] CMDC below.

[Command Channel] CMDC

Command channel.

Value range	Code / Value	Description
[Terminal]	TER	Terminal block source Factory Setting
[HMI]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	MDB	Command via Modbus
[Ref. Freq-CANopen]	CAN	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	MDB2	Modbus 2 source
[HMI Panel]	HMI P	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Cabinet Switch Status] CMDS

This parameter describes the actual control channel of the drive. This can be realized by digital cabinet inputs (from Remote) or the Mode selector switch on the front panel of the drive.

Setting	Code / Value	Description
[Not Selected]	NO	No command selected
[Remote]	REM	Remote command selected
[Local]	LOC	Local command selected
[Panel]	PAN	Panel (HMI) command selected

[On Lock Register] PLO1

The drive inhibits the medium voltage to be energized by a relay interlocked with the medium voltage circuit breaker or fused switch. (Check circuit diagram for contact "Enable to close")

Bit	Description, Value
0	1 = Door Open
1	1 = Fan feedback not ready
2	1 = Mains OFF Button
3	1 = MVCB Tripped
4	1 = MVCB grounding contact
5	1 = MVCB Isolated
6	1 = Monitoring circuit A Onlock
7	1 = Monitoring circuit B Onlock
8	Reserved
9	Reserved
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Actual Error] DPO

Actual detected error.

The list of error codes is available in the chapter "Diagnostics and Troubleshooting", page 481

[Config. active] CNF3

Active configuration.

Setting	Code / Value	Description
[In progress]	NO	Transitory state
[Config. No.0]	CNF0	Configuration 0 active
[Config. No.1]	CNF1	Configuration 1 active
[Config. No.2]	CNF2	Configuration 2 active
[Config. No.3]	CNF3	Configuration 3 active

[QF1 State] MVCB

QF1 state.

Setting	Code / Value	Description
[QF1 Locked]	LOCK	QF1 Locked
[QF1 Closed]	MVCS	QF1 Closed
[QF1 Not Available]	NO	QF1 Not Available
[QF1 Enable To Close]	RDY	QF1 Enable To Close
[QF1 Tripped]	TRIP	QF1 Tripped

[QF1 Command State] QF0S

QF1 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF91 Command State] QF4S

QF91 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Overload State 1] TLS1

Overload state 1.

Setting	Description
0...100 %	Setting range Factory setting: -

[Overload State 2] TLS2

Overload state 2.

Setting	Description
0...100 %	Setting range Factory setting: -

[Excitation Cabinet Status] EXCS

Excitation cabinet status.

Setting	Code / Value	Description
[Excitation Stopped]	EXNO	Excitation stopped
[Excitation Starting]	ESTA	Excitation starting
[Excitation Running]	ERUN	Excitation running
[Excitation Stopping]	ESTP	Excitation stopping
[Excitation Error]	EERR	Excitation error

[Thermal System] Menu

About This Menu

This menu shows the thermal system parameters displayed from the **Home Page**, page 45.

Read-only parameters cannot be configured.

For the thermal monitoring, up to 8 PT 100 sensors are available for general purpose sensors and control block thermal inputs.

[Thermal Sensor 9] THM9

Thermal sensor 9.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 10] THMA

Thermal sensor 10.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 11] THMB

Thermal sensor 11.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 12] THMC

Thermal sensor 12.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 13] THMD

Thermal sensor 13.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 14] THME

Thermal sensor 14.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 15] THMF

Thermal sensor 15.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 16] THMG

Thermal sensor 16.

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[AI1 Th Value] TH1V

AI1 thermal value.

Setting	Description
-15...200°C	Setting range Factory setting: –

[AI3 Th Value] TH3V

AI3 thermal value.

Setting	Description
-15...200°C	Setting range Factory setting: –

[AI4 Th Value] TH4V

This parameter can be accessed if VW3A3203 I/O extension module has been inserted.

Setting	Description
-15...200°C	Setting range Factory setting: –

[AI5 Th Value] TH5V

This parameter can be accessed if VW3A3203 I/O extension module has been inserted.

Setting	Description
-15...200°C	Setting range Factory setting: –

[Enc Th Value] THEV

Encoder thermal value.

Setting	Description
-15...200°C	Setting range Factory setting: –

[Bypass Drive] Menu

About This Menu

This menu shows the Bypass drive-related parameters displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[Drive Bypass Status] **BYS0**

Drive Bypass Status.

Value range	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] **BYS1**

Bypass circuit breaker status.

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1

Value range	Code / Value	Description
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYSD	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[SM Monitoring] STMM

Synchro to mains monitoring.

Value	Code / Value	Description
[No Synchronization]	NO	No synchronization
[Synchro Pending]	PEND	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	STAB	Stabilization to mains frequency
[Synchronization]	SYNC	Synchronization
[Synchro Stabilization]	SYST	Synchronization stabilization

Value	Code / Value	Description
[Ready To Transfer]	RTT	Ready to transfer
[Synchronization Error]	STF	Synchronization error
[Transfer In Progress]	TTI	Transfer is in progress
[Transfer Completed]	CPLT	Transfer completed

[SD Monitoring] STDM

Synchro to drive monitoring.

Value	Code / Value	Description
[No Synchronization]	NO	No synchronization
[Synchro Pending]	PEND	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	STAB	Stabilization to mains frequency
[Synchronization]	SYNC	Synchronization
[Synchro Stabilization]	SYST	Synchronization stabilization
[Ready To Transfer]	RTT	Ready to transfer
[Synchronization Error]	STF	Synchronization error
[Transfer In Progress]	TTI	Transfer is in progress
[Transfer Completed]	CPLT	Transfer completed

[QF11 Command State] QF1S

QF11 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF2 Command State] QF2S

QF2 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF3 Command State] QF3S

QF3 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF5 Command State] QF5S

QF5 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Bypass PoC] Menu

About The Menu

This menu shows the Bypass PoC display related parameters from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[Bypass PoC Status] BYPS

Bypass PoC Status.

Setting	Code / Value	Description
[PoC Stage Not Bypassed]	NO	No PoC bypassed
[1 PoC Stage Bypassed]	BYP1	1 PoC stage is bypassed
[2 PoC Stage Bypassed]	BYP2	2 PoC stage are bypassed
[3 PoC Stage Bypassed]	BYP3	3 PoC stage are bypassed
[4 PoC Stage Bypassed]	BYP4	4 PoC stage are bypassed
[PoC Stage Bypass Error]	FLT	PoC stage bypass error

[PoC Load Ratio] POCL

Power cell load ratio.

Setting	Description
in %	Setting range Factory setting: _

[PID Display] Menu

About This Menu

This menu shows the PID-related parameters displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[Internal PID ref] RPI

Internal PID reference.

Setting	Description
0...32,767	Setting range Factory setting: 150

[PID reference] RPC

PID reference.

Setting	Description
0...65,535	Setting range Factory setting: 0

[PID feedback] RPF

PID feedback.

Setting	Description
0...65,535	Setting range Factory setting: 0

[PID Error] RPE

PID error.

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[PID Output] RPO

PID output.

Setting	Description
[PID Min Output] <small>PO_L</small> ...[PID Max Output] <small>PO_H</small>	Setting range Factory setting: _

[Pump Display] Menu

About This Menu

This menu shows the pump-related parameters displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[Est. Pump Flow] SLFV

This parameter can be accessed if **[Flow Estimation Mode]** FEM is set to **[No]** NO.

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[Est. Pump Head] SLHV

Estimated pump head value.

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[Efficiency] EFY

The efficiency is based on mechanical power.

Setting	Description
0.0...100.0 %	Setting range Factory setting: _

[Energy Cons. Ind.] ECI

Energy consumption indication is based on the consumption of the electrical power

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[Analog Input Function] Menu

About This Menu

This menu shows the analog inputs parameters displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[AI Monitor 1 Process Value] AM1P... [AI Monitor 8 Process Value] AM8P

Analog monitoring 1 process value to Analog monitoring 8 process value.

Setting	Description
–32767...32767	Setting range Factory setting: _

[UPS Data] Menu

About This Menu

This menu shows the UPS data displayed from the **Home Page**, page 45.
Read-only parameters cannot be configured.

[UPS Battery Charge State] UPSB

UPS battery charge state.

Value range	Description
0...100 %	Factory setting: –

[UPS Remaining Runtime] UPSR

UPS remaining runtime.

Value range	Description
0...65535 minutes	Factory setting: –

Display Menu Panel

What's in This Chapter

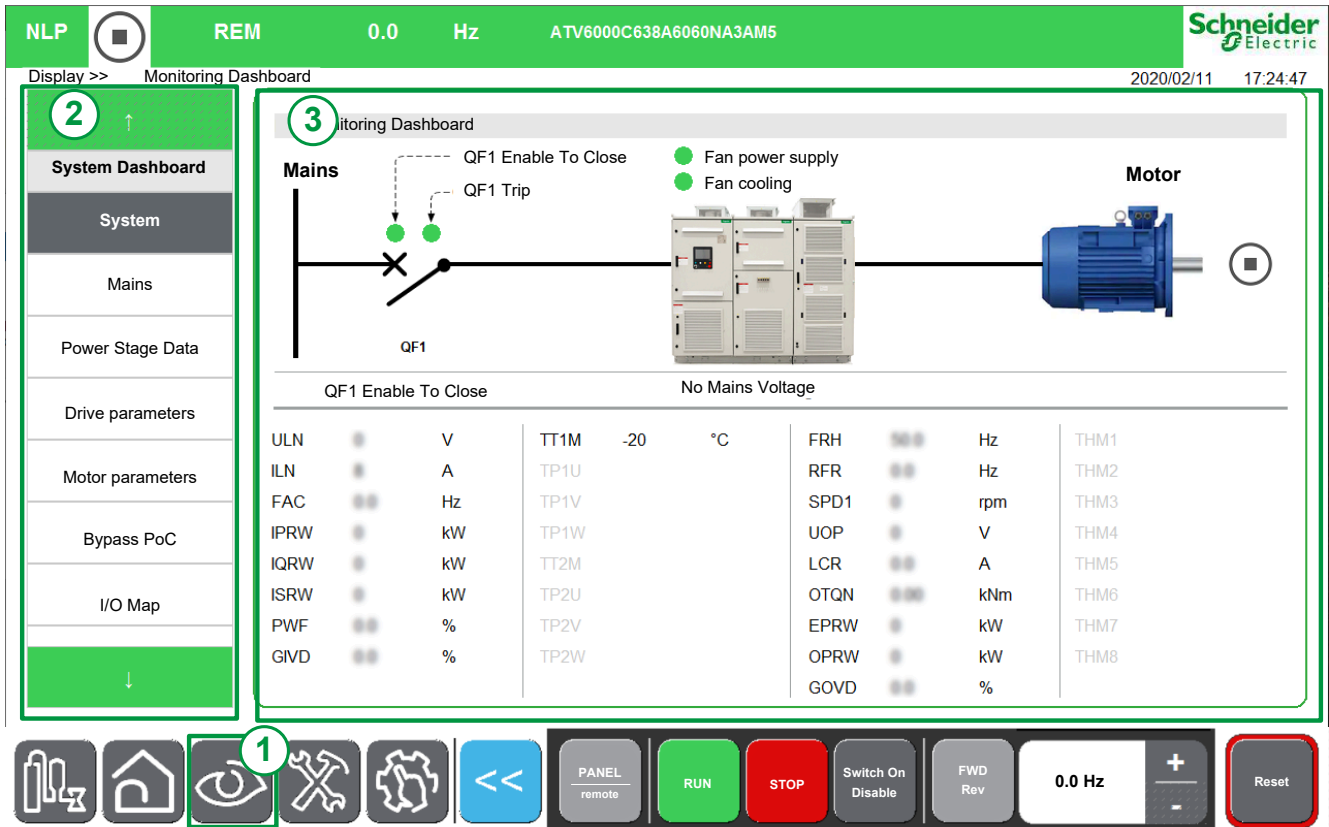
Overview	80
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Overview

Description

The Display Panel is divided into 3 main zones:

1. Actual position
2. Vertical tree view - Allows you to select an item that is displayed on the display area.
3. Display area - This area displays the screen associated to the selected item



Tree view presents the hierarchical vertical view of drive functions information.

The different tree view nodes are:

- **System Dashboard** , page 87
- **Dashboard Energy** , page 132
- **Dashboard Pump** , page 134
- **Dashboard M/S** , page 135
- **Oscilloscope** , page 141
- **Bypass Drive** , page 151
- **Analog Function** , page 161
- **Identification** , page 163
- **Motor Control** , page 165

Diagnostic Menu Panel

What's in This Chapter

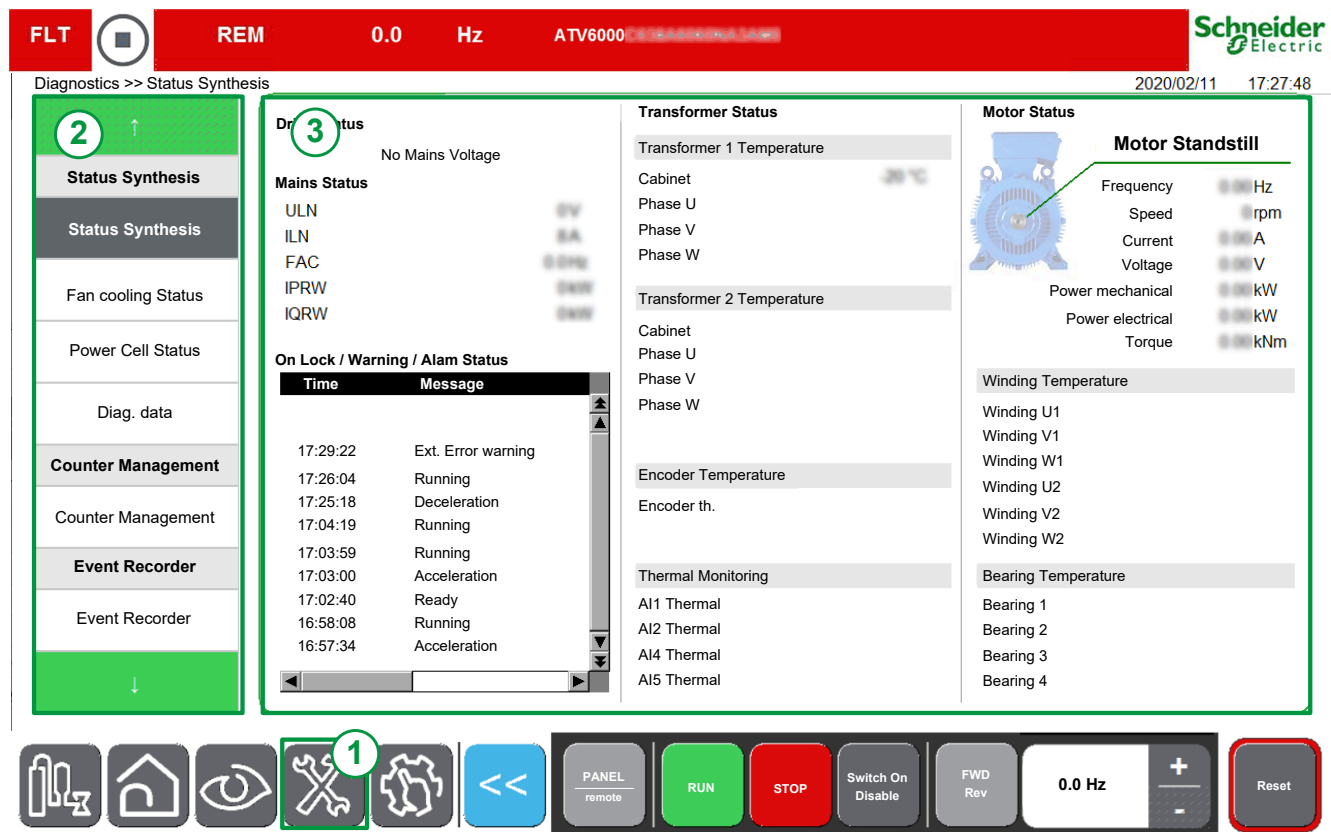
Overview	82
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Overview

Description

The Diagnostics Panel is divided into 2 main zones:

1. Actual position.
2. Vertical tree view - Allows you to select an item that is displayed on the diagnostics display area.
3. Diagnostic display area - This area displays the screen associated to the selected item.



Tree view presents the hierarchical vertical view of drive functions information.

The different tree view nodes are:

- **Status Synthesis** , page 179
- **Counter Management**
- **Event Recorder** , page 212
- **Error History** , page 214
- **Warning history** , page 217

Settings Menu Panel

What's in This Chapter

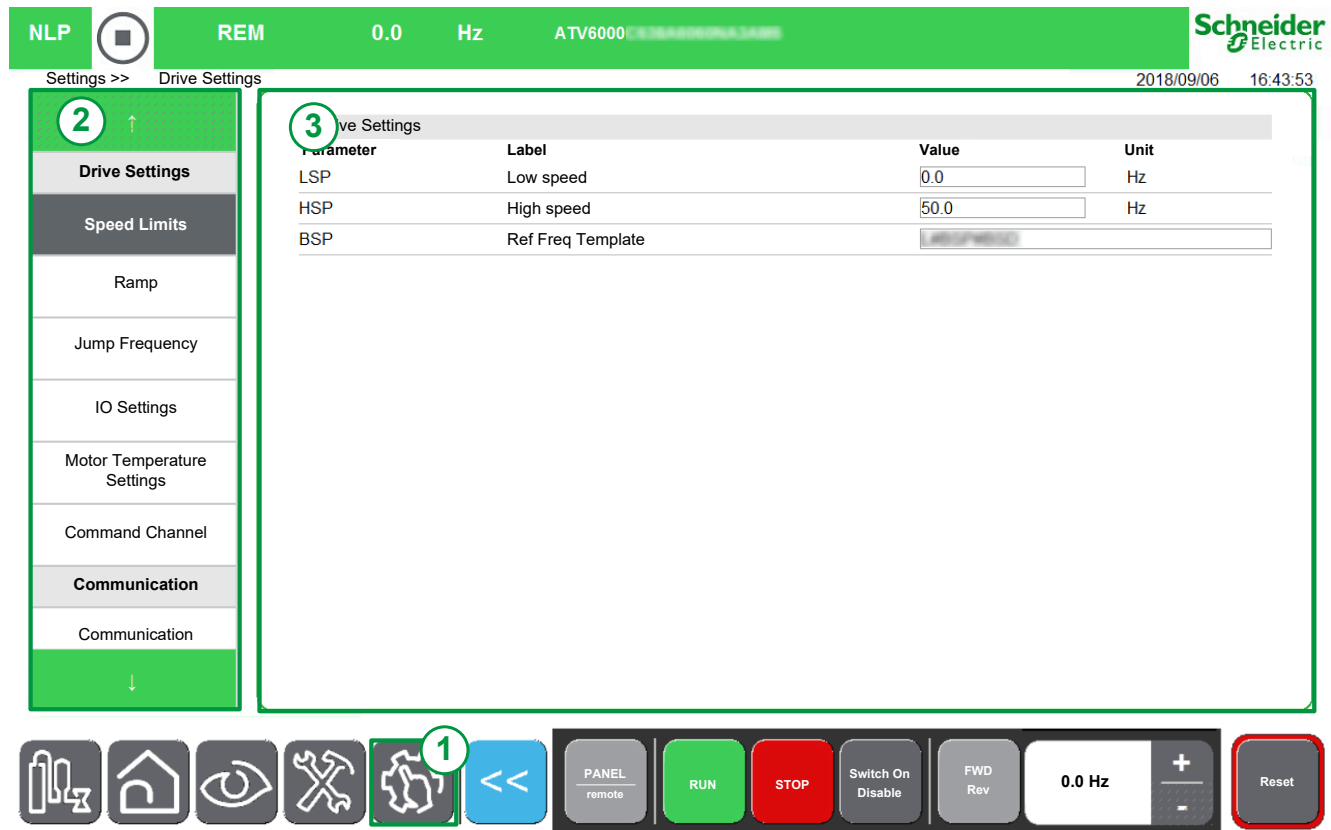
Overview	84
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Overview

Description

The Settings Panel is divided into 2 main zones:

1. Actual position.
2. Vertical tree view - Allows you to select an item that is displayed on the setting display area.
3. Setting display area - This area displays the screen associated to the selected item.



Tree view presents the hierarchical vertical view of drive functions information.

The different tree view nodes are:

- **Drive Settings** , page 223
- **Communication** , page 295
- **Custom HMI** , page 287
- **My Preferences** , page 310
- **File Management** , page 319

Assign a Value.

You can set a value to the corresponding parameters in this menu

Step	Action
1	Select the parameters value in the display area Result: The software keyboard shows pop up.
2	Type your value and: <ul style="list-style-type: none">press Enter to save changes. Result: The new parameter value is automatically applied.or press Esc to abort the changes

NOTE:

- The parameter values are automatically refreshed at regular intervals.

Display Functions for HMI Panel

What's in This Part

System Dashboard	87
[Energy Dashboard] Menu	132
[Pump Dashboard] Menu	134
[M/S dashboard] Menu	135
[Oscilloscope] Menu	141
Bypass Drive	151
Analog Function	161
Identification	163
Motor Control	165

Overview

This information can be accessed using the **Display** Menu Panel available on the ATV6000 HMI Panel.

System Dashboard

What's in This Chapter

[Monitoring Dashboard] Menu 87

[Mains Data] Menu 90

Power Stage Data 93

[Drive parameters] Menu 97

Motor Parameters 106

Bypass PoC 117

[Inputs / Outputs Monitoring] Menu 126

[Communication] Menu 129

UPS Data 130

[Monitoring Dashboard] Menu

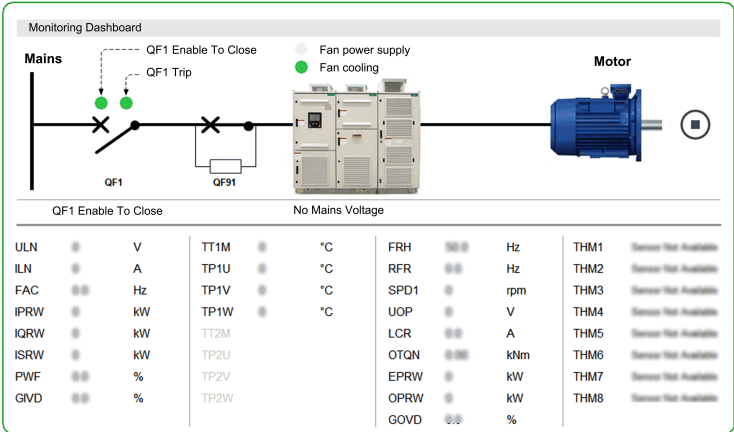
HMI Access

[Display] → [System Dashboard] → [Monitoring Dashboard]

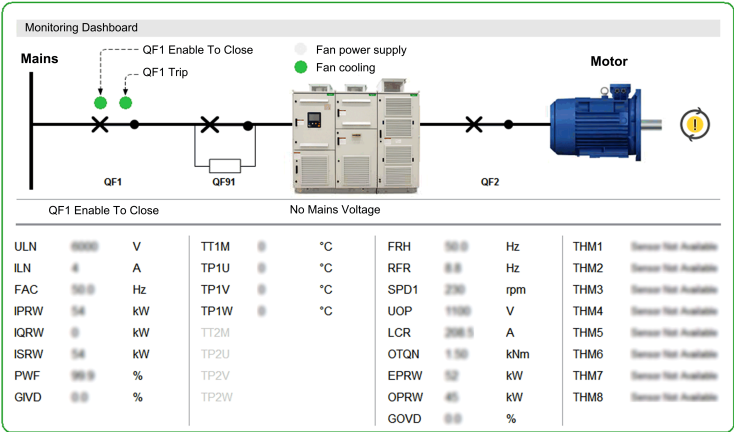
Overview

This information can be accessed using the **System Dashboard** Menu available through the ATV6000 HMI Panel.

Here is monitoring dashboard with Circuit breaker QF1 and QF91 if configured.





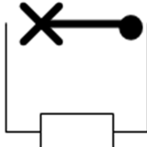
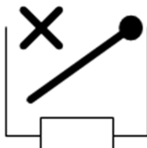
Here is monitoring dashboard with Circuit Breaker QF1, QF91 and QF2 if configured.







Status

The following tables provides the details of each elements available to the dashboard.

Circuit Breaker QFX state

Element	Description
	QF1 or QF2 are closed: [QF11 Command State] QF1S or [QF2 Command State] QF2S = [Closed] CBCS Circuit breaker in Closed State.
	QF1 or QF2 are open: [QF11 Command State] QF1S or [QF2 Command State] QF2S is different to Close state.
	QF91 is close: [QF91 Command State] QF4S = [Closed] CBCS Circuit breaker in Closed State.
	QF91 is open: [QF91 Command State] QF4S is different to Close state.

Motor State

Element	Description
	Loss communication between HMI and master controller.
	Motor is not running.
	Motor at 0Hz.
	Motor is running (Forward or Reverse)

Additional information

Element	Description
QF1 Enable to Close	Cabinet IO: Fixed Logic outputs R70 Status Green : Ready to close MVCB Status Orange : enable to close activated (Onlock state)
QF1 trip	Cabinet IO: Fixed Logic outputs R71 Status Green : QF1 is in normal state Status Red : QF1 is tripped

Element	Description
Fans Cooling Ready	Cabinet IO: Fixed Logic inputs DI76 Status Green : Fan is running Status Grey : Fan is stopped
Fan Power Supply	Cabinet IO: Fixed Logic inputs DI77 Status Green : Fan power supply is available. Status Orange : Fan in lock state (Onlock state) Status Red : Fan power supply error

Parameters

The rest of **System Dashboard** menu allows you to:

- Displays the real-time value of the mains-related parameters , page 331
- Displays the real-time value of the drive-related parameters , page 337
 - Drive parameters
 - Drive status, cabinet Switch and on-lock status register parameters
 - Command status parameters
 - PID display parameters
 - Thermal monitoring parameters
- Displays the real-time value of the motor-related parameters , page 352
 - Motor parameters
 - Thermal motor data
- Display the information of the Power Cells functions , page 117
- Displays the information of Inputs/Outputs , page 126

[Mains Data] Menu

HMI Access

[Display] ➔ [System Dashboard] ➔ [Mains Data]

About This Menu

This menu shows the mains-related parameters.
Read-only parameters cannot be configured.

[Mains Voltage] ULN

Mains voltage based on AC bus measurement, motor running or stopped.

Value range	Description
According to nominal input voltage of product.	Value: [No meas.] ULNUNK is displayed if no value is measured. Factory setting: –

[Mains voltage phase 1-2] UL1

Mains voltage phase 1-2.

Value range	Description
According to nominal input voltage of product.	Factory setting: –

[Mains voltage phase 2-3] UL2

Mains voltage phase 2-3.

Value range	Description
According to nominal input voltage of product.	Factory setting: –

[Mains voltage phase 3-1] UL3

Mains voltage phase 3-1.

Value range	Description
According to nominal input voltage of product.	Factory setting: –

[Mains Current] ILN

Mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Value range	Description
According to drive rating	Factory setting: –

[Mains Current L1] I_{L1}

Mains current L1.

Value range	Description
According to drive rating	Factory setting: –

[Mains Current L2] I_{L2}

Mains current L2.

Value range	Description
According to drive rating	Factory setting: –

[Mains Current L3] I_{L3}

Mains current L3.

Value range	Description
According to drive rating	Factory setting: –

[Mains Frequency] f_{AC}

Mains frequency.

Value range	Description
-3476.7...3276.7 Hz	Factory setting: –

[Active Input Power] P_{RW}

Instantaneous active input power.

Value range	Description
According to the drive rating	Value in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Input Reactive Power] Q_{RW}

Input reactive power.

Value range	Description
According to the drive rating	Value in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Apparent Input Power] **ISRW**

Apparent input power.

Value range	Description
According to the drive rating	Value in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Power Factor] **PWF**

Input power factor.

Value range	Description
According to the drive rating	Value displayed as a percentage Factory setting: _

[Mains Unbalance Ratio] **UMV**

Mains unbalance ratio.

Value range	Description
-327.67...327.67%	Factory setting: –

Power Stage Data

[Power Thermal data] Menu

HMI Access

[Display] → [System Dashboard] → [Power Stage data] → [Power Thermal data]

About This Menu

This menu shows the transformer-related parameters.
Read-only parameters cannot be configured.

Thermal monitoring for:						
Cabinet	Transformer 1			Transformer 2		
	Winding U	Winding V	Winding W	Winding U	Winding V	Winding W
TT1M	TP1U	TP1V	TP1W	-	-	-
TT2M	-	-	-	TP2U	TP2V	TP2W

[Transfo Cab Temp 1] TT1M

Transformer cabinet temperature 1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer U1] TP1U

Thermal transformer U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer V1] TP1V

Thermal transformer V1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer W1] TP1W

Thermal transformer W1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Transfo Cab Temp 2] TT2M

Transformer cabinet temperature 2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer U2] TP2U

Thermal transformer U2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer V2] TP2V

Thermal transformer V2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal transformer W2] TP2W

Thermal transformer W2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Power-cell over-voltage data] Menu

HMI Access

[Display] → [System Dashboard] → [Power Stage data] → [Power-cell over-voltage data]

About This Menu

The parameter **[DC Bus Overvoltage Time]** **POVT** allows to monitor how long **[DC Bus Overvoltage]** **OBV** is present during PoC charging sequence.

Note: The inhibition function of **[DC Bus Overvoltage]** **OBV** during PoC charging sequence, and parameter which allows to adjust PoC charging sequence timing are configured on **[Advanced Function]** Menu, page 274.

[DC Bus Overvoltage Time] **POVT**

DC Bus overvoltage time during PoC charging sequence

Power cell overvoltage time in seconds (unit 0.01s).

The monitoring of the **[DC Bus Overvoltage]** **OBV** error is only inactive during PoC charging sequence (For all other drive states, the monitoring of **[DC Bus Overvoltage]** **OBV** error remains active).

Setting	Description
0...655.35 s	Range value Factory setting: _

[Drive parameters] Menu

HMI Access

[Display] → [System Dashboard] → [Drive parameters]

About This Menu

This sub menu shows

- the drive-related parameters.
- the status of the drive, cabinet Switch and on-lock status register.
- the monitoring parameters linked to the command selection. For settings and configuration refer to the [Command and Reference Channels Menu](#), page 280.
- the present thermal value measured via analog inputs used.
- the present thermal value measured via PT100 sensors used.

Note: All following parameters are in read-only mode.

[AIV1 Image input] AIV1

This parameter is read-only. It enables to display the speed reference applied to the motor, or the sensor value, via the fieldbus channel.

Setting	Description
-8,192...8,192	Setting range Factory setting: –

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

This parameter is read-only. It enables to display the speed reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: 0 Hz

[Line Ref Frequency] LFRA

This parameter only appears if the function has been enabled. It is used to change the reference frequency from the remote control.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: –

[Line Ref Torque] LTRA

This parameter only appears if the function has been enabled. It is used to change the torque reference value from the remote control. OK does not have to be pressed to enable a change of reference value.

Setting	Description
-300.0...300.0%	Setting range Factory setting: –

[Torque reference] TRR

Torque reference before ramp.

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[Device State] HMIS

Device state.

Value range	Code / Value	Description
[Autotuning]	TUN	Autotuning, the motor identification is running.
[Ready]	RDY	Drive ready, all conditions to start the drive are ok.
[Freewheel]	NST	Freewheel stop control, One or more Freewheel stop command are active. Check parameter [2/3-Wire Control] TCC and [Local 2/3-wire Control] PL10 for 3 wire control and verify the status of the dedicated inputs.
[Running]	RUN	Motor in steady state or run command present and zero reference
[Accelerating]	ACC	Acceleration
[Decelerating]	DEC	Deceleration
[Current Limitation]	CLI	In current limitation, the drive has reached the current limitation threshold according to parameter [Current Limitation] CLI .
[Mot. fluxing]	FLU	Fluxing function is activated
[No Mains Voltage]	NLP	Control is powered on but the DC bus is not loaded
[control.stop]	CTL	Control stopping
[Dec. adapt.]	OBR	Adapted deceleration
[Undervoltage Warning]	USA	Undervoltage warning
[TC Mode Active]	TC	TC indus mode activated
[In autotest]	ST	Self test in progress
[Autotest error]	FA	Self test not successful
[Autotest OK]	OK	Self test Ok
[EEprom test]	EP	Self test Eeprom error

Value range	Code / Value	Description
[Operating State "Fault"]	FLT	Product has detected an error
[DCP Flashing Mode]	DCP	DCP flashing mode
[STO active]	STO	Safe Torque Off active
[Firmware Update]	FWUP	Firmware update
[Angle test]	ASA	Angle Value range
[Voltage Limitation]	VLH	Motor speed limited by voltage limitation
[ON Lock active]	ONLK	Input MV ON Lock, input MV On Lock active, one or more interlocks are active to inhibit the MV Circuit Breaker closing contact.
[POE active]	POD	Power output disable active, the digital input POEA or POEB is not supplied with 24V.
[Torque Limitation]	TLH	Torque limitation, the drive has reached the torque limitation threshold according to parameter [Motor torque limit] TLM, [Gen. torque limit] TLG.
[Power Limitation]	PLH	Power limitation
[Init]	INH	Drive is initializing
[Reset]	RST	Drive is reset
[Synchro. To Mains]	SYTM	Synchronization to Mains
[Rdy Transfer To Mains]	RTTM	Ready to transfer to mains
[Transfer In Progress]	TTMI	Transfer to mains in progress
[Synchro. To Drive]	SYTD	Synchronization to drive
[SD Transfer Ready]	RTTD	Ready to transfer to drive
[Transfer To Drive In Progress]	TTDI	Transfer to drive in progress
[Run Delay In Progress]	RDIP	Run delay in progress

[Cabinet Switch Status] CMDS

This parameter describes the actual control channel of the drive. This can be realized by digital cabinet inputs (from Remote) or the Mode selector switch on the front panel of the drive.

Setting	Code / Value	Description
[Not Selected]	NO	No command selected
[Remote]	REM	Remote command selected
[Local]	LOC	Local command selected
[Panel]	PAN	Panel (HMI) command selected

[On Lock Register] PLO1

The drive inhibits the medium voltage to be energized by a relay interlocked with the medium voltage circuit breaker or fused switch. (Check circuit diagram for contact "Enable to close")

Bit	Description, Value
0	1 = Door Open
1	1 = Fan feedback not ready
2	1 = Mains OFF Button
3	1 = MVCB Tripped
4	1 = MVCB grounding contact
5	1 = MVCB Isolated
6	1 = Monitoring circuit A Onlock
7	1 = Monitoring circuit B Onlock
8	Reserved
9	Reserved
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Command Channel] CMDC

Command channel.

Value range	Code / Value	Description
[Terminal]	TER	Terminal block source Factory Setting
[HMI]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	MDB	Command via Modbus
[Ref. Freq-CANopen]	CAN	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	MDB2	Modbus 2 source
[HMI Panel]	HMIP	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Cmd Register] CMD

[Control Mode] CHCF is not set to **[I/O profile]** IO.

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	Set to 1: "Switch on"/Contactor command
1	Set to 0: "Disable voltage"/Authorization to supply AC power
2	Set to 0: "Stop on Ramp"
3	Set to 1: "Enable operation"/Run command
4 to 6	Reserved (= 0)
7	"Fault reset" acknowledgment active on 0 to 1 rising edge
8	Set to 1: Stop according to the [Type of stop] STT parameter without leaving the operation enabled state
9 and 10	Reserved (= 0)
11 to 15	Can be assigned to commands

Possible values in the I/O profile. On state command **[2-Wire Control]** 2C:

Bit	Description, Value
0	Forward (on state) command: 0: No forward command 1: Forward command NOTE: The assignment of bit 0 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bit 0 CD00 is only active if the channel of this control word is active.
1 to 15	Can be assigned to commands

Possible values in the I/O profile. On edge command **[3-Wire Control]** 3C:

Bit	Description, Value
0	Stop (run authorization): 0: Stop 1: Run is authorized on a forward or reverse command
1	Forward (on 0 to 1 rising edge) command
2 to 15	Can be assigned to commands
NOTE: The assignment of bits 0 and 1 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bits 0 CD00 and 1 CD01 are only active if the channel of this control word is active.	

[Ref Freq Channel] RFCC

Channel for reference frequency.

Identical to **[Command Channel]** CMDC.

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: _

CIA402 [Status Register] **ETA**

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	"Ready to switch on", awaiting power section line supply
1	"Switched on", ready
2	"Operation enabled", running
3	Operating detected error state: 0: Inactive 1: Active
4	"Voltage enabled", power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present NOTE: When the drive is powered by the power section only, this bit is always at 1.
5	Stop on Ramp
6	"Switched on disabled", power section line supply locked
7	Warning: 0: No warning 1: Warning
8	Reserved (= 0)
9	Remote: command or reference via the network 0: Command or reference via the Display Terminal 1: Command or reference via the network
10	Targets reference reached: 0: The reference is not reached 1: The reference has been reached NOTE: When the drive is in speed mode, this is the speed reference.
11	"Internal limit active", reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits NOTE: When the drive is in speed mode, the limits are defined by the [Low Speed] LSP and [High Speed] HSP parameters.
12	Reserved
13	Reserved
14	"Stop key", STOP via stop key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal

Bit	Description, Value
15	"Direction", direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The combination of bits 0, 1, 2, 4, 5 and 6 defines the state in the DSP 402 state chart (see the communication manuals).	

Possible values in the I/O profile:

Bit	Description, Value
0	Reserved (= 0 or 1)
1	Ready: 0: Not ready 1: Ready
2	Running: 0: The drive does not start if a reference other than zero is applied 1: Running, if a reference other than zero is applied, the drive can start
3	Operating detected error state: 0: Inactive 1: Active
4	Power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present
5	Reserved (= 1)
6	Reserved (= 0 or 1)
7	Warning 0: No warning 1: Warning
8	Reserved (= 0)
9	Command via a network: 0: Command via the terminals or the Display Terminal 1: Command via a network
10	Reference reached: 0: The reference is not reached 1: The reference has been reached
11	Reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits NOTE: When the drive is in speed mode, the limits are defined by LSP and HSP parameters.
12	Reserved (= 0)
13	Reserved (= 0)
14	Stop via STOP key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal

Bit	Description, Value
15	Direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The value is identical in the CiA402 profile and the I/O profile. In the I/O profile, the description of the values is simplified and does not refer to the CiA402 (Drivecom) state chart.	

[Internal PID ref] RPI

Internal PID reference.

Setting	Description
0...32,767	Setting range Factory setting: 150

[PID reference] RPC

PID reference.

Setting	Description
0...65,535	Setting range Factory setting: 0

[PID feedback] RPF

PID feedback.

Setting	Description
0...65,535	Setting range Factory setting: 0

[PID Error] RPE

PID error.

Setting	Description
-32,767...32,767	Setting range Factory setting: –

[PID Output] RPO

PID output.

Setting	Description
[PID Min Output] ^{PO_L} ...[PID Max Output] ^{PO_H}	Setting range Factory setting: _

[AI1 Th Value] TH1V, [AI3 Th Value] TH3V, [AI4 Th Value] TH4V, [AI5 Th Value] TH5V

AI1 thermal value, AI3 thermal value, AI4 thermal value and AI5 thermal value.

NOTE: AI4 and AI5 can only be accessed if the I/O extension option module (VW3A3203) has been inserted.

Setting	Description
-15.0...200.0 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of [Temperature unit] SUTP). Factory setting: Read-only parameter.

[Enc Th Value] THEV

Encoder thermal value.

Setting	Description
-15...200 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of [Temperature unit] SUTP). Factory setting: Read-only parameter.

[Thermal Sensor 9] THM9, [Thermal Sensor 10] THMA, [Thermal Sensor 11] THMB, [Thermal Sensor 12] THMC, [Thermal Sensor 13] THMD, [Thermal Sensor 14] THME, [Thermal Sensor 15] THMF and [Thermal Sensor 16] THMG

Thermal sensor 9 to Thermal sensor 16.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error] , sensor circuit error measurement

Motor Parameters

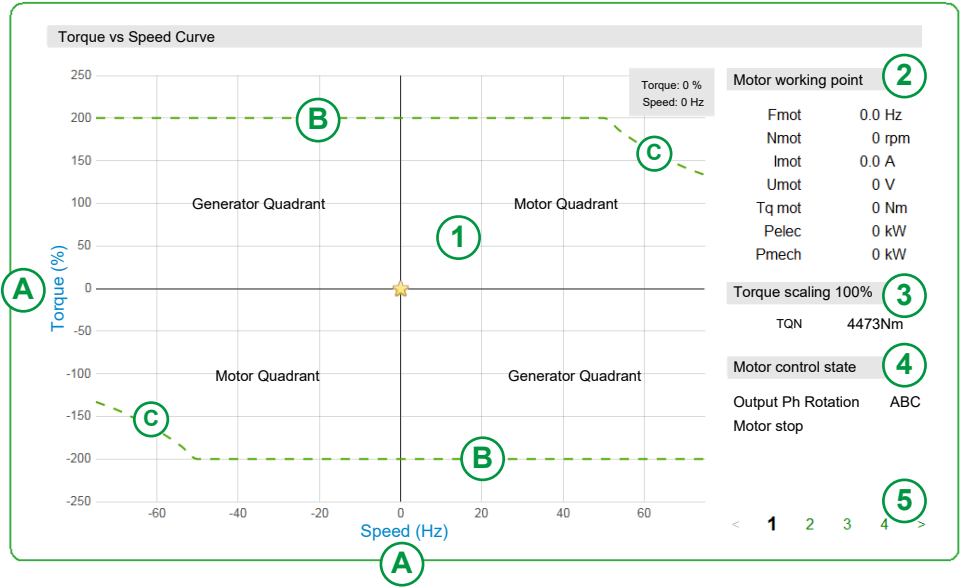
[Torque vs Speed Curve] Menu

HMI Access

[Display] → [System Dashboard] → [Motor Parameters]

Overview

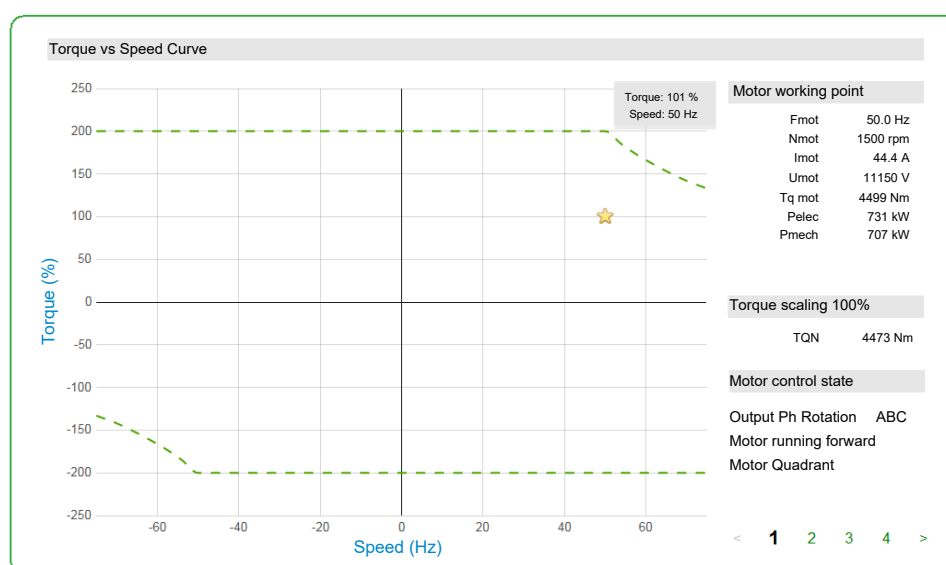
This menu allows to see the relationship between speed and torque, the following information displayed are available:



Legend	Description
4	Motor control state <ul style="list-style-type: none"> Output Phase rotation ABC/ACB. State of the motor: Stop, running forward, running reverse. Motor quadrant / Generator quadrant.
5	Page selection: <ul style="list-style-type: none"> Page 1: Torque vs speed curve. Page 2: Motor thermal data menu, page 108. Page 3: Motor control data menu, page 111. Page 4: Motor parameters menu, page 111.

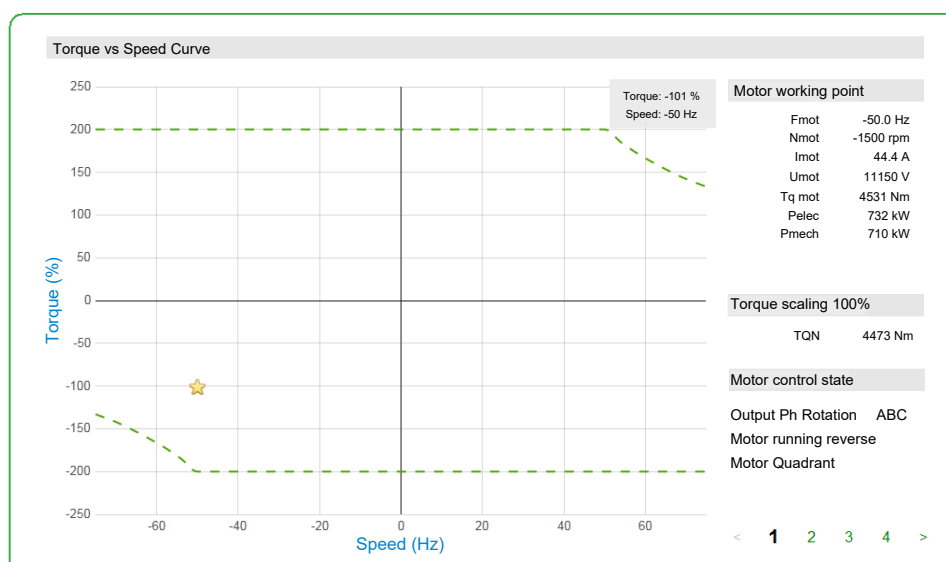
Motor Running Forward

The sign of the torque depends entirely on the quadrant in which the drive is located. The display value of motor torque is positive in motor quadrant whatever the direction.



Motor Running Reverse

The sign of the torque depends entirely on the quadrant in which the drive is located. The display value of motor torque is negative in motor quadrant whatever the direction.



[Motor Thermal data]

About This Menu

This menu shows the motor thermal parameters on page 2, depending on your personal function requirements this panel can be different. (Read-only parameters cannot be configured)

Motor Thermal Data				
Parameter	Label	Value	Unit	
THM1	Thermal Winding U1	-138	°C	
THM2	Thermal Winding V1	-120	°C	
THM3	Thermal Winding W1	-26	°C	
THM4	Thermal bearing 1	-96	°C	
THM5	Thermal Winding U2	-93	°C	
THM6	Thermal Winding V2	-88	°C	
THM7	Thermal Winding W2	-71	°C	
THM8	Thermal bearing 2	83	°C	

Motor Thermal Redundancy Data					
	Winding U	Winding V	Winding W	Bearing 1	Bearing 2
Probe Group 1	-138 °C	-120 °C	-26 °C	-96 °C	83 °C
Probe Group 2	-93 °C	-88 °C	-71 °C	0 °C	0 °C

< 1 2 3 4 >

Motor Thermal Redundancy Data

The display of **Motor Thermal Redundancy Data** depends on redundant groups configuration:

- Without winding and bearing information
- Winding and bearing information on probe group 1 & 2
- Only Winding information on probe group 1 & 2

In the panel above, winding and bearing sensors are configured as redundant.

NOTE: The setting of the redundant group is defined during the commissioning.

	Winding U	Winding V	Winding W	Bearing 1	Bearing 2
Probe Group 1	THM1	THM2	THM3	THM4	THM8
Probe Group 2	THM5	THM6	THM7	THM4	THMA

[Thermal winding U1] THM1

Thermal winding U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V1] THM2***Thermal winding V1.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W1] THM3***Thermal winding W1.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 1] THM4***Thermal bearing 1.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding U2] THM5***Thermal winding U2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V2] THM6***Thermal winding V2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W2] THM7***Thermal winding W2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 2] THM8***Thermal bearing 2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Motor control Data]

About This Menu

This menu shows the motor-related parameters available on page 3. Read-only parameters cannot be configured.

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: _

[Frequency Reference After Ramp] FRO

Frequency reference after ramp.

Setting	Description
-300.0...300.0 Hz	Setting range Factory setting: _

[Motor Frequency] RFR

This parameter displays the estimated rotor frequency without motor slip.

Setting	Description
-3,276.7...3,276.7 Hz	Setting range Factory setting: 0.0 Hz

[Motor Speed] SPD

This parameter displays the estimated rotor speed without motor slip.

Setting	Description
0...65,535 rpm	Setting range Factory setting: –

[Measured output fr.] MMF

This parameter can be accessed only if the encoder module has been inserted, and the available selections will depend on the type of encoder module used.

Setting	Description
-3,276.7...3,276.7	Setting range Factory setting: –

[Motor Mechanical speed] SPDM

This parameter displays the estimated rotor speed with motor slip.

Setting	Description
[Undefined] UND or -32,767...32,765 rpm	Setting range Factory setting: –

[Signed Mech Speed] SPD1

Signed mechanical speed.

Setting	Description
[Undefined] UND ...32,767 rpm	Setting range Factory setting: –

[Motor Current] LCR

Motor current.

Setting	Description
0.00...65,535 A	Setting range according to drive ratings Factory setting: –

[Motor Current Id] IDM

Motor current Id.

Setting	Description
-32,767 A...32,767	Setting range according to drive ratings Factory setting: –

[Motor Current Iq] IQM

Motor current Iq.

Setting	Description
-32,767 A...32,767	Setting range according to drive ratings Factory setting: –

[Motor voltage] UOP

Motor voltage.

Setting	Description
0...65,535 V	Setting range Factory setting: –

[Motor torque] OTR

Output torque value (100% = [Nom Motor torque] TQN).

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-300.0... 300.0%	Setting range Factory setting: –

[Motor Torque (Nm)] OTQN

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-32,767 Nm...32,767 Nm	Setting range: according to drive ratings Factory setting: –

[Mot Mech Power in %] OPR

Output power in % (100% = nominal motor power).

Setting	Description
-300...300%	Setting range Factory setting: –

[Power Estim Value] OPRW

Motor mechanical power estimation.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Motor Parameters]

About This Menu

This menu shows the motor-related parameters available on page 4.
Read-only parameters cannot be configured.

[Acv Elc Out Pwr in %] EPR

Active Electrical output power estimation (100% = nominal motor electrical power).

Setting	Description
-300 ... 300%	Setting range in % Factory setting: _

[Acv Elc Out Pwr in kW] EPRW

Active Electrical output power in kW.

Setting	Description
According to the drive rating	Setting range in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz Factory setting: _

[Nom Motor torque] TQN

Computed nominal motor torque in Nm (+/- 2% tolerance).

Setting	Description
0.01...65,535 Nm	Setting range according to drive rating. Factory setting: -

[Overload State 1] TLS1

Setting	Description
0...100 %	Setting range Factory setting: -

[Overload State 2] TLS2

Setting	Description
0...100 %	Setting range Factory setting: -

[Rotor Frequency] RFQ

This parameter displays the estimated rotor frequency with motor slip.

Setting	Description
[No Freq Applied] NO...300.0 Hz	Setting range Factory setting: –

[Stator Frequency] SFQ

Stator frequency.

Setting	Description
[No Freq Applied] NO...300.0 Hz	Setting range Factory setting: –

[Output Ground Value] GOVD

Ground output monitoring display.

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.
- Value only displayed when PoC PWM is enabling to avoid “capacitor parasite” value.
- When PoC PWM is not enabling GOVD = 0

Value range	Description
0...32767 A	Read only, unit: 0.1% output reference voltage Factory setting: _
Output reference voltage : example for “ATV6000•••A••66” = 6.6 kV	

[Excitation Current Ref] EXCR

Excitation current reference.

Value range	Description
0...65535 A (1)	Factory setting: _
(1) Range 0.01 A to 1 A according to the scaling (INRC)	

[Excitation Current Fdbk] EXCF

Excitation current feedback.

Measured excitation current. If measurement is not configured, [Excitation Current Fdbk] = 0

Setting	Description
-32767...32767 (1)	Setting range Factory setting: _
(1) Range 0.01 A to 1 A according to the scaling (INRC)	

Bypass PoC

[Bypass PoC Display] Menu

HMI Access

[Display] → [System Dashboard] → [Bypass PoC Display]

About This Menu

This menu is used to display Bypass Power Cell information, un-bypass information and related parameters, depending on your personal function requirements these panels can be different. (read mode only)

It is recommended to have a power cell bypass option for critical process, in which case a reduction in capacity is preferable to a complete shutdown.

- When a power cell breaks down, it automatically bypasses the power cells in order to keep the VSD system running according capacity. This prevents production downtime or unexpected interruption.
- The PoC bypassed can be un-bypass when drive is in stop mode according to **[Bypass PoC Reset]** *BYP2 selection, page 124* :
 - **NEVER**: PoC stays always bypassed until product power OFF (control and power).
 - **MANU**: PoC can be un-bypassed at drive stop if the PoC event generating the bypass is removed through *manual un-bypass DI sequence, page 121* or through *HMI button, page 121*.
 - **AUTO**: PoC can be un-bypassed at drive stop through *automatic retry un-bypass sequence, page 121*, *manual un-bypass DI sequence, page 121*, or through *HMI button, page 121*.

Note: This setting and function is managed during the commissioning, refer to your local Schneider representative.

Un-bypass PoC By Product Power OFF

This panel show Bypass function already configured and Un-bypass PoC function is set to **Never**.

1

2

3

4

5

6

Bypass PoC			
Parameter	Label	Value	Unit
BYP2	Bypass PoC Status	2 PoC Stage Bypassed	
BYP1	Bypass PoC Max Number	4	
POCR	PoC Load Ratio	100	%
BYW1	Bypass PoC Warning	<div></div>	
BYW2	Bypass PoC Degraded Warning	<div></div>	
BYPF	Bypass PoC Error	<div></div>	

7

Un-Bypass PoC			
Parameter	Label	Value	Unit
BYP2	Bypass PoC Reset	Never	

A

POC Status

Item	Description
1	Indicates Bypass PoC status, here 2 PoC level are bypassed, refer to BYPS, page 123
2	Indicates number of maximal bypass sequence allowed, refer to BYP1, page 124
3	Indicates PoC load ratio (in %); refer to POCR, page 124
4	This warning indicates when the bypass sequence is active. ([Bypass PoC Warning] BYW1, refer to the example below, page 123) <ul style="list-style-type: none">Grey: warning not activeOrange: warning active
5	This warning indicates when the bypass sequence is active in degraded mode. ([Bypass PoC Degraded Warning] BYW2, refer to the example below, page 123) <ul style="list-style-type: none">Grey: warning not activeOrange: warning active
6	Bypass PoC Error, refer to error code BYPF, page 493 <ul style="list-style-type: none">Grey: no bypass error detected.Red: a bypass error is triggered
7	Un-bypass PoC Configuration mode set to Never , refer to BYP2, page 124. <ul style="list-style-type: none">PoC stays always bypassed until product power OFF (control and power).
A	Press on PoC Status button opens Diagnostics Menu which described the status of each Power Cell installed , page 182. <div><div>1</div><div>2</div><div>3</div><div>4</div><div><div>No</div><div>-</div></div><div><div>RDY</div><div>-</div></div><div><div>FLT</div><div>xxx</div></div><div><div>BYP</div><div>xxx</div></div></div>

Manual Un-bypass

This panel show Bypass function already configured and Un-bypass PoC function set to **Manual**.

Bypass PoC

Parameter	Label	Value	Unit
1 BYPS	Bypass PoC Status	PoC Stage Not Bypassed	
2 BYP1	Bypass PoC Max Number	4	
3 POCR	PoC Load Ratio	100	%
4 BYW1	Bypass PoC Warning		
5 BYW2	Bypass PoC Degraded Warning		
6 BYPF	Bypass PoC Error		

Un-Bypass PoC

Parameter	Label	Value	Unit
7 BYP2	Bypass PoC Reset	Manual	
8 BYPM	Bypass PoC Reset Assign	DI2	

A Bypass PoC Reset Command not possible, there is no power cell bypassed

B POC Status

Item	Description
1	Indicates Bypass PoC status, here PoC level are not bypassed, refer to BYPS, page 123
2	Indicates number of maximal bypass sequence allowed, refer to BYP1, page 124
3	Indicates PoC load ratio (in %); refer to POCR, page 124
4	This warning indicates when the bypass sequence is active. ([Bypass PoC Warning] BYW1 , refer to the example below, page 123) <ul style="list-style-type: none"> Grey: warning not active Orange: warning active
5	This warning indicates when the bypass sequence is active in degraded mode. ([Bypass PoC Degraded Warning] BYW2 , refer to the example below, page 123) <ul style="list-style-type: none"> Grey: warning not active Orange: warning active
6	Bypass PoC Error, refer to error code BYPF, page 493 <ul style="list-style-type: none"> Grey: no bypass error detected. Red: a bypass error is triggered
7	Un-bypass PoC Configuration mode set to Manual , refer to BYP2, page 124.
8	Bypass PoC reset is assigned to DI2 (<i>manual un-bypass DI sequence</i>), refer to BYPM, page 124.
A	Press on Bypass PoC Reset button allows to reset PoC bypassed. NOTE: In case of PoC still not un-bypassed, refer to the Diagnostics Menu in order to identify which PoC is triggered (ie. PWF7, OHF, OBF) , page 182.
B	Press on PoC Status button opens Diagnostics Menu which described the status of each Power Cell installed , page 182. <div> <div>1</div> <div>No</div> <div>-</div> </div> <div> <div>2</div> <div>RDY</div> <div>-</div> </div> <div> <div>3</div> <div>FLT</div> <div>xxx</div> </div> <div> <div>4</div> <div>BYP</div> <div>xxx</div> </div>

Automatic Un-bypass

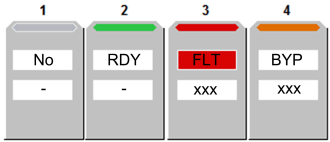
This panel show Bypass function already configured and Un-bypass PoC function set to **Auto**.

Bypass PoC			
Parameter	Label	Value	Unit
BYPS	Bypass PoC Status	PoC Stage Not Bypassed	
BYP1	Bypass PoC Max Number	4	
PO CR	PoC Load Ratio	100	%
BYW1	Bypass PoC Warning		
BYW2	Bypass PoC Degraded Warning		
BYPF	Bypass PoC Error		

Un-Bypass PoC			
Parameter	Label	Value	Unit
BYP2	Bypass PoC Reset	Auto	
BYPM	Bypass PoC Reset Assign	DI2	
BYP3	Un-bypass Retry Number	3	
BYPC	Un-bypass Automatic Counter	0	
	Un-bypass Automatic Blocked		

A Bypass PoC Reset Command not possible, there is no power cell bypassed **B** POC Status

Item	Description
1	Indicates Bypass PoC status, here PoC level are not bypassed, refer to BYPS, page 123
2	Indicates number of maximal bypass sequence allowed, refer to BYP1, page 124
3	Indicates PoC load ratio (in %); refer to PO CR, page 124
4	This warning indicates when the bypass sequence is active. ([Bypass PoC Warning] BYW1, refer to the example below, page 123) <ul style="list-style-type: none"> Grey: warning not active Orange: warning active
5	This warning indicates when the bypass sequence is active in degraded mode. ([Bypass PoC Degraded Warning] BYW2, refer to the example below, page 123) <ul style="list-style-type: none"> Grey: warning not active Orange: warning active
6	Bypass PoC Error, refer to error code BYPF, page 493 <ul style="list-style-type: none"> Grey: no bypass error detected. Red: a bypass error is triggered
7	Un-bypass PoC Configuration mode set to Auto (defined during commissioning), refer to BYP2, page 124.
8	Bypass PoC reset is assigned to DI2 (manual un-bypass DI sequence), refer to BYPM, page 124.
9	Indicates number of automatic Un-bypass PoC retry allowed, refer to BYP3, page 124.
10	Indicates counter of automatic Un-bypass PoC performed, refer to BYPC, page 124.
11	Indicates if automatic un-bypass is locked. <ul style="list-style-type: none"> Grey: Un-bypass automatic possible. Orange: Un-bypass automatic locked, reset must be done through DI2 (manual un-bypass DI sequence)

A	Press on Bypass PoC Reset button allows to reset PoC bypassed. NOTE: In case of PoC still not un-bypassed, refer to the Diagnostics Menu in order to identify which PoC is triggered (ie. PWF7, OHF, OBF) , page 182.
B	Press on PoC Status button opens Diagnostics Menu which described the status of each Power Cell installed , page 182. 

Manual un-bypass DI sequence

A manual un-bypass DI sequence can un-bypass the PoC and reset the **[Un-bypass Automatic Counter] BYPC** .

This DI is defined by **[Bypass PoC Reset Assign] BYPM**.

The purpose of the **BYPC** counter is to avoid continuous sequence “automatic un-bypass → bypass → un-bypass...” when a PoC is triggered (ie. PWF7, OHF, OBF)




- Display parameter **BYPC** is reset at each drive power-on or product reset.


Automatic retry un-bypass sequence


- **At run command:**
 - If a new bypass PoC occurred during internal timer **BYP4** (set during commissioning), automatic counter **BYPC** is increase by 1.
 - If a new bypass PoC is not occurred during internal timer **BYP4** (set during commissioning), automatic counter **BYPC** is reseted.
- **When drive is in stop mode** (PoC not commanded):
 - If the automatic counter **BYPC** ≤ **[Un-bypass Retry Number] BYP3** the automatic un-bypass sequence can be performed.
 - If the automatic counter **BYPC** > **[Un-bypass Retry Number] BYP3** the automatic un-bypass sequence cannot be performed.

Bypass PoC Reset Button

This bypass PoC Reset button allows to un-bypass the power cell through the HMI. Regarding drive and PoC state this button can be activated or not activated.

Bypass PoC			
Parameter	Label	Value	Unit
BYPS	Bypass PoC Status	1 PoC Stage Not Bypassed	
BYP1	Bypass PoC Max Number	4	
POCR	PoC Load Ratio	89	%
BYW1	Bypass PoC Warning		
BYW2	Bypass PoC Degraded Warning		
BYPF	Bypass PoC Error		

Un-Bypass PoC			
Parameter	Label	Value	Unit
BYP2	Bypass PoC Reset	Auto	
BYPM	Bypass PoC Reset Assign	DI2	
BYP3	Un-bypass Retry Number	3	
BYPC	Un-bypass Automatic Counter	0	
	Un-bypass Automatic Blocked		


Bypass PoC Reset

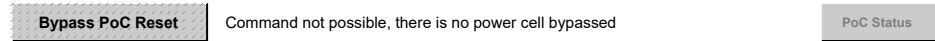
Press button for apply command

PoC Status

A. This can be used only if Un-bypass PoC Configuration mode is set to **[Manual]** or **[Auto]** (Through **[Bypass PoC Reset]** **BYP2**).

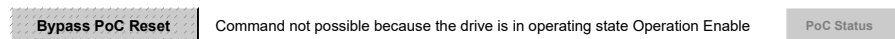
When PoC are not bypassed:

- Bypass PoC reset button is in grey level and no activation possible,
- "Command not possible, there is no power cell bypassed" is displayed.

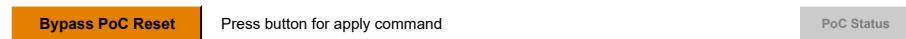


When PoC are bypassed, two uses cases are possible:

- if the drive is in operation enable state. (running...)
 - Bypass PoC reset button is in grey level and there is no activation possible,
 - "Command not possible because the drive is in operating state Operation Enable" is displayed.



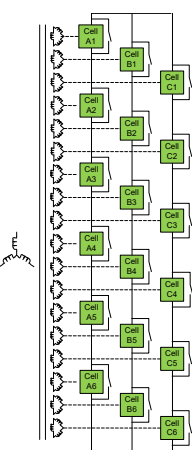
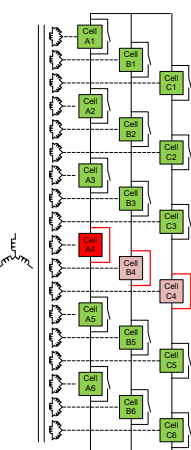
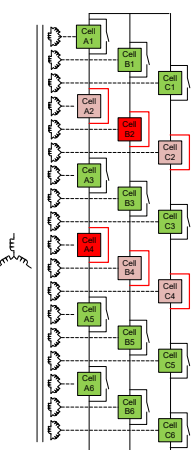
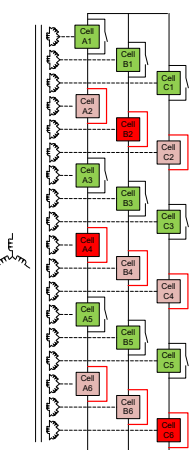
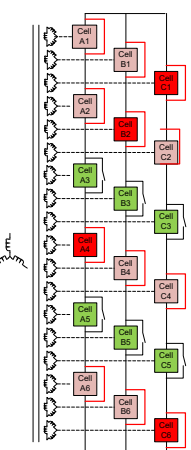
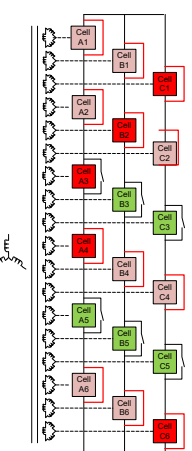
- if the drive is not in operation enable state
 - Bypass PoC reset button is in orange and activation is possible,
 - "Press button for apply command" is displayed.



Note: Un-bypass operation (by pressing Bypass PoC button) cannot be applied as long as the PoC error has not be removed. e.g during an overheating (OHF). Refer to the PoC status , page 182 and troubleshooting Diagnostics and Troubleshooting, page 472.

Example of PoC bypassed 4.16kV VSD

In this example, 6 PoC are used (4 PoC as standard with PoC N+2)

Command with PoC bypassed N+2	1 PoC level bypass	2 PoC level bypass	3 PoC level bypass	4 PoC level bypass	4 PoC level bypass New PoC in error
					
Bypass warning / error					
No warning	Bypass PoC warn 1	Bypass PoC warn 1	Bypass PoC warn 1 Bypass PoC Degraded Warning	Bypass PoC warn 1 Bypass PoC Degraded Warning	Bypass PoC warn 1 Bypass PoC Degraded Warning Bypass PoC error
Bypass status					
No PoC bypassed	Bypass 1 level	Bypass 2 level	Bypass 3 level	Bypass 4 level	PoC stage bypass error
Power stage over-load ratio (POCR)					
150 %	125 %	100 %	75 %	50 %	50 %

[Bypass PoC Status] BYPS

Bypass status register shows the actual Status of the POC Bypass Function.

Setting	Code / Value	Description
[PoC Stage Not Bypassed]	NO	No PoC bypassed
[1 PoC Stage Bypassed]	BYP1	1 PoC stage is bypassed
[2 PoC Stage Bypassed]	BYP2	2 PoC stage are bypassed
[3 PoC Stage Bypassed]	BYP3	3 PoC stage are bypassed
[4 PoC Stage Bypassed]	BYP4	4 PoC stage are bypassed
[PoC Stage Bypass Error]	FLT	PoC stage bypass error. More POC Bypassed than allowed in [Bypass PoC Max Number] BYP1

[Bypass PoC Max Number] BYP1

Defines the Number of POC that are allowed to be Bypassed.

Setting	Description
1...4	Setting range Factory setting: 1 bypass

[PoC Load Ratio] POCL

This parameter shows the actual allowed load of the drive depending on the actual level of POC Bypass, page 123.

Setting	Description
in %	Setting range Factory setting: _

[Bypass PoC Reset] BYP2

Defines the Un-Bypass sequence for POC Bypass.

Setting	Code / Value	Description
[Never]	NEVER	PoC stays always bypassed until product power OFF (control and power) Factory setting
[Manual]	MANU	Poc unbypassed done manually. PoC can be un-bypassed at drive stop if the PoC event generating the bypass is removed by Manual un-bypass DI sequence active on transition 0 to 1.
[Auto]	AUTO	PoC can be Un-Bypassed at drive stop if the PoC event generating the bypass is removed.

[Bypass PoC Reset Assign] BYPM

Defines the Digital Input to manually Un-Bypass the POC. Refer to DTM for complete list of Digital inputs.

[Un-bypass Retry Number] BYP3

Allowed retries to Automatically Un-Bypass the POC during **BYP4** (set during commissioning).

Setting	Description
1...65535	Setting range Factory setting: 3

[Un-bypass Automatic Counter] BYPC

Counter for Un-Bypass tries in the time of **BYP4** (set during commissioning). This counter gets reseted if there are no new UN-Bypass tries in **[Un-bypass Retry Time] BYP4**.

Setting	Description
0...65535	Setting range Factory setting: _

[Inputs / Outputs Monitoring] Menu

Presentation

HMI Access

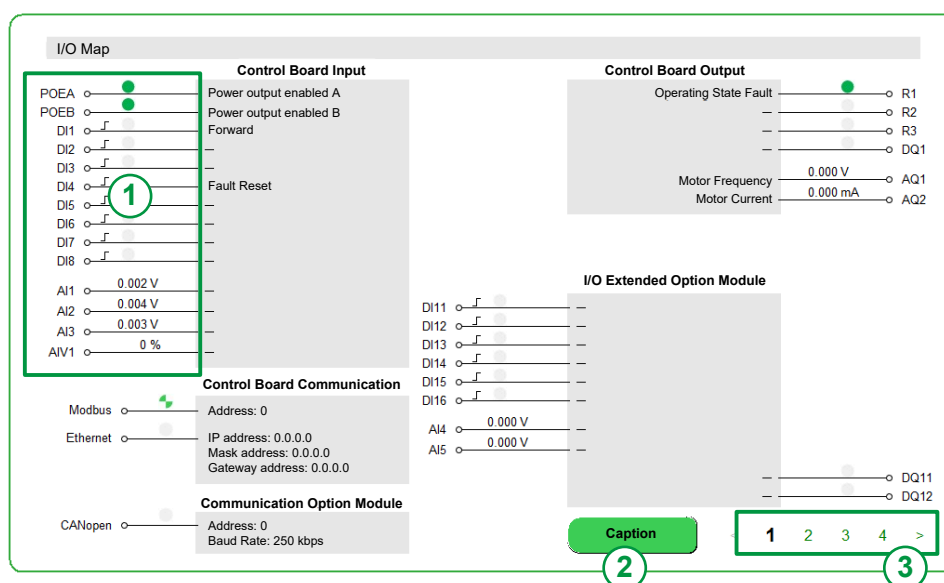
[Display] → [System Dashboard] → [IO Map]

Overview

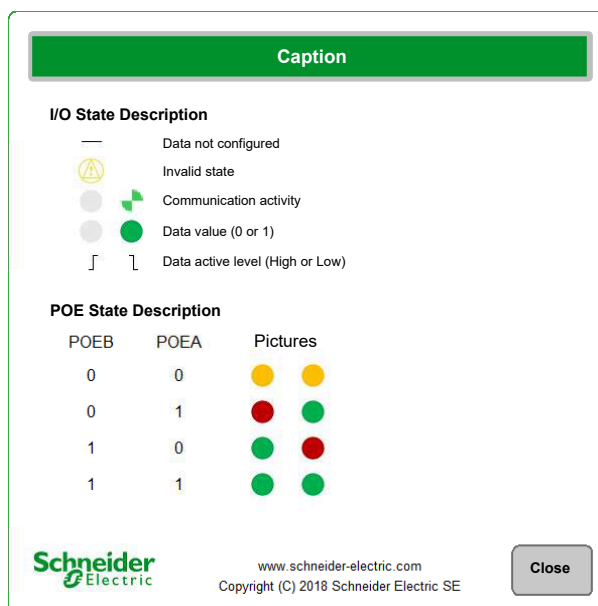
The following panels show the inputs and outputs of the drive with the function assigned, the configuration and the present value or state. Depending on your personal function requirements these panels can be different.

NOTE: Read-only, cannot be configured.

Inputs and Outputs assignment and state. (Page 1)



- 1. Status:** Some data are monitored (e.g. values, status, communication activity).
- 2. Caption:** Click on this button for explanation of the I/O states and the states of POE/STO (depending on master controller type).

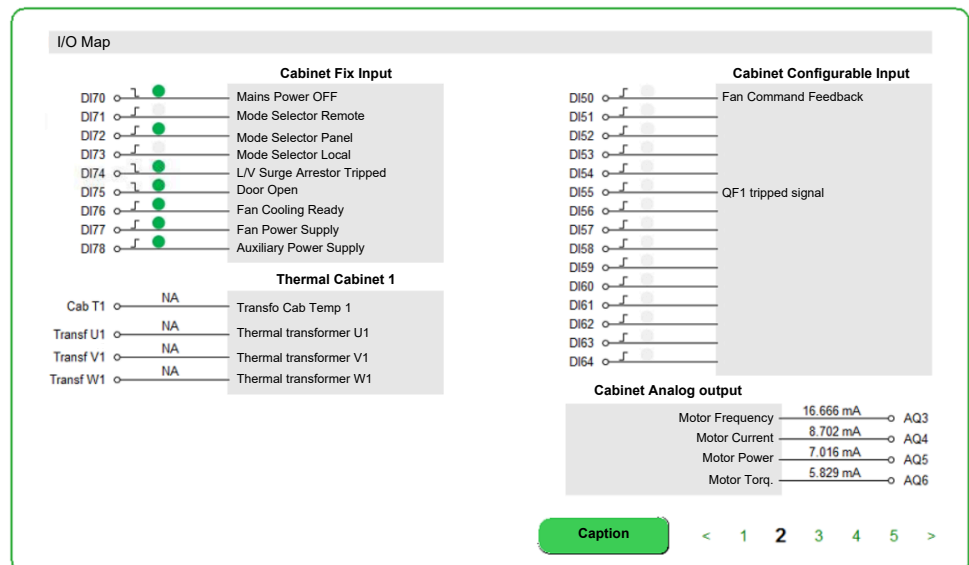


3. **Page selection:** Allows to navigate through several areas and pages, it presents all monitoring I/O parameters for:

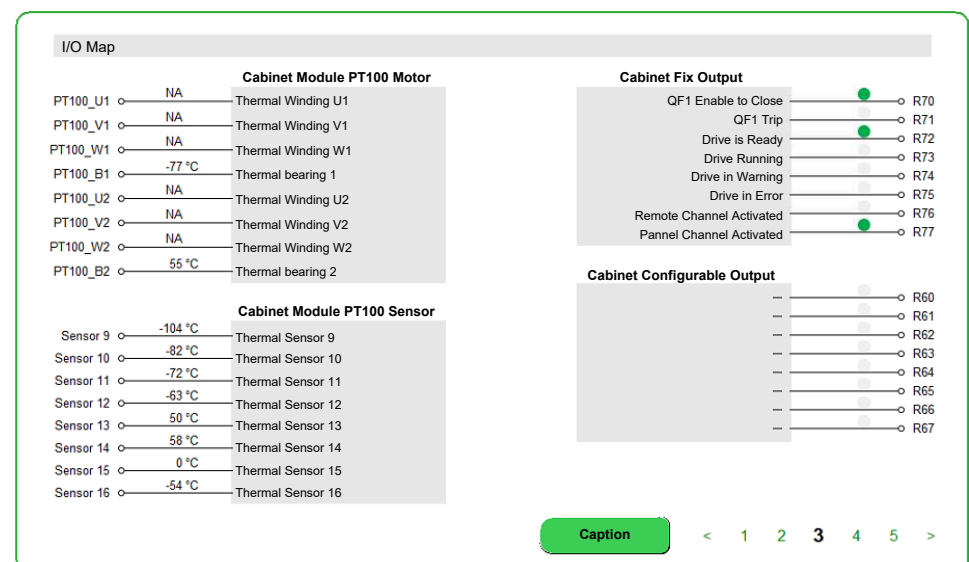
- Control board,
- Module option,
- M241,
- PT100 for motor and cabinet.
- Bypass drive
- Cooling fan

When functions are Configured: Example

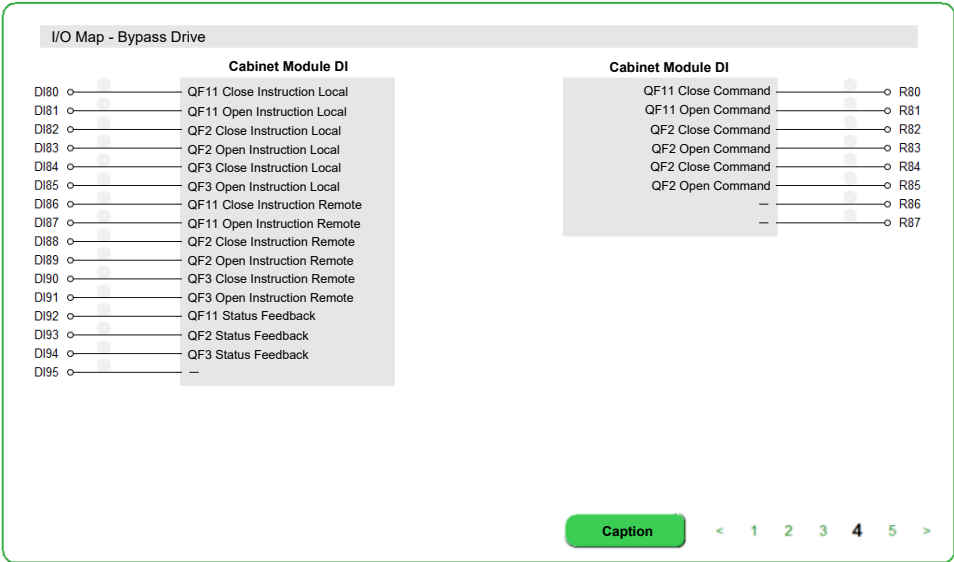
Digital inputs selection, Analog outputs value, and temperature of Cabinet. (Page 2)



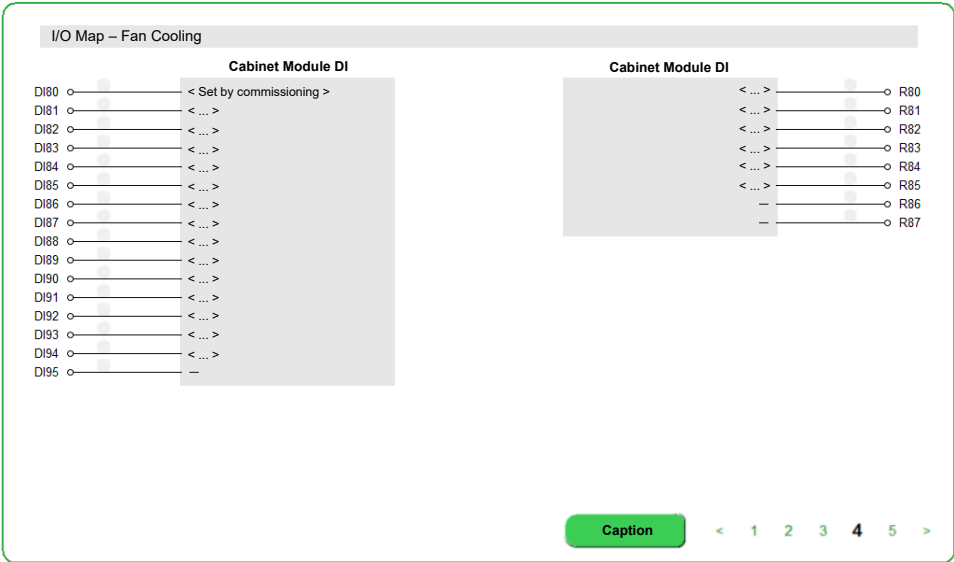
State and temperature of Cabinet module with PT100 and relays. (Page 3)



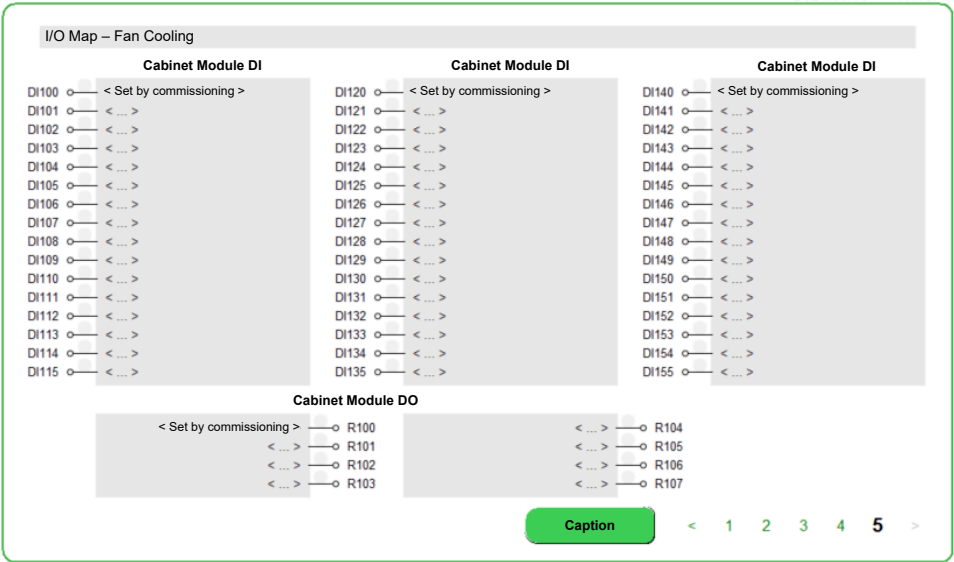
Cabinet Digital Inputs and Output selection used for Bypass Drive. (Page 4a)



Cabinet Digital Inputs selection used for Fan Cooling function. Basic module (Page 4b)



Cabinet Digital Inputs and Output selection used for Fan Cooling function. Extended module (Page 5)



[Communication] Menu

HMI Access

[Display] ➡ [System Dashboard] ➡ [Communication map]

About This Menu

This menu is related to the fieldbus parameters, refer to the identical and already described DTM part >> Communication menu.
Read-only parameters cannot be configured.

- Page 1: Command and status, page 442
- Page 2: CANopen, page 451
- Page 3: Profibus DP, page 458
- Page 4: PROFINET, page 460
- Page 5: EtherCAT, page 463
- Page 6: DEVICENET, page 456
- Page 7: Modbus
- Page 8: Ethernet module, page 444

UPS Data

HMI Access

[Display] ➡ [System Dashboard] ➡ [UPS Data]

About This Menu

The UPS can connect via Modbus to the PLC, allowing user to monitor UPS data to the HMI.

[UPS Battery Charge State] UPSB

UPS battery charge state.

Value range	Description
0...100 %	Factory setting: –

[UPS Remaining Runtime] UPSR

UPS remaining runtime.

Value range	Description
0...65535 minutes	Factory setting: –

[UPS Internal Temperature] UPST

UPS internal temperature.

Value range	Description
0...65535 °C	Factory setting: –

[UPS Input Voltage] UPSV

UPS input voltage.

Value range	Description
0...65535 V	Factory setting: –

[UPS Input Frequency] UPSF

UPS input frequency.

Value range	Description
0...65535 Hz	Factory setting: –

[UPS Status] UPSS

UPS status word.

Bit	Description, Value
0	1: UPS in bypass due to an internal error
1	1: On Line
2	1: On Battery
3	1: Overload
4	1: Low Battery
5	1: Replace Battery
6	1: Line quality acceptable
7	1: UPS no communication
8...15	Reserved

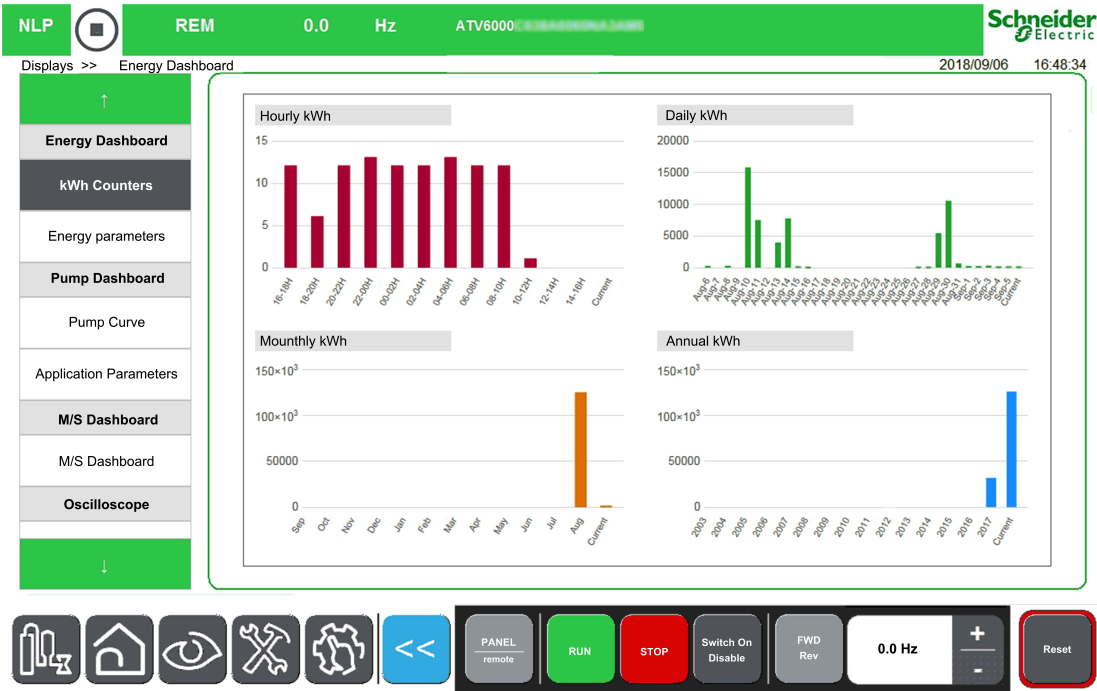
[Energy Dashboard] Menu

HMI Access

[Display] → [Energy Dashboard]

Overview

The **Energy Dashboard** menu allows you to see the real-time information of the connected devices.



The **Energy Dashboard** tab is divided into two main zones:

- A tree view on the left-side of the screen.
- A display area on the right-side of the screen.

This menu displays the graphical representation of hourly, daily, monthly, and yearly power consumption of the device

NOTE: The parameter values are automatically refreshed at regular intervals.

Energy Parameters

This panel allows you to see all energy data through several pages.

Here is dashboard energy table for HMI Panel with mains electrical energy, motor electrical energy, and motor mechanical energy parameters.

Energy Table

UNIT	TWh	GWh	MWh	kWh	Wh
Mains Electrical Energy	IE4	IE3	IE2 9	IE1 433	IE0 116
Motor Electrical Energy	OE4	OE3	OE2 2	OE1 654	OE0 34
Motor Mechanical Energy	ME4	ME3	ME2 2	ME1 606	ME0 29

1

< 1 2 3 >

1 Page selection

For other data as power data, electrical energy counter, and energy saving available , [page 389](#).

[Pump Dashboard] Menu

HMI Access

[Display] → [Pump Dashboard]

Overview

When the User has entered the pump curve characteristics and activated it, the following curve displays are available:

- Mechanical power vs flow display
- Head of pump vs flow display
- Efficiency vs flow display
- Mechanical power vs speed display



Pump Data - Application Parameters

See related pump data parameters , page 399

[M/S dashboard] Menu

HMI Access

[Display] → [M/S Dashboard]

About This Menu

This menu presents the master-slave display parameters from HMI Panel.

The following examples are managed during the commissioning depending the Master/Slave architecture:

- **Analog:** Only parameters are displayed. One master and one slave are configured.
- **MultiDrive Link :** Composed of one Master and up to 10 slaves. Each slave has its own slave identification.
- **MultiDrive Link with Master Redundancy:** Composed of primary master, a secondary master, and up to 10 Slaves. Each slave has its own slave identification.

NOTE: Read-only parameters cannot be configured, only monitoring details can be selected.

Analog Mode

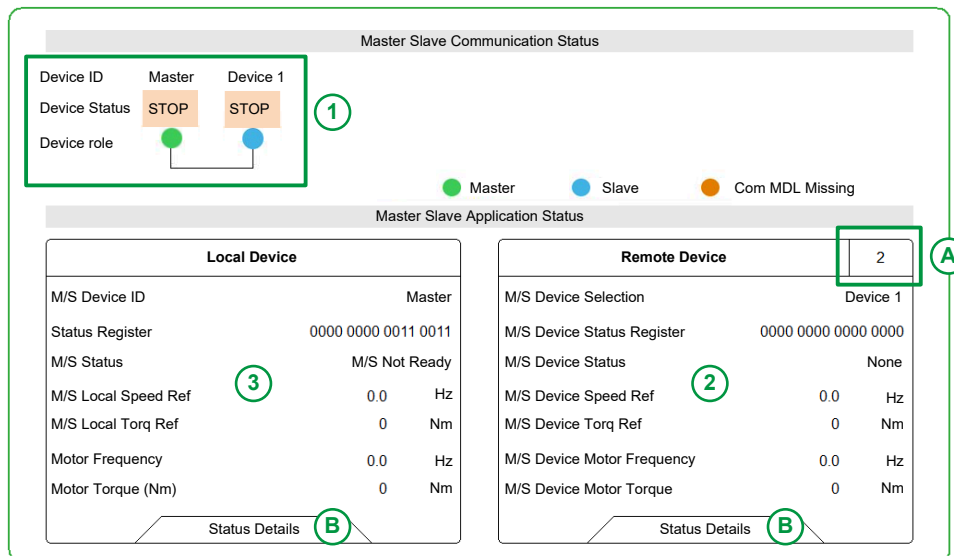
Only parameters are displayed

NOTE: Depending on the [M/S Device Selection] [MSDN](#) setting, some parameters may not be visible.

Master Slave Analog			
Parameter	Label	Value	Unit
MSS	M/S Status	M/S Ready	
MSMS	M/S Master Speed Ref	0.0	Hz
FMTR	M/S Master Torq Ref	0	Nm
RFR	Motor Frequency	0.0	Hz
OTQN	Motor Torque (Nm)	0	Nm
MSSR	M/S Local Speed Ref	0.0	Hz
FTOR	M/S Local Torq Ref	0	Nm

MultiDrive Link & MultiDrive Link with Master Redundancy Mode

This interface allows to monitored M/S architecture and status.



1: Communication Status

- The Device ID depends on the system architecture. It may consist of one master and several slaves (up to 10 devices).
- The Device Status indicates whether the device is in **Stop** or **Run** mode.
- The Device Role shows whether the device is a **Master** or **Slave**, and also indicates any communication loss.

2. Parameter Details – Selected Device Displays parameter details related to the selected remote device (refer to item A).

3. Parameter Details – Local Device Displays parameter details related to the local device.

A. Remote Device Selection Clicking this element allows you to select and monitor information from a remote device (Device 1 to Device 11).

B. Device Status Monitoring Clicking this element allows you to monitor detailed status information for the selected device.

Local Status Register Description		
Bit 0	(1) Ready to switch-on	1
Bit 1	(1) Switched-on	1
Bit 2	(1) Operation enabled	0
Bit 3	(1) Error detected	0
Bit 4	(1) Voltage enabled	1
Bit 5	(1) Quick stop	1
Bit 6	(1) Switch-on disabled	0
Bit 7	(1) Warning detected	0
Bit 8	-	0
Bit 9	(1) Forced local mode active	0
Bit 10	(1) Target reference reached	0
Bit 11	(1) Reference outside the limits	0
Bit 12	-	0
Bit 13	-	0
Bit 14	(1) HMI stop key triggered	0
Bit 15	Motor direction (0) forward / (1) reverse	0

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Close

Example with One Master and 3 Slaves Configured

With this architecture, one master and 3 slaves are configured.

To monitor detailed information from **Device 2** (which corresponds to **Slave 2**):

- Click on Item **A**,
- Enter the number **3** (e.g.: Master = position 1, Slave 1 = position 2...Slave 10 = position 11).
- Click **OK**

Parameters details are now available for Device 2 and status details can be monitored by clicking on Item **B**.

Master Slave Communication Status

Device ID	Master	Device 1	Device 2	Device 3
Device Status	STOP	STOP	STOP	STOP
Device role	Master	Slave	Slave	Slave

Legend: Master (Green dot), Slave (Blue dot), Com MDL Missing (Orange dot)

Master Slave Application Status

Local Device	
M/S Device ID	Master
Status Register	0000 0000 0011 0011
M/S Status	M/S Not Ready
M/S Local Speed Ref	0.0 Hz
M/S Local Torq Ref	0 Nm
Motor Frequency	0.0 Hz
Motor Torque (Nm)	0 Nm

Remote Device	
M/S Device Selection	3 (Device 2)
M/S Device Status Register	0000 0000 0000 0000
M/S Device Status	None
M/S Device Speed Ref	0.0 Hz
M/S Device Torq Ref	0 Nm
M/S Device Motor Frequency	0.0 Hz
M/S Device Motor Torque	0 Nm

Buttons: Status Details (Local), Status Details (Remote)

[M/S Status] MSS

M/S function status.

Setting	Code / Value	Description
[None]	NONE	Not configured
[M/S Local Control]	NACT	M/S local control
[M/S Not Ready]	NRDY	M/S not ready
[M/S Ready]	READY	M/S ready
[M/S Running]	RUN	M/S running
[M/S Warning]	ALARM	M/S warning

[M/S Master Speed Ref] MSMS

M/S Master speed reference.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[M/S Master Torq Ref] FMTR

M/S master torque reference.

Value range	Description
-32,767...32,767 Nm	Value: according to drive ratings Factory setting: _

[M/S Local Torq Ref] FTOR

M/S local torque reference.

Value range	Description
-32,767...32,767 Nm	Value: according to drive ratings Factory setting: _

[M/S Master Torque Ref] MSMT

M/S Master torque reference.

Value range	Description
-32,767...32,767 Nm	Factory setting: _

[M/S Local Speed Ref] MSSR

M/S Local speed reference.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[M/S Local Torque Ref] MSTR

M/S Local torque reference.

Value range	Description
-32,767...32,767 Nm	Factory setting: _

[Motor Frequency] RFR

This parameter displays the estimated rotor frequency without motor slip.

Value range	Description
-3,276.7...3,276.7 Hz	Factory setting: 0.0 Hz

[Motor Torque (Nm)] OTQN

Output torque value.

Note: The displayed value is always positive in motor and negative in generator mode whatever the direction.

Value range	Description
-32,767...32,767 Nm	Value: according to drive ratings Factory setting: _

[M/S Device Selection] MSDN

This parameter allows to select the device parameters to be displayed.

Setting	Code / Value	Description
[Master]	MSTER	Master Factory setting
[Slave 1]	SLV1	Slave 1
[Slave 2]	SLV2	Slave 2
[Slave 3]	SLV3	Slave 3
[Slave 4]	SLV4	Slave 4
[Slave 5]	SLV5	Slave 5
[Slave 6]	SLV6	Slave 6
[Slave 7]	SLV7	Slave 7
[Slave 8]	SLV8	Slave 8
[Slave 9]	SLV9	Slave 9
[Slave 10]	SLV10	Slave 10

[M/S Device Status] MSDS

Status of the device selected using [M/S Device Selection] MSDN.

Setting	Code / Value	Description
[None]	NONE	Not configured
[M/S Local Control]	NACT	M/S local control
[M/S Not Ready]	NRDY	M/S not ready
[M/S Ready]	READY	M/S ready
[M/S Running]	RUN	M/S running
[M/S Warning]	ALARM	M/S warning

[M/S Device Speed Ref] MSXS

Displays the local speed reference value of the device selected using **[M/S Device Selection]** [MSDN](#).

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[M/S Device Torque Ref] MSXT

Displays the local torque reference value of the device selected using **[M/S Device Selection]** [MSDN](#).

Value range	Description
-32,767...32,767 Nm	Factory setting: _

[Oscilloscope] Menu

What's in This Chapter

Presentation	141
ToolBar	143
Oscilloscope Configuration	147
Parameters Selection	148

Presentation

HMI Access

[Display] → [Oscilloscope]

Overview

The oscilloscope menu is used to display the real-time waveforms of the ATV6000's input and output variables and also keep traces of parameters on the connected device.

NOTE: Oscilloscope configuration change when the device is running is not saved in Control configuration file

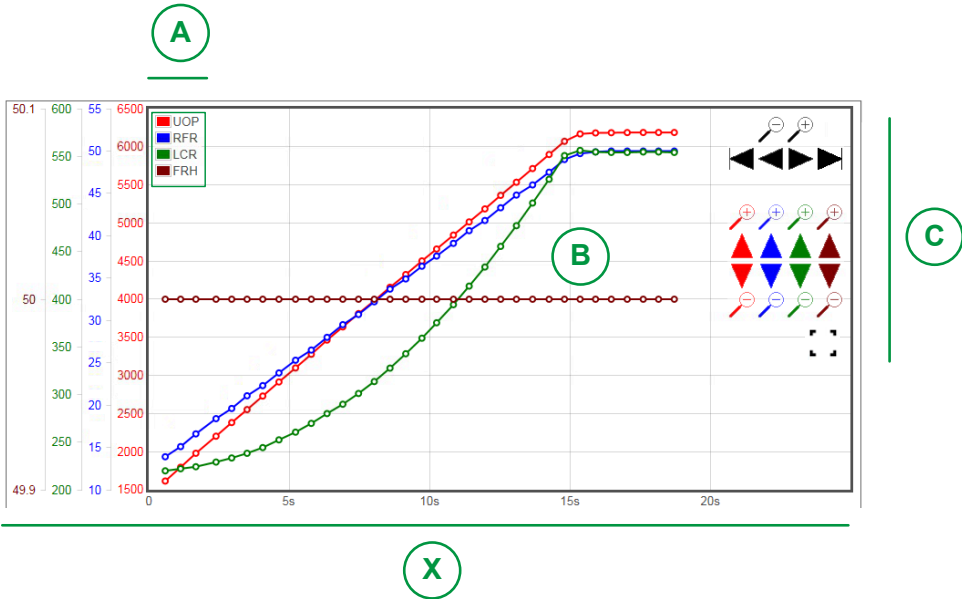


The Oscilloscope Panel is composed of several areas described below:

1. Curves area, page 142.
When acquisition is started, then curves are displayed on the same moment.
2. Status area, page 142.
3. Toolbar area, page 143.

NOTE: Device must be in online mode.

Curve Area



X: Horizontal axis indicating the time value.

Y: Vertical axis, indicating the value of the associated channel signal. (Here 4 Channels are displayed.)

A: Legends.

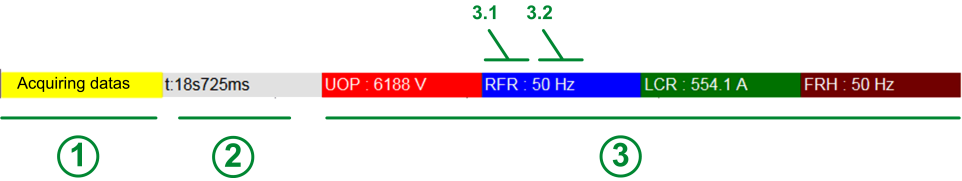
B: Curves.

C: Zoom in on/Zoom out from axes and curves.
Item allows you to toggle between three screen modes: standard view, full screen with axis, and full screen without axis.

NOTE: Oscilloscope function can display one axis per curve, each axis, and curve has a different color.

Status Area

Status area indicates the status of the actual acquisition and displays the value for each channel.



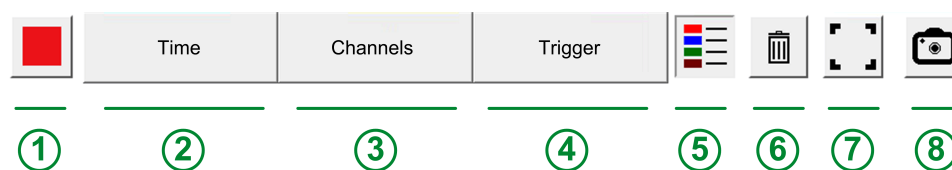
It is composed by:


1	Status of the acquisition.
2	Time value.
3	Acquisition value for each channel. (Up to 4 channels)
3.1	Associated parameters for each channel.
3.2	Associated curve color for each channel.

ToolBar

Overview



The Toolbar is composed of several buttons described below:



1. **Control:** Allows to Start or stop acquisition mode.
2. **Time:** Configuration mode; allows you to define the time recording selection , [page 147](#).
3. **Channels:** Configuration mode; allows you to define the parameters to be recorded. 4 Channels can be configured , [page 147](#).
4. **Trigger:** Configuration mode; allows you to define trigger signals to start a recording when a specific event occurs , [page 147](#).
5. **Legend:** Allows to display indication of the different curves.
6. **Trash can:** Allows to delete your current acquisition.
7. **Display option:** Allows you to toggle between three screen modes: standard view, full screen with axis, and full screen without axis.
To switch between modes, double-click anywhere in full screen mode or use the item  as described on the [Curve Area](#), [page 142](#).
- NOTE:** In full screen mode, the Toolbar is hidden.
8. **Snapshot mode:** Allows you to take a snapshot of your acquisition. See [Export files function](#), [page 319](#).

Control

The table provides the details of the Control button available on toolbar area

Icon	Name	Description
	Start	Start acquisition
	Stop	Stop acquisition

Time Selection

This area allows you to define the settings for the recording traces.

- **Sampling time:**
It allows you to select the duration between 2 points.
Range: 500 ms, 1 s, 2 s, 5 s, 10 s, 20 s, 30 s, 1 min, 5, min.
Default value: 1 s
Maximum record duration: 3 last remaining days.
- **Window time:**
It allows you to select the acquisition area.

- **Offset time:** Offset is applied to the display area in order to set the Y axis of the associated curve.
- **Configure the Pan**
 - Displays or hides a pan/panning toolbar to shift the image within a viewing area.
 - Use the + and - buttons to zoom IN or zoom Out.

NOTE: The signal amplitude being between 1 s and 72 h (Seconds, minutes, and hour).

Channels Selection

- This area allows you to define the settings for recording the traces.
- **Channel 1...4:**

Selection of the parameter among a predefined list.

NOTE: It is possible to add a new parameter with the modbus address.
 - **Offset:**

Offset is applied to the display area in order to set the Y axis of the associated curve.
 - **Amplitude (axe y):**

This amplitude allows to set the maximum value of the Y axis of the associated curve.

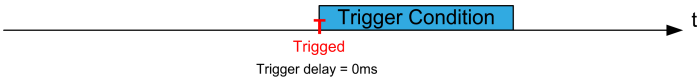

Trigger Selection

- This area allows you to define the settings for recording the traces.
- **Trigger Parameter:**

It displays all the parameters which are added to be traced.
 - **Trigger threshold:**

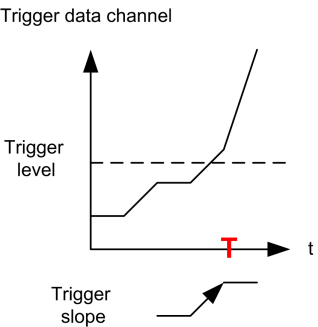
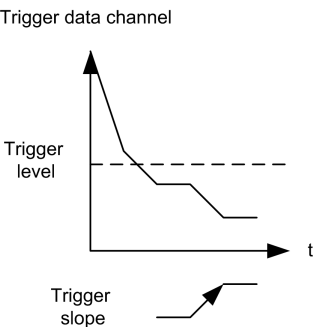
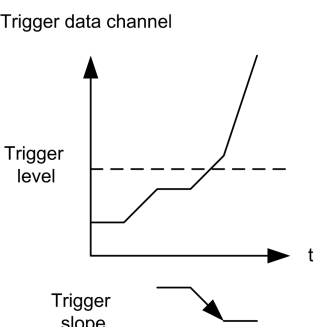
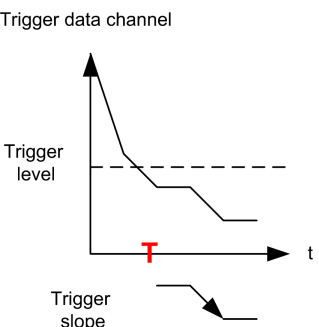
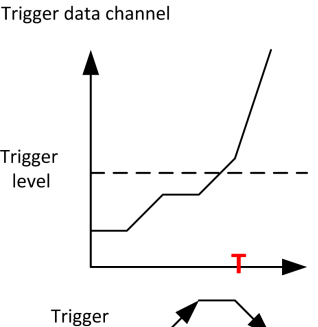
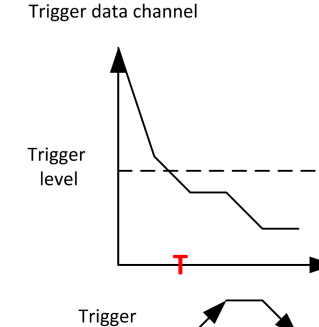
It allows to define the scale value of the associated parameter.
 - **Trigger Delay:**

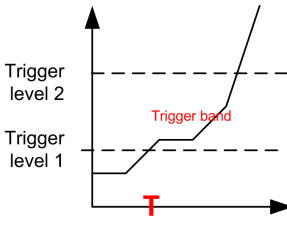
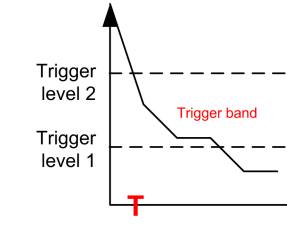
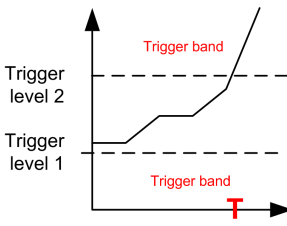
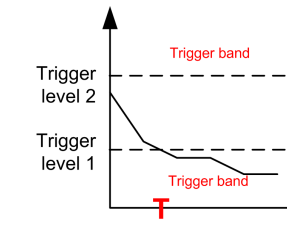
Defines the delay between the trigger event and the beginning of trace acquisition

Trigger delay	Description
0 ms:	<p>This selection means that the data acquisition starts at the trigger event.</p> 
+ X ms	<p>This selection means that the data acquisition starts after the trigger event.</p> 

- **Trigger Type**

It allows to define the type of acquisition.

Type	Description
None	Acquisition starts when Start is pressed.
Positive slope	<p>Trigger data channel</p>  <p>Trigger level</p> <p>t</p> <p>Trigger slope</p> <p>Trigger data channel</p>  <p>Trigger level</p> <p>t</p> <p>Trigger slope</p> <p>Acquisition starts when trigger parameter become greater than trigger selected value</p>
Negative slope	<p>Trigger data channel</p>  <p>Trigger level</p> <p>t</p> <p>Trigger slope</p> <p>Trigger data channel</p>  <p>Trigger level</p> <p>t</p> <p>Trigger slope</p> <p>Acquisition starts when trigger parameter become smaller than trigger selected value</p>
Positive & Negative	<p>Trigger data channel</p>  <p>Trigger level</p> <p>t</p> <p>Trigger slope</p> <p>Trigger data channel</p>  <p>Trigger level</p> <p>t</p> <p>Trigger slope</p> <p>Acquisition starts when trigger parameter becomes smaller or greater than trigger selected value</p>

Type	Description
WindowsIn	<p>Acquisition starts when trigger parameter is inside a minimum (Level 1) and maximum (Level 2) trigger value.</p> <p>Trigger data channel</p>  <p>Trigger level 2</p> <p>Trigger level 1</p> <p>Trigger band</p> <p>T</p> <p>t</p> <p>Trigger data channel</p>  <p>Trigger level 2</p> <p>Trigger level 1</p> <p>Trigger band</p> <p>T</p> <p>t</p>
Windows-Out	<p>Acquisition starts when trigger parameter is outside a minimum (Level 1) and maximum (Level 2) trigger value.</p> <p>Trigger data channel</p>  <p>Trigger level 2</p> <p>Trigger level 1</p> <p>Trigger band</p> <p>T</p> <p>t</p> <p>Trigger data channel</p>  <p>Trigger level 2</p> <p>Trigger level 1</p> <p>Trigger band</p> <p>T</p> <p>t</p>

Snapshot Mode

Click on the button to take a snapshot of the acquisition, it can be exported on a USB key. See Export files function , page 319.

Oscilloscope Configuration

Defining Parameters

To define and set the parameters linked to the channel for a recording.

Step	Action
1	Click on Channel button. Result: The box is extended.
2	In the dialog box: Select the parameter you wish to record.
3	Input the sampling rate value.
4	Input the offset value.
5	Input the amplitude value.
6	Click on the Start button to start the acquisition.
For more details, refer to Channels Selection , page 144.	

NOTE: It is possible to add a new parameter with the modbus address.

Defining a Trigger Signals

To define the trigger signals for a recording:

Step	Action
1	Click on Trigger button Result: The box is extended
2	In the dialog box: Select the parameter you wish to record
3	Input the scale value of the associated parameter.
4	Input the delays between the trigger event and the beginning of the trace acquisition.
5	Click on the Start button to start the acquisition.
For more details, refer to Trigger Selection , page 144.	

Export File

When the acquisition is running, a snapshot is done; It is possible to export all snapshots of the "Oscilloscope Snapshot" into the default directory. See menu Export Files, page 319.

Parameters Selection

Selectable List of Parameters

This table provides the list of parameters that can be selected to the channel.

Menu	Code	Label	Units
[Mains Data], page 331	ULN	[Mains Voltage]	V
	UL1	[Mains voltage phase 1-2]	V
	UL2	[Mains voltage phase 2-3]	V
	UL3	[Mains voltage phase 3-1]	V
	ILN	[Mains Current]	A
	IL1	[Mains Current L1]	A
	IL2	[Mains Current L2]	A
	IL3	[Mains Current L3]	A
	FAC	[Mains Frequency]	Hz
	IPRW	[Active Input Power]	kVar
	IQRW	[Input Reactive Power]	kVar
	ISRW	[Apparent Input Power]	kW
	PWF	[Input Power Factor]	%
	UMV	[Mains Unbalance Ratio]	%
	GIVD	[Input Ground Value]	%
[Power stage Data]	TT1M	[Transfo Cab Temp 1]	°C
	TP1U	[Thermal transformer U1]	°C
	TP1V	[Thermal transformer V1]	°C
	TP1W	[Thermal transformer W1]	°C
	TT2M	[Transfo Cab Temp 2]	°C
	TP2U	[Thermal transformer U2]	°C
	TP2V	[Thermal transformer V2]	°C
	TP2W	[Thermal transformer W2]	°C
[Motor data]	FRH	[Pre-Ramp Ref Freq]	Hz
	FRO	[Frequency Reference After Ramp]	
	UOP	[Motor voltage]	V
	LCR	[Motor Current]	A
	RFR	[Motor Frequency]	Hz
	SPD	[Motor Speed]	rpm
	OTR	[Motor torque]	%
	OTRN	[Motor Torque (Nm)]	Nm
	EPR	[Acv Elc Out Pwr in %]	%
	EPRW	[Acv Elc Out Pwr in kW]	kW
	OPR	[Mot Mech Power in %]	%
	OPRW	[Power Estim Value]	kW
	GOVD	[Output Ground Value]	%
[Motor Thermal], page 356	THM1	[Thermal winding U1]	°C

Menu	Code	Label	Units
	THM2	[Thermal winding V1]	°C
	THM3	[Thermal winding W1]	°C
	THM5	[Thermal winding U2]	°C
	THM6	[Thermal winding V2]	°C
	THM7	[Thermal winding W2]	°C
	THM4	[Thermal bearing 1]	°C
	THM8	[Thermal bearing 2]	°C
[Thermal Sensor], page 359	TH1V	[AI1 Th Value]	°C
	TH3V	[AI3 Th Value]	°C
	TH4V	[AI4 Th Value]	°C
	TH5V	[AI5 Th Value]	°C
	THEV	[Enc Th Value]	°C
	THM9	[Thermal Sensor 9]	°C
	THMA	[Thermal Sensor 10]	°C
	THMB	[Thermal Sensor 11]	°C
	THMC	[Thermal Sensor 12]	°C
	THMD	[Thermal Sensor 13]	°C
	THME	[Thermal Sensor 14]	°C
	THMF	[Thermal Sensor 15]	°C
	THMG	[Thermal Sensor 16]	°C
[Drive Data], page 337	LFRA	[Line Ref Frequency]	Hz
	LFRD	[Speed Setpoint]	-
	LTRA	[Line Ref Torque]	%
	CNFS	[Config. active]	-
	RFCC	[Ref Freq Channel]	-
	CMDC	[Command Channel]	-
	CMDS	[Cabinet Switch Status]	-
	QF0S	[QF1 Command State]	-
	PLO1	[On Lock Register]	Bit
	TLS1	[Overload State 1]	%
	TLS2	[Overload State 2]	%
[Bypass Drive], page 409	BYS0	[Drive Bypass Status]	-
	BYS1	[Bypass Circuit Breaker Status]	-
	PLO2	[Drive Bypass On Lock Register]	-
	QF1S	[QF11 Command State]	-
	QF2S	[QF2 Command State]	-
	QF3S	[QF3 Command State]	-
[Bypass PoC], page 363	BYPS	[Bypass PoC Status]	-
[Analog Input Function], page 77	AM1P	[AI Monitor 1 Process Value]	-
	AM2P	[AI Monitor 2 Process Value]	-
	AM3P	[AI Monitor 3 Process Value]	-
	AM4P	[AI Monitor 4 Process Value]	-

Menu	Code	Label	Units
	AM5P	[AI Monitor 5 Process Value]	-
	AM6P	[AI Monitor 6 Process Value]	-
	AM7P	[AI Monitor 7 Process Value]	-
	AM8P	[AI Monitor 8 Process Value]	-

Bypass Drive

What's in This Chapter

[Bypass Drive Monitoring] Menu.....	152
[Bypass Drive Control DOL] Menu	156

Overview

The purpose of the bypass is to switch the motor to mains or from mains to drive depending on the application and the settings of the drive. Bypass is possible unsynchronized or synchronized. The CB operation can be controlled by the drive or manually.

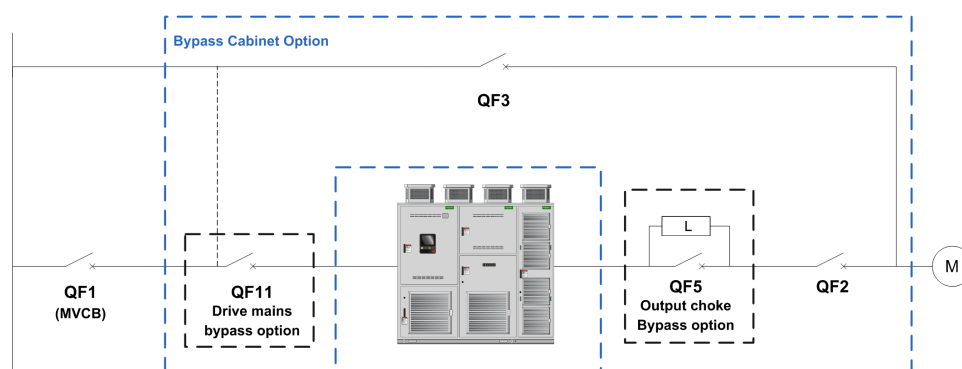
In the event of an error is detected the drive can switch automatically to mains.

There are 3 types of bypass drive function:

- **Bypass Drive Monitor:** The drive is only in monitoring mode, the Circuit breaker must be switched manually.
- **Bypass Drive Control Direct On Line (DOL):** The drive can switch the motor automatically to DOL in case of an error detected. The normal transfer to DOL can be monitored.
- **Bypass Drive Control Synchronized:** The drive can synchronize the motor to mains and also from mains back to the drive.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider representative.

The following figure shows the possible architecture available with your application.



QF1 Mains medium voltage Circuit Breaker

QF11 Bypass circuit breaker DRIVE (Optional)

QF2 Bypass circuit breaker MOTOR

QF3 Bypass circuit breaker DOL

QF5 Bypass circuit breaker Choke (Optional for Bypass Drive Control Synchronized)

NOTE:

- User must confirm that the function selection is compatible with his installation.
- Before applying any command to the Circuit breaker, check the initial status and feedback displayed on the HMI.

[Bypass Drive Monitoring] Menu

HMI Access

[Display] → [Bypass Drive] → [Bypass Drive Monitoring]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider Electric representative.

With the Bypass Monitor function:

- all Circuit Breakers are handled manually by the user.
- all Circuit Breakers QF11/QF2/QF3 feedback are monitored.

[Drive Bypass Status] BYS0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] BYS1

Bypass circuit breaker status

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1

Value range	Code / Value	Description
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYSD	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2.

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13	Reserved
14	Reserved
15	Reserved

[Bypass Drive CB status] BWS1

Bypass drive circuit breaker status.

Bit	Description, Value
0	QF11 Close request instruction (state or pulse)
1	QF11 Open request instruction (state or pulse)
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
6	QF5 Open request instruction (state or pulse)
7	QF5 Close request instruction (state or pulse)
8	QF11 Close (1) command instruction
9	QF11 Open (1) command instruction
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction
13	QF3 Open (1) command instruction
14	QF5 Open (1) command instruction
15	QF5 Close (1) command instruction

[Logic Input DI80 to DI95] ILC3

Logic Input DI80 to DI95.

Bit	Description, Value
0	"DI80" logic inputs physical image
1	"DI81" logic inputs physical image
2	"DI82" logic inputs physical image
3	"DI83" logic inputs physical image
4	"DI84" logic inputs physical image
5	"DI85" logic inputs physical image
6	"DI86" logic inputs physical image
7	"DI87" logic inputs physical image
8	"DI88" logic inputs physical image
9	"DI89" logic inputs physical image
10	"DI90" logic inputs physical image
11	"DI91" logic inputs physical image
12	"DI92" logic inputs physical image
13	"DI93" logic inputs physical image
14	"DI94" logic inputs physical image
15	"DI95" logic inputs physical image

[Cab Fix Logic Output] OLC2

Cabinet fixed logic output state

Bit	Description, Value
0	"R70" relay physical image
1	"R71" relay physical image
2	"R72" relay physical image
3	"R73" relay physical image
4	"R74" relay physical image
5	"R75" relay physical image
6	"R76" relay physical image
7	"R77" relay physical image
8	"R80" relay physical image
9	"R81" relay physical image
10	"R82" relay physical image
11	"R83" relay physical image
12	"R84" relay physical image
13	"R85" relay physical image
14	"R86" relay physical image
15	"R87" relay physical image

[Bypass Drive Control DOL] Menu

HMI Access

[Display] ➔ [Bypass Drive] ➔ [Bypass Drive Control DOL]

About This Function

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider representative.

With the Bypass Drive Control DOL function, all Circuit breakers are:

- **Controlled manually** according to user switch command order. (Close and open)
 - Control motor in DRIVE state
 - Control motor in DOL state
- **Controlled automatically** from Drive to DOL according to the error state. (Bypass after error triggering)

Control channel modes for bypass switch:

- Mode Local / Remote for switch command order (closed and open state)

[Drive Bypass Status] BYS0

Drive Bypass Status.

Read only parameter

Setting	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] BYS1

Bypass circuit breaker status.

Read only parameter

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYSD	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2.

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13	Reserved
14	Reserved
15	Reserved

[QF11 Command State] QF1S

QF11 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF2 Command State] QF2S

QF2 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF3 Command State] QF3s

QF3 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Bypass Drive CB status] BWS1

Bypass drive circuit breaker status.

Bit	Description, Value
0	QF11 Close request instruction (state or pulse)
1	QF11 Open request instruction (state or pulse)
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
6	QF5 Open request instruction (state or pulse)
7	QF5 Close request instruction (state or pulse)
8	QF11 Close (1) command instruction
9	QF11 Open (1) command instruction
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction
13	QF3 Open (1) command instruction
14	QF5 Open (1) command instruction
15	QF5 Close (1) command instruction

[Logic Input DI80 to DI95] ILC3

Drive Bypass Logic Input state

Bit	Description, Value
0	"DI80" logic inputs physical image
1	"DI81" logic inputs physical image
2	"DI82" logic inputs physical image
3	"DI83" logic inputs physical image
4	"DI84" logic inputs physical image
5	"DI85" logic inputs physical image
6	"DI86" logic inputs physical image
7	"DI87" logic inputs physical image
8	"DI88" logic inputs physical image
9	"DI89" logic inputs physical image
10	"DI90" logic inputs physical image
11	"DI91" logic inputs physical image
12	"DI92" logic inputs physical image
13	"DI93" logic inputs physical image
14	"DI94" logic inputs physical image
15	"DI95" logic inputs physical image

[Cab Fix Logic Output] OLC2

Cabinet fixed logic output state

Bit	Description, Value
0	"R70" relay physical image
1	"R71" relay physical image
2	"R72" relay physical image
3	"R73" relay physical image
4	"R74" relay physical image
5	"R75" relay physical image
6	"R76" relay physical image
7	"R77" relay physical image
8	"R80" relay physical image
9	"R81" relay physical image
10	"R82" relay physical image
11	"R83" relay physical image
12	"R84" relay physical image
13	"R85" relay physical image
14	"R86" relay physical image
15	"R87" relay physical image

Analog Function

What's in This Chapter

[Analog Function] Menu 161

[Analog Function] Menu

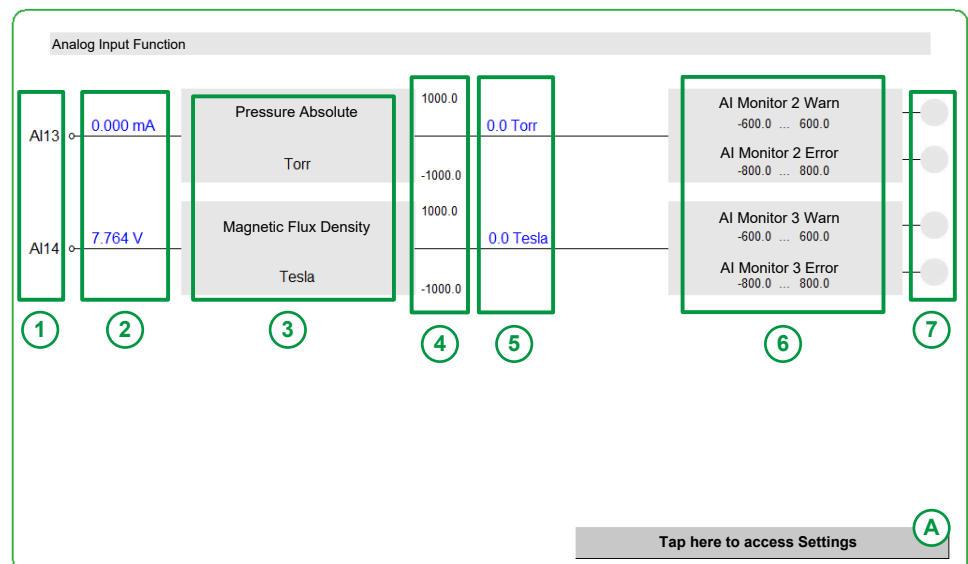
HMI Access

[Display] → [Analog Function] → [Analog Function]

Overview

From HMI software version 1.6, users are able to configured there Analog Inputs.

Following picture shows 2 monitoring analog input configured (up to 8 analog input can be monitored), this configuration is managed through Settings Panel , page 252 and during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.



Item	Description
1	Analog input AIX. Analog input show on this panel corresponds to the physical AI link to the parameters selection defined during commissioning and available on Settings Panel , page 252 . Depending on the physical AI the analog input type can be mA or V (or configurable). Settings defined by AM1A...AM8A.
2	Physical value of the Analog Input AIX in mA or V, and Warning loss x-20mA message if triggered.
3	Type of monitoring, which included function naming and unit. These two elements can be customized. Click on element, keyboard shows pop-up, fill function naming and unit.
4	Process value range defined by Min/Max values. These two range value are defined during commissioning and available on Settings , page 252 <ul style="list-style-type: none"> Min. : AM1L...AM8L Max. : AM1H...AM8H

Item	Description
5	Analog monitoring process value and unit. Unit is displayed from the item 3 above.
6	<p>Analog monitoring warning level and analog monitoring error level. An error or warning message is triggered when analog monitoring process value (item 5) is out of range which is defined by High process level and Low process level . For more details refer to Diagnostic and troubleshooting , page 472</p> <p>These threshold values value are defined during commissioning and available on Settings , page 252</p> <ul style="list-style-type: none"> Warning range values for <ul style="list-style-type: none"> High Level: AM1U...AM8U Low Level: AM1V...AM8V Error range value for <ul style="list-style-type: none"> Low Level: AM1S...AM8S High Level: AM1R...AM8R <p>Note: Depending your system, warning and error labels can be customized through [Custom HMI] Menu , page 287.</p>
7	<p>Warning and error indication.</p> <p>These 2 element allows to monitor if an error or warning is triggered regarding threshold .</p> <ul style="list-style-type: none"> Grey: no Orange : a warning is triggered Red: an error is triggered
A	Allows to access on Analog function settings panel , page 252.

Example When Error and Warning are Displayed

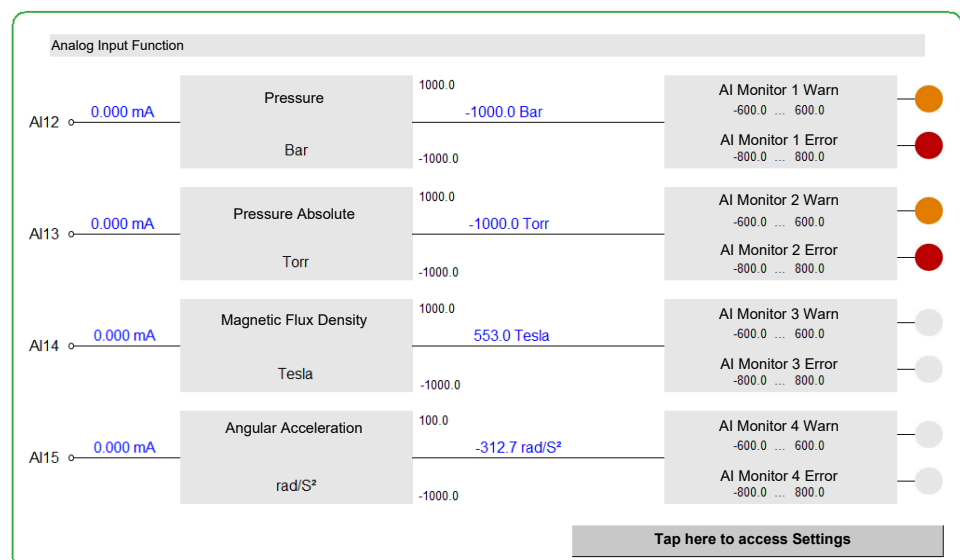
Following picture shows 4 monitoring analog input configured:

- 4 AI on mA,
- For this example first 2 AI are triggered an error and warning, threshold monitored is out of range defined by each analog monitoring warning level and analog monitoring error level.

AI12 is triggered **[AI Monitor 1 Error]** AM1F error and **[AI Monitor 1 Warn]** AW01 warning.

AI13 is triggered **[AI Monitor 2 Error]** AM2F error and **[AI Monitor 2 Warn]** AW02 warning.

Note: For more details refer to Diagnostic and troubleshooting , page 472.



Identification

What's in This Chapter

[Drive Identification] Menu..... 163

[Drive Identification] Menu

HMI Access

[Display] → [Identification]

Overview

This menu displays the global information about the device:

The screenshot shows the 'Drive Identification' menu. It contains a list of parameters and their values, organized into sections. A green box labeled '1' highlights the 'Application Name' field, which is currently empty. Another green box labeled '2' highlights the page selector at the bottom right, which shows a sequence of numbers 1, 2, 3, 4, with '1' being the active page.

Drive Identification	
Application Name	
Product Reference	ATV6000D890A4242BA9D4
Vendor ID	243 Schneider Electric
Drive Input Voltage Rating	4.16kV Three Phase
Transformer Rating	890 kVA
DrvNom Rating	710kW / 950HP
Drive Output Voltage Rating	4.16kV Three Phase
Output Disable Function	Power Output Enable (POE)
Drive IP	IP55
PoC Type	Power Cell Bypass
PoC Voltage Rating	PoC 720 Vac
PoC Current Rating	PoC 150 A
PoC Number	4 PoC triplet connected

Page selector: < 1 2 3 4 >

1. Application Name: Can be customized, refer to **Settings > My preferences > Localization Settings**, page 310.

2. Page selection: Allows to navigate through several pages, it presents all information for :

Device identification:	Product Reference	Output disable function: Power output enable (POE) or Safe Torque Off (STO)
	Vendor ID	Drive IP
	Drive input voltage rating	PoC type
	Transformer rating	PoC voltage rating
	Drive nominal rating	PoC current rating
	Drive output voltage	PoC number
Board identification:	Serial number and version	
Option card and fieldbus module:	Commercial reference and naming	
	Serial number	
	Version	

HMI Panel identification:	Version compatibility Internal information related to HMI
PLC Identification:	Version compatibility Internal information related to PLC

Motor Control

What's in This Chapter

Overview	166
[Motor nameplate] Menu	168
[Motor Control] Menu.....	175

Overview

ATV6000 Motor Control Types

ATV6000 drive embeds 11 motor control types which covers all the use cases depending on the application.

The following table shows the Motor Control types selection depending on the application needs:

Control	Motor Type	[Motor control type] CTT selection	Description
Open-Loop	Asynchronous motor	[U/F VC Standard] STD	U/F vector control law
		[Energy Sav.] NLD	Energy saving control law
		[SVC V] VVC	Voltage vector control law with slip compensation
		[U/F VC 5pts] UF5	5 points U/F vector control law
		[U/F VC Quad.] UFQ	U/F vector control law for variable torque applications (pumps and fans).
		[U/F VC Energy Sav.] ECO	U/F vector control optimized for energy saving.
	Synchronous motor	[Sync. mot.] SYN	Permanent magnet control law ²
		[Sync Ext Excitation] SYNE	Externally-excited Synchronous Motor (EESM) ³
		[Sync. mot. LSPMSM] LSPMSM	Line start PMSM synchronous motors
Closed-Loop ¹	Asynchronous motor	[FVC] FVC	Current vector control law
	Synchronous motor	[Sync.CL] FSY	Permanent magnet control law ²

(1) For these applications, an encoder must be present and configured.

(2) PMSM motor technologies supported: S-PMSM motor: surface permanent magnet / I-PMSM motor: Interior permanent magnet.
NOTE: Modifying this parameter resets the parameter [Motor fluxing] **FLU**.

(3) At the moment only brushed DC excitation is supported.

Parameters List for Asynchronous Motors

The following table shows the minimum parameters list that needs to be configured for asynchronous motors depending of [Motor control type] **CTT** selection:

NOTE: After setting these parameters, perform an [Autotuning] **TUN** to optimize the performance.

Parameters	[SVC V] VVC	[FVC] FVC	[U/F VC 5pts] UF5	[Energy Sav.] NLD	[U/F VC Standard] STD	[U/F VC Energy Sav.] ECO	[U/F VC Quad.] UFQ
[Motor Standard] BFR	✓	✓	✓	✓	✓	✓	✓
[Nominal Motor Power] NPR	✓	✓	✓	✓	✓	✓	✓
[Nom Motor Voltage] UNS	✓	✓	✓	✓	✓	✓	✓
[Nom Motor Current] NCR	✓	✓	✓	✓	✓	✓	✓
[Nominal Motor Freq] FRS	✓	✓	✓	✓	✓	✓	✓

Parameters	[SVC V] VVC	[FVC] FVC	[U/F VC 5pts] UF5	[Energy Sav.] NLD	[U/F VC Standard] STD	[U/F VC Energy Sav.] ECO	[U/F VC Quad.] UFQ
[Nominal Motor Speed] NSP	✓	✓	✓	✓	✓	✓	✓
[Encoder Type] UECP	–	✓ ⁽¹⁾	–	–	–	–	–
[Encoder supply volt.] UECV	–	✓ ⁽¹⁾	–	–	–	–	–
[Encoder usage] ENU	–	✓ ⁽¹⁾	–	–	–	–	–
(1) Encoder settings depend on the encoder used in the application.							

Parameters List for Synchronous Motors

The following table shows the minimum parameters list that needs to be configured for synchronous motors depending of **[Motor control type] CTT** selection:

NOTE: After setting these parameters, to perform an **[Autotuning] TUN** to optimize the performance.

Parameters	[Sync. mot.] SYN	[Sync.CL] FSY	[Sync Ext Excitation] SYNE	[Sync. mot. LSPMSM] LSPMSM
[Sync Nominal I] NCRS	✓	✓	✓	✓
[Nom SyncMotor Speed] NSPS	✓	✓	✓	✓
[Nom Motor torque] TQS	✓	✓	✓	✓
[Pole pairs] PPNS	✓	✓	✓	✓
[Angle setting type] AST	✓	✓	✓	✓
[Encoder Type] UECP	–	✓ ⁽¹⁾	–	–
[Encoder supply volt.] UECV	–	✓ ⁽¹⁾	–	–
[Encoder usage] ENU	–	✓ ⁽¹⁾	–	–
[Nominal Exc Current] EXNM	–	–	✓	–
(1) Encoder settings depend on the encoder used in the application.				

[Motor nameplate] Menu

HMI Access

[Display] → [Motor Control] → [Motor nameplate]

About This Menu

This menu shows the motor nameplate parameters for:

- Asynchronous Motor
- Permanent Magnet Synchronous Motor
- Synchronous Motor - LSPMSM
- External Excitation Synchronous Motor

Read-only parameters cannot be configured.

[Nominal Motor Power] NPR

Rated motor power given on the nameplate, in kW if [Motor Standard] BFR is set to [50 Hz] 50Hz, in HP if [Motor Standard] BFR is set to [60 Hz] 60Hz.

Value range	Description
According to drive rating	Factory setting: according to the drive rating

[Nom Motor Voltage] UNS

Rated motor voltage given on the nameplate.

Value range	Description
100...20,000 Vac	Factory setting: according to drive rating and [Motor Standard] BFR.

[Nom Motor Current] NCR

Rated motor current given on the nameplate.

Value range	Description
0.25...1.5 In ⁽¹⁾	Factory setting: according to drive rating and [Motor Standard] BFR.
⁽¹⁾ Corresponding to the Rated Power cell current indicated in the handbook manual, HMI or DTM ([PoC Current Rating] POCC).	

[Nominal Motor Freq] FRS

The factory setting is 50 Hz, or preset to 60 Hz if [Motor Standard] BFR is set to 60 Hz.

Value range	Description
10.0...250.0 Hz	Factory setting: 50 Hz

[Nominal Motor Speed] **N_{SP}**

Nominal motor speed.

Value range	Description
0...65,535 rpm	Factory setting: according to drive rating

[Motor 1 Cosinus Phi] **cos**

Motor 1 Cosinus Phi.

Value range	Description
0.50...1.00	Factory setting: according to the drive rating

[Motor param choice] **MPC**

Motor parameter choice.

Setting	Code / Value	Description
[Nominal Motor Power]	N_{PR}	Motor power Factory setting
[Motor 1 Cosinus Phi]	cos	Motor cosinus

[Number Of Pairs Of Poles Calculated] **P_{PN}**

Number of pairs of poles calculated.

Value range	Description
1...100	Factory setting: according to the drive rating.

[Nom Motor torque] **T_{QN}**

Computed nominal motor torque in Nm (+/- 2% tolerance).

Value range	Description
0.01...65,535 Nm	Value range range according to drive rating. Factory setting: –

[Autotuning Status] **T_{US}**

This parameter is not saved at drive power-off. It shows the autotuning status since the last power-on.

Setting	Code / Value	Description
[Not Done]	TAB	The autotuning is not done Factory setting
[Pending]	PEND	The autotuning has been requested but not yet performed
[In Progress]	PROG	The autotuning is in progress
[Error]	FAIL	The autotuning has detected an error
[Autotuning Done]	DONE	The motor parameters measured by the autotuning function are used to control the motor

[Autotuning flux status] TURS

Rotation tune status.

Setting	Code / Value	Description
[Not Done]	TAB	Default value of the stator resistor is used to control the motor Factory setting
[Pending]	PEND	The autotuning has been requested but not yet performed
[In Progress]	PROG	The autotuning is in progress
[Error]	FAIL	Error detected during autotuning
[Autotuning Done]	DONE	The drive management uses the stator resistor measured by the auto-tuning function

[AsyncMotor R Stator] RSA

AsyncMotor Stator resistance.

The factory setting is replaced by the result of the autotuning operation if it has been performed.

Value range	Description
0...65,535 mOhm	Factory setting: 0 mOhm

[Magnetizing Current] IDA

Magnetizing current.

Value range	Description
0...6,553.5 A	Factory setting: 0 A

[AsyncMotor Lf Induct] LFA

AsyncMotor Leakage inductance.

Value range	Description
0...655.35 mH	Factory setting: 0 mH

[Rotor Time Const] TRA

Rotor time constant.

Value range	Description
0...65,535 ms	Factory setting: 0 ms

[Rotor Nominal Flux] PHIA

Rotor nominal flux.

Value range	Description
0.0...655.35 Wb	Factory setting: -

[Main Inductance] LA

Main inductance.

Value range	Description
0...65535	Factory setting: -

[Tangential Main Inductance] L0A

Tangential main inductance.

Value range	Description
0...65535	Factory setting: 0

[Flux curve coeff A] ALFA

Flux saturation curve coefficient A.

Value range	Description
-327.67 %...327.67 %	Factory setting: 0

[Flux curve coeff B] BET0

Flux saturation curve coefficient B.

Value range	Description
-327.67 %...327.67 %	Factory setting: 0

[Sync Nominal I] NCRS

Sync motor nominal current (given on the motor nameplate).

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune selection]** *STUN* is reset to **[Default]** *TAB*. Autotuning needs to be performed again.

Setting	Description
0.25...1.5 In ⁽¹⁾	Setting range Factory setting: according to the drive rating.
(1) Corresponding to the Rated Power cell current indicated in the handbook manual, HMI or DTM ([PoC Current Rating] <i>POCC</i>).	

[Nom SyncMotor Speed] *NSPS*

Nominal synchronous motor speed (given on the motor nameplate).

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune selection]** *STUN* is reset to **[Default]** *TAB*. Autotuning needs to be performed again.

Setting	Description
0...48,000 rpm (step: 1 rpm)	Setting range Factory setting: according to the drive rating.

[Nom Motor torque] *TQS*

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune selection]** *STUN* is reset to **[Default]** *TAB*. Autotuning needs to be performed again.

Setting	Description
0.1...6,553.5 Nm	Setting range Factory setting: according to the drive rating.

[Pole pairs] *PPNS* ★

This parameter is used to calculate **[Sync Nominal Freq]** *FRSS*.

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune selection]** *STUN* is reset to **[Default]** *TAB*. Autotuning needs to be performed again.

Setting	Description
1...50 (step: 1)	Setting range Factory setting: according to the drive rating.

[Syn. EMF constant] *PHS*

PHS adjustment allows you to reduce the current in operation without load (or with minimum of load).

Setting	Description
0...6,553.5 mV/rpm (step: 0.1 mV/rpm)	Setting range (peak per phase) Factory setting: auto

[SyncMotor Stator R] RSAS

Calculated SyncMotor Stator R (cold state stator resistance per winding).

The factory setting is replaced by an estimation resulting from a standstill motor tune (autotuning) if it has been performed. Only enter manually a value if you are copying a drive configuration that has been tuned via autotuning.

Setting	Description
0...65,535 mOhm	Setting range Factory setting: 0 mOhm

[Autotune L d-axis] LDS

Sync motor d inductance (axis "d" stator inductance per phase).

The factory setting is replaced by an estimation resulting from a standstill motor tune (autotuning) if it has been performed. Only enter manually a value if you are copying a drive configuration that has been tuned via autotuning.

NOTE: On motors with smooth poles, [Autotune L d-axis] LDS = [Autotune L q-axis] LQS = Stator inductance L.

Setting	Description
0...655.35 mH	Setting range Factory setting: 0.00 mH

[Autotune L q-axis] LQS

Sync motor q inductance (axis "q" stator inductance per phase).

The factory setting is replaced by an estimation resulting from a standstill motor tune (autotuning) if it has been performed. Only enter manually a value if you are copying a drive configuration that has been tuned via autotuning.

NOTE: On motors with smooth poles, [Autotune L d-axis] LDS = [Autotune L q-axis] LQS = Stator inductance L.

Setting	Description
0...655.35 mH	Setting range Factory setting: 0.00 mH

[Sync Nominal Freq] FRSS

NOTE: Modifying this parameter resets the motor tune parameters and, [Tune selection] STUN is reset to [Default] TAB. Autotuning needs to be performed again.

Setting	Description
10.0...250.0 Hz (step: 0.1 Hz)	Setting range Factory setting: $\text{NSPS} \times \text{PPNS} / 60$ (the value is automatically updated and cannot be modified)

[Nominal Exc Current] EXNM

Nominal excitation current.

The nominal excitation current is part of the EESM nameplate data and needs to be known by the motor control.

Value range	Description
1...6553.5 A (1)	Factory setting: _
(1) Range 0.1 A to 1 A according to the scaling (INRC)	

[Motor Control] Menu

HMI Access

[Display] ➡ [Motor Control] ➡ [Motor Control]

About This Menu

This menu shows the motor control related parameters. This is a read-only menu that cannot be configured.

[Motor control type] CTT

Motor control type.

Setting	Code / Value	Description
[U/F VC Standard]	STD	Standard motor control type. For applications that require torque at low speed. Factory setting
[SVC V]	VVC	Voltage vector control: Open-loop voltage flux vector control with automatic slip compensation according to the load.
[FVC]	FVC	Current vector control closed loop: Closed-loop current flux vector control for motors with encoder sensor.
[U/F VC 5pts]	UF5	5-segment V/F profile: As [U/F VC Standard] STD profile but also supports the avoidance of resonance (saturation).
[U/F VC Quad.]	UFQ	Motor control type dedicated to variable torque applications, typically used for pumps and fans.
[Sync. mot.]	SYN	Open-loop synchronous motors: Motor control type specific for permanent magnet synchronous motors.
[Energy Sav.]	NLD	Specific motor control type optimized for energy saving. Note: Compared to constant flux vector control laws, as flux level is adjusted according to the load level, it is normal for the output voltage to be very low under low load conditions
[Sync.CL]	FSY	Closed-loop synchronous motor: For permanent magnet synchronous motors, with encoder.
[U/F VC Energy Sav.]	ECO	Specific motor control type optimized for energy saving.
[Sync Ext Excitation]	SYNE	Synchronous motors with external excitation. (At the moment only brushed DC excitation is supported)
[Sync. mot. LSPMSM]	LSPMSM	Open-loop synchronous motors: Motor control type specific for line-start permanent magnet synchronous motors.

[Slip compensation] SLP

Slip Compensation.

Value range	Description
0...300%	Factory setting: 100%

[Inertia Factor] SPGU

Inertia factor.

Value range	Description
0...1,000%	Factory setting: 40%

[FreqLoop Stab] STA

Frequency loop stability (Speed loop damping factor).

Value range	Description
0...100%	Factory setting: 20%

[FreqLoopGain] FLG

Frequency loop gain (Speed loop bandwidth).

Value range	Description
0...100%	Factory setting: 20%

[K speed loop filter] SFC

K speed loop filter (0(IP) to 1(PI)).

Value range	Description
0...100	Factory setting: 65

[Estim. app. inertia] JEST

Estimated application inertia.

Increment given by [Inertia Mult. Coef.] JMU2: - 0.1 gm², 1 gm², 10 gm², 100 gm² or 1000 gm².

Value range	Description
1...9,999 kg.m ²	Factory setting: –

[Motor fluxing] FLU

Motor fluxing configure.

Setting	Code / Value	Description
[Not continuous]	FNC	Non-continuous mode Factory setting
[Continuous]	FCT	Continuous mode This option is not possible if [Auto DC Injection] ADC is [Yes] YES or if [Type of stop] STT is [Freewheel Stop] NST.
[No]	FNO	Function inactive

[Dec.Ramp Adapt] BRA

Decel ramp adaptation.

Setting	Code / Value	Description
[No]	NO	Function inactive Factory setting
[Yes]	YES	Function active, for applications that do not require strong deceleration
[High Torque]	DYNA	Addition of a constant current flow component. The [High Torque] DYNA selection appears depending on the rating of the drive and [Motor control type] CTT. It enables a stronger deceleration to be obtained than with [Yes] YES. Use comparative testing to determine your selection. When [Dec.Ramp Adapt] BRA is configured on [High Torque] DYNA, the dynamic performance for braking is improved by the addition of a current flow component. The aim is to increase the iron loss and magnetic energy stored in the motor.

[Expert Flux Setting] EFAP

Rotation tune type.

Setting	Code / Value	Description
[Linear Flux 1]	LINF1	Linear flux 1 Factory setting
[Linear Flux 2]	LINF2	Linear flux 2
[Saturation Flux]	SATF	Saturation flux

Diagnostics Functions for HMI Panel

What's in This Part

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[Counter Management] Menu.....	208
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Advanced Diagnostic.....	218

Overview

This information can be accessed using the **Diagnostics** Menu Panel available to the ATV6000 HMI Panel.

Status Synthesis

What's in This Chapter

[Status Synthesis] Menu	179
[QFx Status] Menu	180
[Power cell Info] Menu	182
[Fan Cooling Status] Menu - Standard Mode	185
[Fan Cooling Status] Menu - Redundant Mode	187
[Diag. data] Menu	192

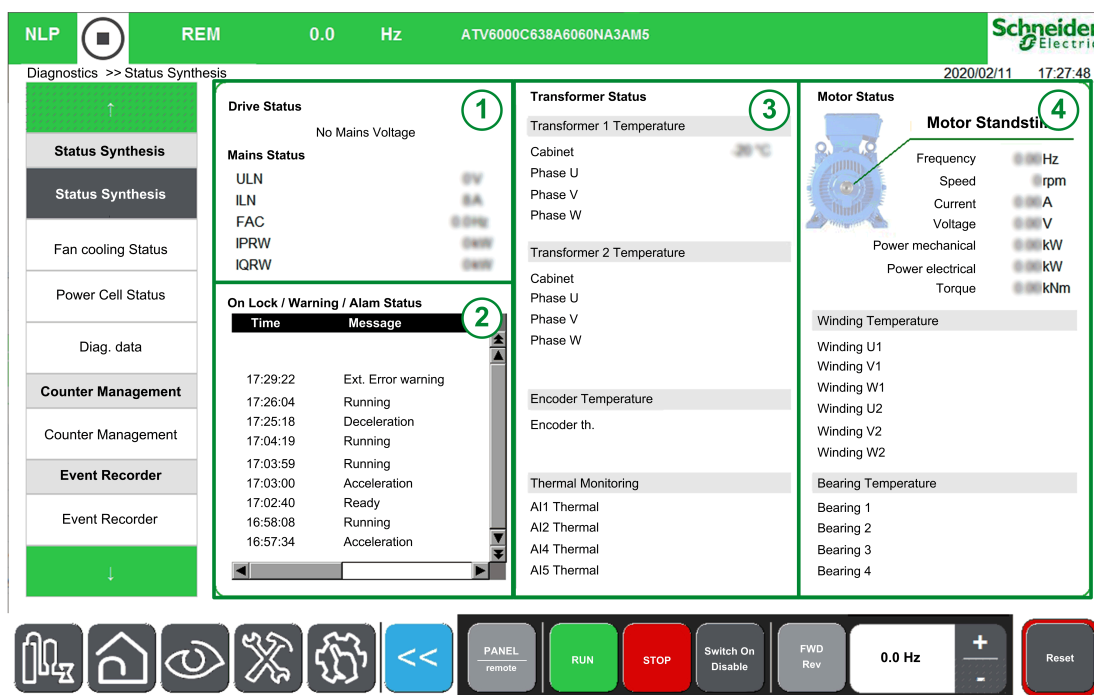
[Status Synthesis] Menu

HMI Access

[Diagnostics] → [Status Synthesis] → [Status Synthesis]

Overview

This menu is used to display thermal state of the motor, transformers and encoder installed.



The Status Synthesis Menu is divided into 4 sections.

1. **Drive/Mains:** displays the drive and mains status.
2. **On lock / Warning / Alarm Status:** displays the Onlock information, warning messages and related error messages.
NOTE: Click on this element opens a new window linked to the Error menu.
3. **Transformer Status:** displays the thermal information of the transformer.
4. **Motor Status:** displays the characteristic and thermal information of the motor.

[QF_x Status] Menu

HMI Access

[Diagnostics] ➔ [Status Synthesis] ➔ [QF_x Status]

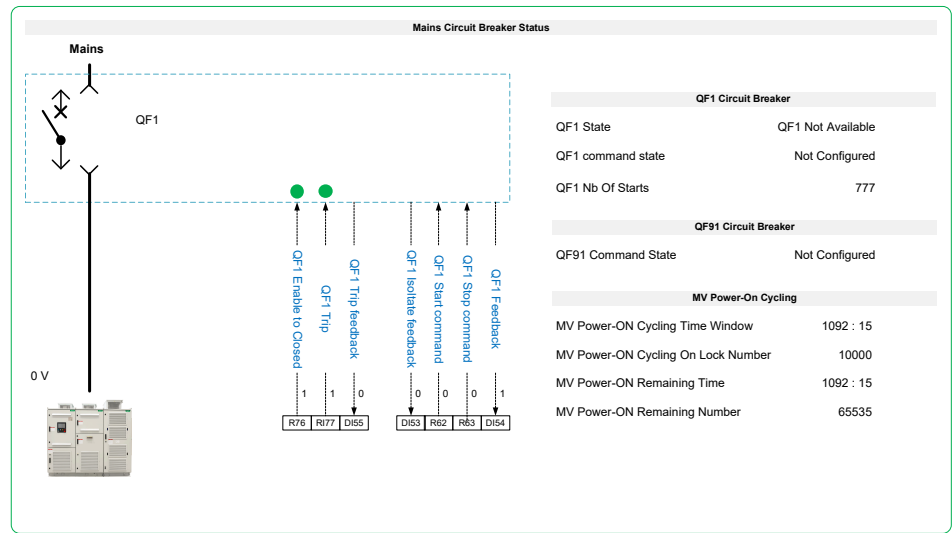
Overview

This menu is used to display QF_x status of your system, QF_x can be monitored through several representation and information depending your configuration.

- CB Open / Closed
- Isolated
- Grounded
- Enable to close
- Command feedback
- Status : Enable to close
- QF_x: error detected

Circuit Breakers QF_x can be used with or without command, and with or without *Power-on Cycling function*.

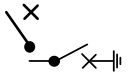
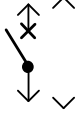
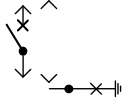
Note: The *Power-on cycling function* helps to prevent mains component, QF1, QF91 and inrush resistors, against too many charging in a dedicated period. It also helps to prevent huge stress to the Transformer when Circuit Breaker are not used. This function is managed during the commissioning of your system, refer to the commissioning assistant or contact you local Schneider representative.



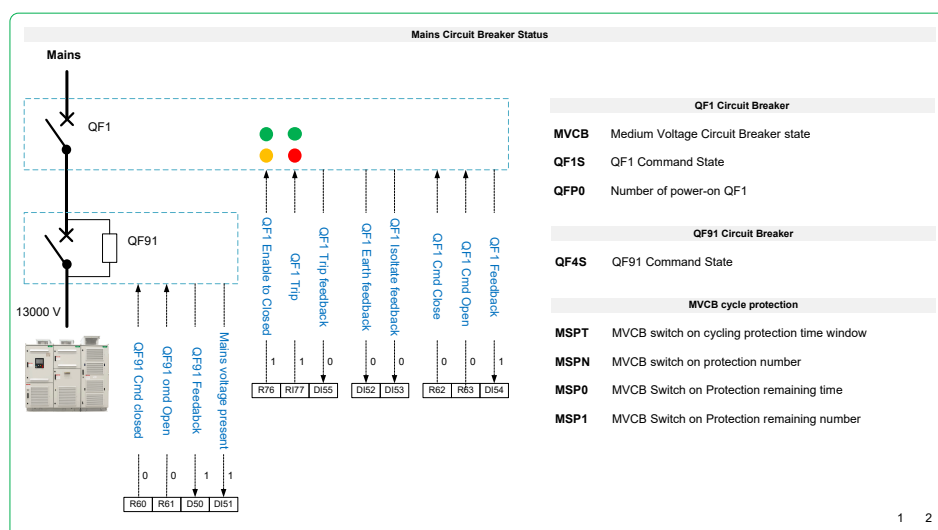
Here is a non-exhaustive list of pictogram displayed.

Pictogram	Designation
	Circuit breaker QF _x open.
	Circuit breaker QF91 inrush current and resistor open.

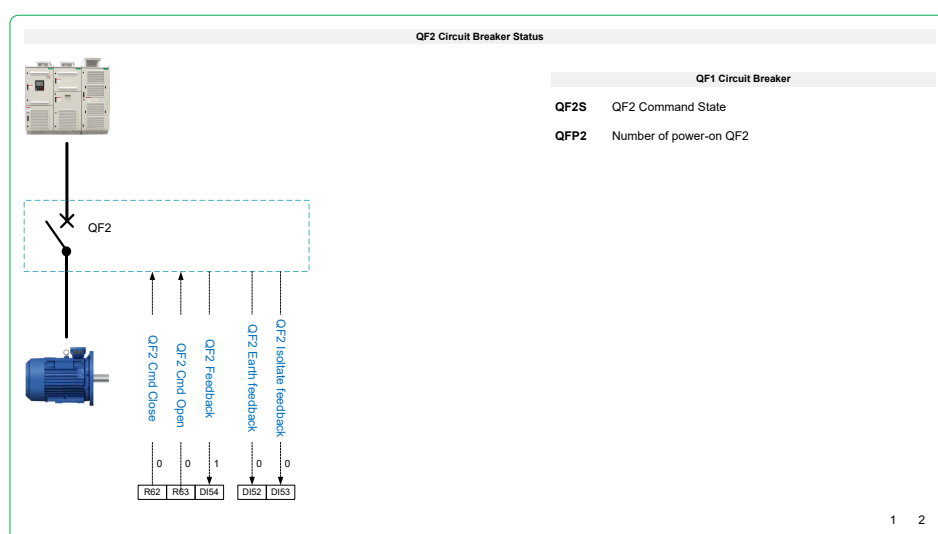
Here is a non-exhaustive list of pictogram displayed. (Continued)

Pictogram	Designation
	Circuit breaker QF1 open and not grounded.
	Circuit breaker QF1 open, and isolated.
	Circuit breaker QF1 open, isolated, and grounded.
Note: Depending on your configuration, several use case can be combined.	

Example of screen with QF1 and QF91:



Example of screen with QF2:



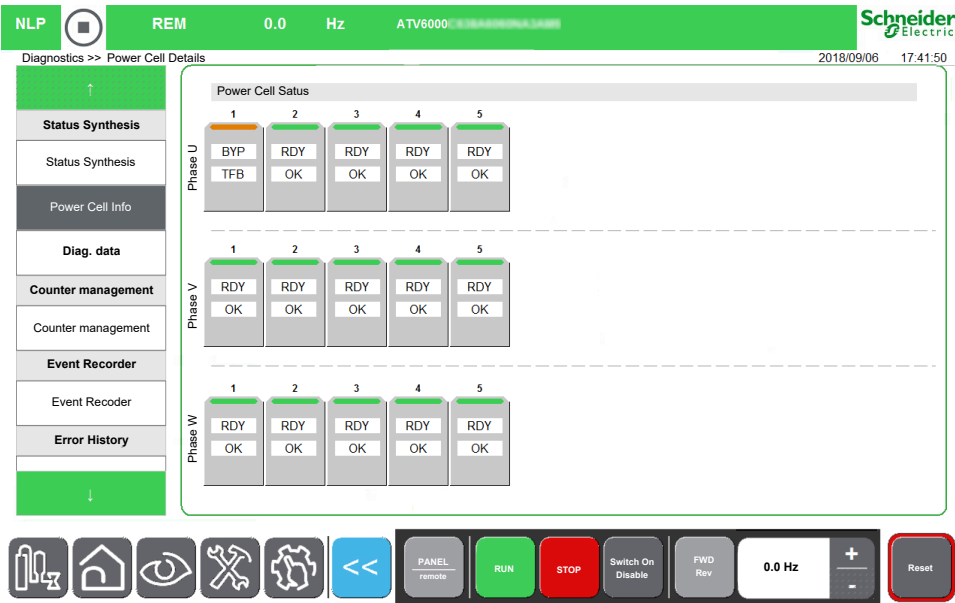
[Power cell Info] Menu

HMI Access

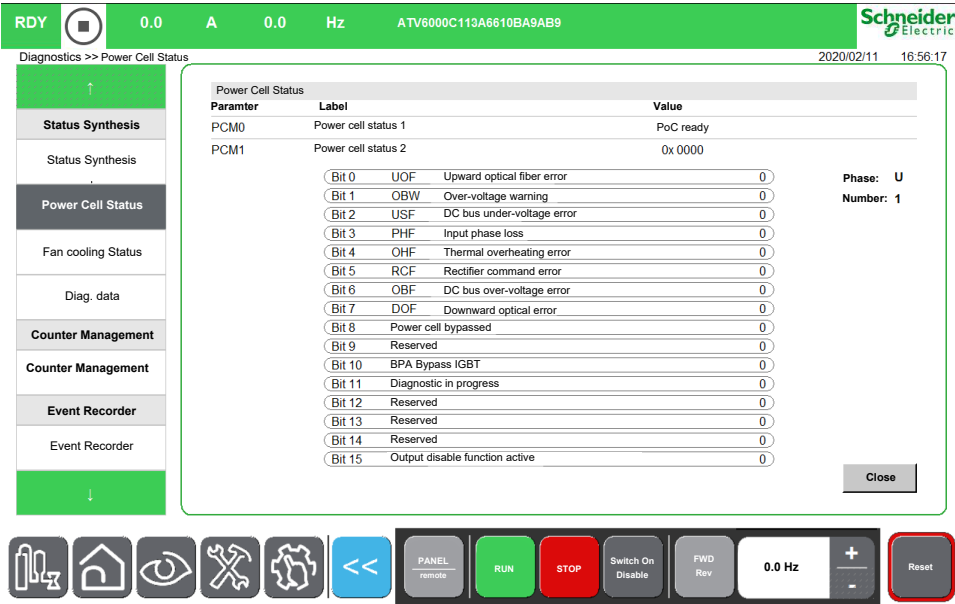
[Diagnostics] → [Status Synthesis] → [Power cell Info]

Description

This menu is used to display the status of each installed Power Cell.

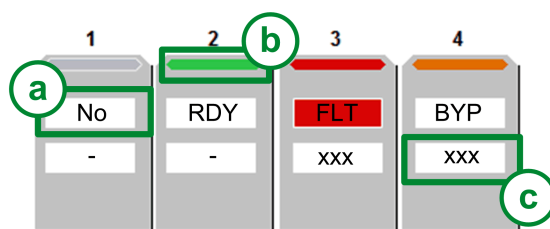


Clicking on the **Power Cell** allows you to view the detailed status of the related Power Cell.



Power Cell Status

3 status are monitored for each Power Cell. (i.e: a,b,c)



- **Power cell Status:** Displays the power cell diagnostic related to general status.
 - **a:** Status 1 - Displays the functional state of the power cell (NLP, RDY, RUN, FLT, BYP; POD, STO, BYPF): through **[Power cell status 1] PCM0**, page 183
 - **b:** Color status bar: Displays a specific color linked to the functional state of the power cell: **[Power cell status 1] PCM0**, page 183
 - **c:** Status 2 - Displays its detailed , page 182, if the related power cell detect an error or warning: through **[Power cell status 2] PCM1**, page 184

NOTE: PCM1 is only able to monitor an hexadecimal value.

Example with Status 1: PCM0:

Item	Color	Code	Description
1	Grey	NO	Indicates that the Power Cell is not configured
2	Green	RDY	Indicates that the Power cell is ready
3	Red	FLT	Indicates that the Drive detected error on the Power cell
4	Orange	BYP	Indicates that the Power cell is bypassed

Example with status 2: PCM1:

Item	Hexa value	Bit	Description
1	-	-	Not configured
2	-	Bit 0 set to 0: OK	No warning/no error
3	-	Bit 4 set to 1: OHF	Overheating error
4	-	Bit 4 set to 1: OHF	Overheating error

[Power cell status 1] PCM0

Read-only parameters, cannot be configured.

Setting	Code / Value	Description
[PoC not configured]	NO	Power cell not configured Color status bar: Grey
[PoC Invalid Config]	TOPO	Power cell not configured but detected Color status bar: Red
[PoC not supplied]	NLP	Power cell is powered on but the DC bus is not loaded Color status bar: Green
[PoC ready]	RDY	Power cell ready Color status bar: Green
[PoC running]	RUN	Power cell run command present and zero reference

Setting	Code / Value	Description
		Color status bar: Green
[PoC fault]	FLT	Power cell error Color status bar: Red
[PoC By-passed]	BYP	Power cell bypassed Color status bar: Orange
[Power Output Disabled]	POD	Power output disable Color status bar: Orange
[Damaged PoC By-passed]	BYPF	Damaged Power cell bypassed Color status bar: Red
[STO active]	STO	Safe Torque Off Color status bar: Orange

[Power cell status 2] PCM1

Read-only parameters, cannot be configured. Hexadecimal values are displayed to the HMI Panel , page 182.

Bit	Description, Value
0	Set to 1: UOF Upward optical fiber error (PoC => FPGA)
1	Set to 1: OBW Light overvoltage warning
2	Set to 1: USF DC bus under-voltage error
3	Set to 1: PHF Input phase loss error
4	Set to 1: OHF Overheating error
5	Set to 1: RCF Rectifier command error
6	Set to 1: OBF DC bus over-voltage error
7	Set to 1: DOF Downward optical fiber error (FPGA=>PoC)
8	Set to 1: Power cell bypassed
9	Set to 1: Reserved
10	Set to 1: BPA Bypass IGBT
11	Set to 1: Diagnostic in progress
15	Set to 1: Output disable function active

[Fan Cooling Status] Menu - Standard Mode

HMI Access

[Diagnostics] → [Status Synthesis] → [Fan Cooling Status]

About This Menu

There are 2 types of command: Without or with fan command.

This panel is used to display fan cooling information **without command**:

- Fan operation time.
 - The time and counter can be set to 0 by using the **[Counter Reset]** ^{RPR} parameter to **[Reset Fan Counter]** ^{FTH} (for expert or service profiles).
- Fan remaining time before services action.
- Fan Power supply feedback.
- Fan Cooling feedback.

Diagnostics >> Fan Cooling Status 2012/02/16 03:24:28

Standard Fan Cooling Status						
Parameter	Label	Days	Hours	Minutes	Seconds	
FT01	Fan Operating Time	900	4	:	56	: 16
FT00	Fan Remaining Time Before Service	349	19	:	3	: 44
DI77	Fan power supply					
DI76	Fan cooling					
Fan Command						
Fan Command Feedback						
TT1M	Transfo Cab Temp 1					
TP1M	Transfo 1 Winding Max Temp					
TT2M	Transfo Cab Temp 2					
TP2M	Transfo 2 Winding Max Temp					



This panel is used to display fan cooling information **with command**, in additional:

- Fan Command order.
- Transformer winding maximum temperature 1 & 2.
- Transformer cabinet temperature 1 & 2.

Diagnostics >> Fan cooling status 2020/02/11 18:32:22

Standard Fan Cooling Status						
Parameter	Label	Days	Hours	Minutes	Seconds	
FT01	Fan operation time	4	4	28	20	
FT00	Fan Remaining Time Before Service	1245	19	31	44	
DI77	Fan Power supply	ON				
DI76	Fan cooling	ON				
BWS2.9	Fan command	OFF				
TT1M	Transformer cabinet temperature 1					°C
TP1M	Transformer winding maximum temperature 1					°C
TT2M	Transformer cabinet temperature 2					°C
TP2M	Transformer winding maximum temperature 2					°C

This graphical element allows to display status of Fan command, fan supply and fan command:

Icon	Legend
	Activated
	Not activated

NOTE: All parameters monitored are also available to the DTM, description here , page 374.

NOTE: For Redundant Fan cooling application, refer to the dedicated menu , page 187.

[Fan Cooling Status] Menu - Redundant Mode

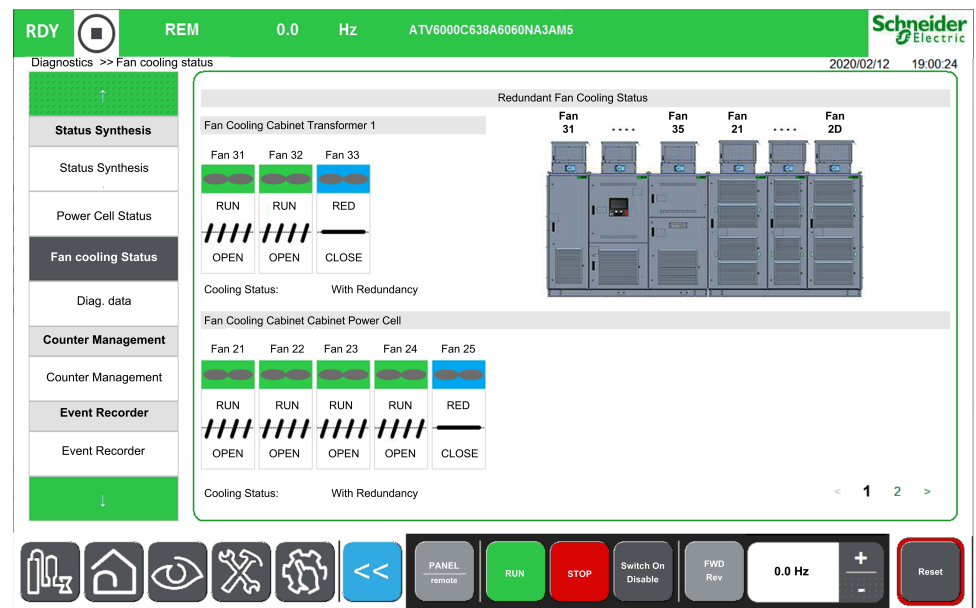
HMI Access

[Diagnostics] → [Status Synthesis] → [Fan Cooling Status]

Overview

This menu is used to display the status of each installed fan and shutter to the transformer cabinet and power cell cabinet. (Page one to the HMI panel)

e.g. Cabinet Transformer 1 with one redundant fan and Cabinet Power Cell with one redundant fan.



Fan data are structured as an object and identify according physical identification on product:

Cabinet	Fan identification N°:												
Cabinet Transformer 1	31	32	33	34	35								
Cabinet Power Cell	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D
Cabinet Transformer 2	41	42	43	44	45								

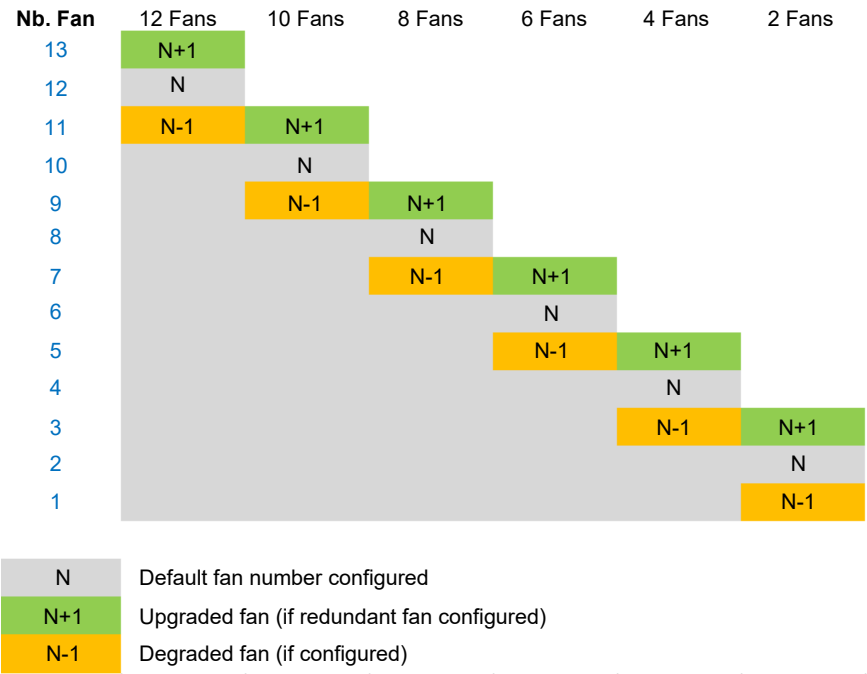
NOTE: This function is managed during the commissioning of your system. For any settings, refer to the commissioning assistant or contact your local Schneider representative.

The Cooling fan with redundant mode includes several combination (with or without Optimized redundant mode, and additionally with or without degraded mode):

- **Cooling with Redundant mode:** there is one additional fan per group of cabinets (N + 1). The services continuity at nominal condition is maintained, and redundant fans continue normal operation even with one fan of the group is out of use.
 - **Cooling in degraded mode:** there are N remaining fans for each cabinet group. If one additional fan is not working properly, the service continuity can be reached and the drive may continue in normal operation (with N-1 fans) until the drive triggers in overheating. If a second fan is not working properly the drive triggers a Cooling fan error **[Cooling Fan error]** CF06 , page 498.
- **Cooling with Optimized Redundant mode:** there is no additional fan per group, but for each fan the cooling capacity and air flow is increased. The services continuity at nominal condition is maintained, and fans continue normal operation even if one fan of the group is out of use (N-1).
 - **Cooling in degraded mode:** there are N-1 remaining fans for each cabinet. If one additional fan is not working properly, the service continuity can be reached and the drive may continue in normal operation (with N-2 fan) until the drive triggers in overheating. If another fan is not working properly the drive triggers a Cooling fan error **[Cooling Fan error]** CF06 , page 498.

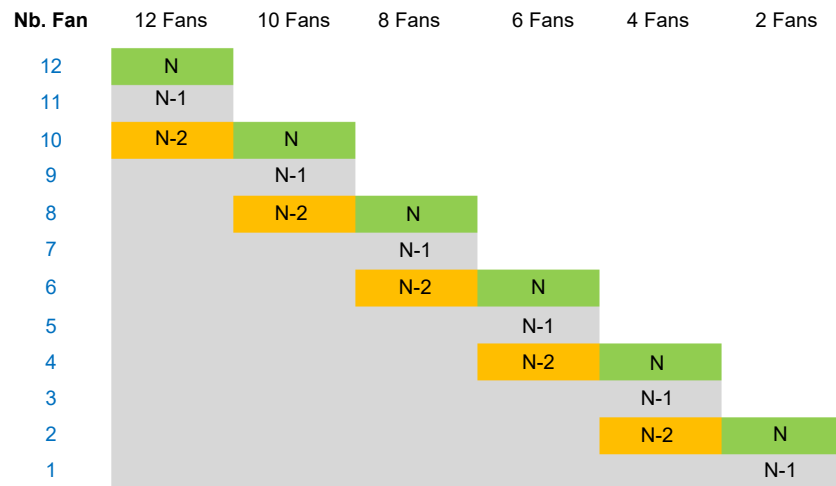
Use case – Redundant Cooling Fan

- **Redundant mode:** When the number of running fans is greater than or equal to the default number N.
- **Degraded mode:** When the number of running fans is less than the default number N.



Use case – Optimized Redundant Cooling Fan





- **Redundant mode:** When the number of running fans is equal to the default number N.
- **Degraded mode:** When the number of running fans is less than N-1.



N-1	The cooling capacity must ensure that the product can run at full load permanently.
N	Default fan number configured with increased size and flow rate.
N-2	Degraded fan (if configured)

Fan Status



Fan state:

Icon	Legend
	RUN: Run (Running) RDY: Ready (Stop)
	RED: Redundant (not running)
	ONLK: On-lock
	ERROR: Error detected



Shutter Status

To avoid the wrong air circulation, a device is added in order to not allow airflow from any defective fan. This device is named "Fan shutter" and consists on a trap to block the air.

Shutter state:

Icon	Legend
 <p>Status: Open</p>	Shutters are opened.
 <p>Status: Close</p>	<p>Shutters are closed when:</p> <ul style="list-style-type: none"> • fans are not used • an error is detected <p>In this case, the cooling circulation of the drive remains unchanged and just the flow is modified.</p>

Incoherent Shutter status:







Icon	Legend
 <p>Status: SW1</p>	Open shutter feedback with close command
 <p>Status: SW2</p>	Close shutter feedback with open command
<p>[Fan Shutter State Warning] CW09 is monitored to the HMI.</p>	

HMI Panel - Redundant Fan Cooling Status

This page 2 is used to display following information:



- Fan operation time.
 - All time and counter can be set to 0 by using the **[Counter Reset]** **RPR** parameter to **[Reset Fan Counter]** **FTH**. (for expert or service profiles).
- Fan remaining time before services action.
- PoC cabinet redundant fan operating time.
- Transformer 1&2 cabinet redundant fan operating time.
- Fan Power supply feedback.
- Fan Command order.
- Transformer winding maximum temperature 1 & 2.
- Transformer cabinet temperature 1 & 2.

Diagnostics >> Fan cooling status 2020/02/11 18:36:21

Redundant Fan Cooling Status						
Parameter	Label	Days	Hours	Minues	Seconds	
FT01	Fan operation time	4	4	32	18	
FT00	Fan remaining time before service	1245	19	27	44	
FT10	PoC cabinet redundant fan operating time	0	0	:	0	:
FT11	Transformer 1 cabinet redundant fan operating time	0	0	:	0	:
FT12	Transformer 2 cabinet redundant fan operating time	0	0	:	0	:
DI77	Fan power supply	ON				
BWS2.9	Fan command	OFF				
TT1M	Transformer cabinet temperature 1		°C			
TP1M	Transformer winding maximum temperature 1		°C			
TT2M	Transformer cabinet temperature 2		°C			
TP2M	Transformer winding maximum temperature 2		°C			

< 1 2 >

This element allows to display status of Fan command, and fan supply:

Icon	Legend
	Activated
	Not activated

NOTE: All parameters monitored are also available to the DTM, see menu "Display" here: **Display > Dashboard System > Fan cooling**, page 369.

[Diag. data] Menu

HMI Access

[Diagnostics] → [Diag. data]

About This Menu

This menu presents the actual warning, detected error and lock register in addition to drive data.

Error register	Warning register	Lock register
[Error Registers 1] DF1	[Warning Registers 1] ALR1	[On Lock Register] PLO1,
...	...	[Drive Bypass On Lock Register] PLO2
[Error Registers 14] DF14	[Warning Registers 9] ALR9,	
	[Warning Registers 10] ALRA	
	...	
	[Warning Registers 12] ALRC	

[Last Warning] LALR

Last warning which occurred.

The list of warning codes is available in the chapter Diagnostics and Troubleshooting, page 472.

[Last Error] LET

Last error which occurred.

The list of error codes is available in the chapter Diagnostics and Troubleshooting, page 472.

[Error Info (INF6)] INF6

This parameter can be accessed if [Last Error] LET is [Error Info (INF6)] INF6.

Setting	Description
0...12 (value in Hex.)	<p>Value = 0x00 : No error detected</p> <p>Value = 0x01 : No response of the option module</p> <p>Value = 0x02 : Signature reception timeout</p> <p>Value = 0x03 : ACK reception timeout</p> <p>Value = 0x04 : Signature length</p> <p>Value = 0x05 : CheckSum</p> <p>Value = 0x06 : Unknown state</p> <p>Value = 0x07 : UART receive</p> <p>Value = 0x08 : Unknown protocol version</p> <p>Value = 0x09 : Unknown module type</p> <p>Value = 0x0A : More than 5 unsuccessful tries</p> <p>Value = 0x0B : Unknown module type</p> <p>Value = 0x0C : Option module not supported by the slot</p> <p>Value = 0x0D : Same option module in more than one slot</p> <p>Value = 0x0E : O1SV not received</p> <p>Value = 0x0F : O1SV option module software version not compatible</p> <p>Value = 0x10 : reserved</p> <p>Value = 0x11 : reserved</p> <p>Value = 0x12 : Control terminal module not present or not recognized</p> <p>Factory setting: –</p>

[Internal Error 19] INFJ

Encoder module error code.

This parameter can be accessed if **[Last Error]** LFT is **[Internal Error 19]** INFJ.

Setting	Description
0...65,535	<p>Setting Range</p> <p>Factory setting: –</p>

[Encoder Fdbck Error] ENCE

This parameter can be accessed if **[Last Error]** LFT is **[Encoder Feedback Loss]** SPF.

Setting	Description
0...65,535	Setting range Encoder error Id 1: Encoder power supply overcurrent 10: AB encoder: A-line disconnected 11: AB encoder: B-line disconnected 12: AB encoder: tracking error 13: AB encoder: spike error 20: Resolver: LOS error 21: Resolver: DOS error 22: Resolver: LOT error 30: SinCos: loss of signal 31: SinCos: loss of signal 32: SinCos: tracking error 33: SinCos: spike error 40: Hiperface: timeout while waiting for response and retry exceeded 41: Hiperface: encoder type is not known and can not be read from encoder EEPROM 42: Hiperface: Hiperface command GetAbsolutePosition error 43: Hiperface: checksum error detected and retry exceeded 50: Endat: communication error 51: Endat: encoder not connected 52...56: Endat: error reading EnDat21 parameter 57: Endat: encoder does not support EnDat22 58: Endat: runtime compensation procedure 59: Endat: runtime compensation procedure 60: Endat: error in cyclic communication Factory setting: –

[Nb Of Starts] NSM

Number of motor starts (resettable).

Setting	Description
0...4,294,967,295	Setting range Factory setting: 0

[Motor Run Time] RTH

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Setting	Description
0...4,294,967,295 s	Setting range Factory setting: _

[Error Registers 1] DF1

Error registers 1.

Bit	Description, Value
0	1: Serial flash format error (INFF)
1	1: Unknown drive rating (INF1)
2	1: Unknown or incompatible option board (INF6)
3	1: CPLD communication interruption (INF7)
4	1: Control Flash error (EEF1)
5	1: Power Eeprom error (EEF2)
6	1: Invalid configuration at power-on (CFF)
7	1: Incorrect parameter configuration (CFI)
8	1: Modbus local serial communication interruption (SLF1)
9	1: Option internal link error (ILF)
10	1: NET option communication interruption (CNF)
11	1: External error from LI or local link (EPF1)
12	1: External error from fieldbus module (EPF2)
13	1: Motor short circuit error (hard detection) (SCF1)
14	1: Load relay error (CRF1)
15	1: Ethernet embedded internal error (INFM)

[Error Registers 2] DF2

Error registers 2.

Bit	Description, Value
0	1: Speed encoder feedback loss (SPF)
1	1: Over speed error (SOF)
2	1: Anti-veering error (ANF)
3	1: Over current error (OCF)
4	Reserved
5	Reserved
6	Reserved
7	1: Drive over heating error (OHF)
8	1: Motor overload error (OLF)
9	Reserved
10	1: Over braking error (OBF)
11	1: Over supply error (OSF)
12	1: Motor 1-phase loss (OPF1)
13	1: Main input 1-phase loss (PHF)
14	1: Under voltage error (USF)
15	1: Power supply error (INF8)

[Error Registers 3] DF3

Error registers 3.

Bit	Description, Value
0	1: Motor 3-phases loss (OPF2)
1	1: Tune error (TNF)
2	Reserved
3	Reserved
4	1: DTM-based PC software communication interruption (SLF2)
5	1: CANopen communication interruption (COF)
6	1: Encoder coupling error (ECF)
7	1: Torque current limitation error (SSF)
8	1: Torque regulation time-out error (SRF)
9	Reserved
10	1: Direct ground short-circuit error (hard detection) (SCF3)
11	1: Invalid industrialization zone (INF4)
12	1: Unknown or incompatible power board or defective keyboard (INF2)
13	1: Internal serial link communication error (INF3)
14	1: Display Terminal communication error (SLF3)
15	1: Current supply input error (INFC)

[Error Registers 4] DF4

Error registers 4.

Bit	Description, Value
0	Reserved
1	1: Encoder error (ENF)
2...7	Reserved
8	1: Current measurement circuit error (INF9)
9	1: Line contactor error (LCF)
10	1: Customer supply error (INFA)
11	1: Thermal sensor error (INFB)
12...13	Reserved
14	1: IGBT short-circuit error (hard detection) (SCF4)
15	1: Load short-circuit error during Igon load sequence (hard detection) (SCF5)

[Error Registers 5] DF5

Error registers 5.

Bit	Description, Value
0	1: CPU error (ram, flash, task ...) (INFE)
1	1: AI3 4-20 mA loss error (LFF3)

Bit	Description, Value
2	1: AI4 4-20 mA loss error (LFF4)
3	1: Torque underload error (ULF)
4	1: Torque overload error (OLC)
5	Reserved
6	1: Excitation sequence error (EEXC)
7	Reserved
8	1: Channel switching error (switch to not valid channels) (CSF)
9	1: Hardware configuration error (HCF)
10	Reserved
11	1: Angle setting error (ASF)
12	1: Cabinet function Analog Monitor error 1 (AM1F)
13	1: Cabinet function Analog Monitor error 2 (AM2F)
14	1: Cabinet function Analog Monitor error 3 (AM3F)
15	1: Cabinet function Analog Monitor error 4 (AM4F)

[Error Registers 6] DF6

Error registers 6.

Bit	Description, Value
0...1	Reserved
2	1: AI1 4-20 mA loss error (LFF1)
3	1: Invalid configuration after transferring a new one (CFI2)
4	1: Safety function error (SAFF)
5...6	Reserved
7	1: IO-relay option error (INFG)
8	1: IO-standard option error (INFH)
9	Reserved
10	1: Differential current - Deviation input error (INFD)
11	1: Internal processor communication interruption (INF0)
12	1: Motor stall error (STF)
13	1: Real-time clock error (INFL)
14	1: AI5 4-20 mA loss error (LFF5)
15	1: Ethernet embedded error (ETHF)

[Error Registers 7] DF7

Error registers 7.

Bit	Description, Value
0...1	Reserved
2	1: AI3 thermal sensor detected error (TH3F)
3	1: Thermal sensor error on AI3 (T3CF)

Bit	Description, Value
4	1: Pumpcycle detected error (PCPF)
5...7	Reserved
8	1: AI1 thermal sensor detected error (TH1F)
9	Reserved
10	1: AI4 thermal sensor detected error (TH4F)
11	1: Thermal sensor error on AI4 (T4CF)
12	1: AI5 thermal sensor detected error (TH5F)
13	1: Thermal sensor error on AI5 (T5CF)
14...15	Reserved

[Error Registers 8] DF8

Error registers 8.

Bit	Description, Value
0	1: Dry running pump protection error (DRYF)
1	1: PID feedback detected error (PFMF)
2	1: Program loading error (PGLF)
3	1: Program running error (PGRF)
4	1: Incompatibility between control board and software version (INFP)
5	1: Option interface PCBA error (INFK)
6	1: CPLD watchdogs (INFR)
7...9	Reserved
10	1: Firmware update error (FWER)
11	1: Configuration preset error (CFI3)
12...13	Reserved
14	1: Overload Time exceeded error (TLOF)
15	1: Encoder option board internal error (INFJ)

[Error Registers 9] DF9

Error registers 9.

Bit	Description, Value
0	1: Cabinet function: Digital error A (IFA)
1	1: Cabinet function: Digital error B (IFB)
2	1: Cabinet function: Digital error C (IFC)
3	1: Cabinet function: Digital error D (IFD)
4	1: Cabinet function: Cabinet error A (CFA)
5	1: Cabinet function: Cabinet error B (CFB)
6	1: Cabinet function: Cabinet error C (CFC)
7	1: Cabinet function: Thermal input error A (TFA)
8	1: Cabinet function: Thermal input error B (TFB)

Bit	Description, Value
9	1: Cabinet function: Thermal input error C (TFC)
10	1: Cabinet function: Thermal input error D (TFD)
11...12	Reserved
13	1: Multidrive Link: Communication interruption (MDLF)
14	1: Backlash error (BSQF)
15	1: Master Slave: Device error (MSDF)

[Error Registers 10] DF10

Error registers 10.

Bit	Description, Value
0	1: Cabinet function: Cabinet over-heating error (CHF)
1	Reserved
2	1: MVK: Power cell missing (not found at startup) (INFV)
3	1: Power-Cells downward fiber communication error (PWF8)
4	1: Cabinet function: Thermal Device 1 (CF31)
5	1: Cabinet function: Thermal Device 2 (CF32)
6	1: Cabinet function: Thermal Device 3 (CF33)
7	1: Cabinet function: Thermal Device 4 (CF34)
8	1: Synchro Speed Monitoring error (SSPF)
9...10	Reserved
11	1: Circuit breaker: Error state (not in accordance to the start and stop pulse) (CBF)
12...13	Reserved
14	1: AI2 thermal sensor detected error (THEF)
15	1: Thermal sensor error on AI2 (TECF)

[Error Registers 11] DF11

Error registers 11.

Bit	Description, Value
0	1: Thermal sensor error on AI1 (T1CF)
1	1: Configuration switching error (CFI4)
2...3	Reserved
4	1: Security files corrupt (SPFC)
5	Reserved
6	1: Fast Device Replacement error (FDR1)
7	1: Fast Device Replacement error (FDR2)
8... 9	Reserved
10	1: QF3 earth contact error (CF29)
11	1: QF3 isolated contact error (CF30)
12	1: Bypass POC error (BYPF)

Bit	Description, Value
13	1: Fan cooling command error (CF35)
14	1: QF2 isolated Contact error (CF27)
15	1 : QF2 Earth Contact error (CF28)

[Error Registers 12] DF12

Error registers 12.

Bit	Description, Value
0	1: Device Option interface compatibility error (INFO)
1	1: Option 3 communication interruption (CNF3)
2	1: Option 3 internal link error (ILF3)
3	1: External error from Option 3 (EPF3)
4	1: Mains voltage dip 3 phase lost (3PF)
5	1: Modbus 2 local serial communication interruption (SLF4)
6	From SW1.7: Reserved Before SW1.7: 1: Mains over-current error (PWF1)
7	1: Mains ground voltage short-circuit error (PWF2)
8	1: Motor ground voltage short-circuit error (PWF3)
9	1: Power-Cells Fiber communication error (PWF4)
10	1: Power Cells mains supply error (PWF5)
11	1: FPGA Internal error (PWF6)
12	1: Power Cells gates driver error (PWF7)
13	1: Power output enable function error (PODF)
14	1: Cabinet function: Thermal Transformer 1 error (CF01)
15	1: Cabinet function: Thermal Transformer 2 error (CF02)

[Error Registers 13] DF13

Error registers 13.

Bit	Description, Value
0	1: Cabinet function: PLC inside internal error (CF03)
1	1: Cabinet function: Mains off button (CF04)
2	1: Cabinet function: Door interlock (CF05)
3	1: Cabinet function: Fan cooling not ready (CF06)
4	1: Cabinet function: Cabinet overheat (CF07)
5	1: Cabinet function: MV Circuit Breaker status not ok (CF08)
6	1: Cabinet function: Fan power supply (CF09)
7	1: Cabinet function: Auxiliary power supply monitoring (CF10)
8	1: Cabinet function: QF1 grounding contact closed (CF11)
9	1: Cabinet function: QF1 isolated (CF12)
10	1: Cabinet function: QF2 feedback (CF13)

Bit	Description, Value
11	1: Cabinet function: QF3 feedback (CF14)
12	1: Cabinet function: QF91 feedback (CF15)
13	1: Cabinet function: QF11 feedback (CF16)
14	1: LV Surge Arrestor Error (CF17)
15	1: Bypass Drive error Sequence (CF18)

[Error Registers 14] DF14

Error registers 14.

Bit	Description, Value
0	1: Cabinet function: Winding 1 (CF19)
1	1: Cabinet function: Winding 2 (CF20)
2	1: Cabinet function: Bearing 1 (CF21)
3	1: Cabinet function: Bearing 2 (CF22)
4	1: Cabinet function: PT100 Winding triggered (OP or SC) (CF23)
5	1: Cabinet function: PT100 Bearing triggered (OP or SC) (CF24)
6	1: Cabinet function: Thermal choke (CF25)
7	1: Cabinet function: Thermal Device 7 (CF26)
8	1: Cabinet function: Thermal Device 5 (AF01)
9	1: Cabinet function: Thermal Device 6 (AF02)
10	1: Cabinet function: PT100 sensor triggered (OP or SC) (AF03)
11	1: Cabinet function: Analog Monitor error 5 (AF04)
12	1: Cabinet function: Analog Monitor error 6 (AF05)
13	1: Cabinet function: Analog Monitor error 7 (AF06)
14	1: Cabinet function: Analog Monitor error 8 (AF07)
15	1: Cabinet function: Thermal Device 8 (AF08)

[Warning Registers 1] ALR1

Warning registers 1.

Bit	Description, Value
0	1 = (FRF) : Reaction on event: Fallback frequency
1	1 = (RLS) : Reaction on event: Speed maintained
2	1 = (STT) : Reaction on event: Stop following [Type of stop] STT without triggering an error
3	1 = (SRA) : Frequency reference reached
4	1 = (LCA1) : Life cycle warning 1
5	1 = (LCA2) : Life cycle warning 2
6	1 = (DRYA) : Dry Running Warning
12	1 = (PCPA) : Pumpcycle monitoring warning

[Warning Registers 2] ALR2

Warning registers 2.

Bit	Description, Value
1	1 = (PEE) : PID error warning
2	1 = (PFA) : PID feedback warning
3	1 = (PFAH) : PID feedback high threshold reached
4	1 = (PFAL) : PID feedback low threshold reached
5	1 = (PISH) : PID feedback monitoring warning
10	1 = (TP3A) : AI3 Thermal warning
11	1 = (TP4A) : AI4 Thermal warning
12	1 = (TP5A) : AI5 Thermal warning
13	1 = (AP1) : 4-20 loss alarm on AI1
15	1 = (AP3) : 4-20 loss alarm on AI3

[Warning Registers 3] ALR3

Warning registers 3.

Bit	Description, Value
0	1 = (AP4) : 4-20 loss alarm on AI4
1	1 = (AP5) : 4-20 loss alarm on AI5
2	1 = (THA) : Drive overheating warning
4	1 = (FCTA) : Fan counter speed warning
5	1 = (FFDA) : Fan feedback warning
7	1 = (EFA) : External error warning
8	1 = (USA) : Undervoltage warning
9	1 = (UPA) : Controlled stop threshold is reached
10	1 = (ERN) : Emergency
11	1 = (FTA) : Motor frequency high threshold 1 reached
12	1 = (FTAL) : Motor frequency low threshold 1 reached
13	1 = (FQLA) : Pulse warning threshold reached
14	1 = (F2AL) : Motor frequency low threshold 2 reached
15	1 = (FLA) : High speed reached warning

[Warning Registers 4] ALR4

Warning registers 4.

Bit	Description, Value
0	1 = (RTAH) : Reference frequency high threshold reached
1	1 = (RTAL) : Reference frequency low threshold reached
2	1 = (F2A) : Motor frequency high threshold 2 reached
3	1 = (CTA) : Motor current high threshold reached

Bit	Description, Value
4	1 = (CTAL) : Motor current low threshold reached
5	1 = (TTHA) : Motor torque high threshold reached
6	1 = (TTLA) : Motor torque low threshold reached
7	1 = (ULA) : Underload is detected
8	1 = (OLA) : Overload is detected
9	1 = (SSA) : Timeout on current or torque limitation is reached
10	1 = (RTA) : Torque regulation alarm
11	1 = (TAD) : Drive thermal threshold reached
12	1 = (TSA) : Motor 1 thermal threshold reached
13	1 = (TS2) : Motor 2 thermal threshold reached
14	1 = (TS3) : Motor 3 thermal threshold reached
15	1 = (TS4) : Motor 4 thermal threshold reached

[Warning Registers 5] ALR5

Warning registers 5.

Bit	Description, Value
0	1 = (PTHA) : Power high threshold reached
1	1 = (PTHL) : Power low threshold reached
2	1 = (CAS1) : Customer warning 1 active
3	1 = (CAS2) : Customer warning 2 active
4	1 = (CAS3) : Customer warning 3 active
5	1 = (CAS4) : Customer warning 4 active
6	1 = (CAS5) : Customer warning 5 active
8	1 = (POWD) : Power consumption warning

[Warning Registers 6] ALR6

Warning registers 6.

Bit	Description, Value
2	1 = (ANA) : Slipping warning
4	1 = (BSA) : Load movement warning
5	1 = (BCA) : Brake contact warning
6	1 = (TP1A) : AI1 Thermal warning

[Warning Registers 7] ALR7

Warning registers 7.

Bit	Description, Value
0	1 = (IWA) : Monitoring circuit A warning
1	1 = (IWB) : Monitoring circuit B warning
2	1 = (IWC) : Monitoring circuit C warning
3	1 = (IWD) : Monitoring circuit D warning
4	1 = (CWA) : Cabinet circuit A warning
5	1 = (CWB) : Cabinet circuit B warning
6	1 = (CWC) : Cabinet circuit C warning
7	1 = (TWA) : Motor winding A warning
8	1 = (TWB) : Motor winding B warning
9	1 = (TWC) : Motor winding C warning
10	1 = (TWD) : Motor winding D warning
15	1 = (SSPA) : Synchro Speed Monitoring Warning

[Warning Registers 8] ALR8

Warning registers 8.

Bit	Description, Value
6	1 = (CHA) : Cabinet overheat warning
11	1 = (MSDA) : Master/Slave device warning
12	1 = (BSQA) : Backlash Sequence : Alarm
13	1 = (TPEA) : Encoder module thermal warning

[Warning Registers 9] ALR9

Warning registers 9.

Bit	Description, Value
3	1 = (OBW) : Over-voltage warning
4	1 = (TS1A) : Temperature sensor AI1 warning (open circuit)
6	1 = (TS3A) : Temperature sensor AI3 warning (open circuit)
7	1 = (TS4A) : Temperature sensor AI4 warning (open circuit)
8	1 = (TS5A) : Temperature sensor AI5 warning (open circuit)
9	1 = (MOTW) : Motor scaling warning
10	1 = (IGW) : Mains ground warning
11	1 = (OGW) : Motor ground warning
12	1 = (CW01) : Controller embedded RTC battery warning
13	1 = (CW02) : Cooling fan warning
14	1 = (CW03) : Cabinet overheating
15	1 = (CW04) : MVCB Status not OK warning

[Warning Registers 10] ALRA

Warning registers 10.

Bit	Description, Value
0	1 = (CW05) : Fan power supply warning
1	1 = (CW06) : Auxiliary power supply warning
2	1 = (CW07) : LV Surge arrestor warning
3	1 = (CW08) : PLC Cabinet Warning 8 (reserved)
4	1 = (CW09) : PLC Cabinet Warning 9 (reserved)
5	1 = (CW10) : PLC Cabinet Warning 10 (reserved)
6	1 = (CW11) : QF2 feedback warning
7	1 = (CW12) : QF3 feedback warning
8	1 = (CW13) : QF91 feedback warning
9	1 = (CW14) : QF11 feedback warning
10	1 = (CW15) : Bypass drive switch sequence warning
11	1 = (CW16) : reserved
12	1 = (CW17) : Motor thermal winding warning 1
13	1 = (CW18) : Motor thermal winding warning 2
14	1 = (CW19) : Motor thermal bearing warning 1
15	1 = (CW20) : Motor thermal bearing warning 2

[Warning Registers 11] ALRB

Warning registers 11.

Bit	Description, Value
0	1 = (CW21) : Transformer 1 thermal warning
1	1 = (CW22) : Transformer 2 thermal warning
2	1 = (CW23) : Thermal Choke Warning
3	1 = (CW24) : MVCB switch on cycling warning
4	1 = (CW25) : Thermal device 1 Warning
5	1 = (CW26) : Thermal device 2 Warning
6	1 = (CW27) : Thermal device 3 Warning
7	1 = (CW28) : Thermal device 4 Warning
8	1 = (CW29) : PLC-control communication warning
9	1 = (CW30) : PLC Cabinet Warning 30 (reserved)
10	1 = (CW31) : PLC Cabinet Warning 31 (reserved)
11	1 = (CW32) : PLC Cabinet Warning 32 (reserved)
12	1 = (AW01) : Analog monitoring function 1 warning
13	1 = (AW02) : Analog monitoring function 2 warning
14	1 = (AW03) : Analog monitoring function 3 warning
15	1 = (AW04) : Analog monitoring function 4 warning

[Warning Registers 12] ALRC

Warning registers 12.

Bit	Description, Value
0	1 = (AW05) : Analog monitoring function x-20mA loss warning
1	1 = (AW06) : Thermal device 5 warning
2	1 = (AW07) : Thermal device 6 warning
3	1 = (AW08) : PT100 Motor Winding trip (OC or SC) warning
4	1 = (AW09) : PT100 Motor Bearing trip (OC or SC) warning
5	1 = (AW10) : PT100 Sensor trip (OC or SC) warning
6	1 = (AW11) : Analog monitoring function 5 warning
7	1 = (AW12) : Analog monitoring function 6 warning
8	1 = (AW13) : Analog monitoring function 7 warning
9	1 = (AW14) : Analog monitoring function 8 warning
10	1 = (AW15) : Thermal device 7 warning
11	1 = (AW16) : Thermal device 8 warning
12	1 = (BYW1) : Bypass Poc Warning 1
13	1 = (BYW2) : Bypass Poc Warning 2
14	1 = (MQF1) : Monitoring QF1 Feedback Fieldbus Warning
15	1 = (MBFW) : Monitoring Brake Feedback Fieldbus Warning

[Warning Registers 13] ALRD

Warning registers 13.

Bit	Description, Value
0	1 = (UPSF) : UPS in bypass due to internal error
1	1 = (UPSL) : UPS Low battery
2	1 = (UPSR) : UPS Replace battery
3	1 = (UPSC) : UPS no communication
4...15	Reserved

[On Lock Register] PLO1

On lock register.

Bit	Description, Value
0	1 = Door Open
1	1 = Fan feedback not ready
2	1 = Mains OFF Button
3	1 = MVCB Tripped
4	1 = MVCB grounding contact
5	1 = MVCB Isolated
6	1 = Monitoring circuit A Onlock

Bit	Description, Value
7	1 = Monitoring circuit B Onlock
8	Reserved
9	Reserved
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Counter Management] Menu

HMI Access

[Diagnostics] → [Status Synthesis] → [Counter Management]

Overview

This menu shows the drive, fan, and motor-related counters.

Note:

- Specific counters are available once logged in with Services access.
- All the following counter can be set to 0 by using the [Counter Reset] RPR parameter.



[Motor Run Time] RTH

Run elapsed time display in seconds (length of time the motor has been switched on). Can be set to 0 by using the [Counter Reset] RPR parameter.

Setting	Description
0...4,294,967,295 s	Setting range
	Factory setting: _

[Power-on time] PTH

Power-on time, can be set to 0 by using the [Counter Reset] RPR parameter.

Setting	Description
0...4,294,967,295 s	Setting range Factory setting: _

[Nb Of Starts] NSM

Number of motor starts, can be set to 0 by using the [Counter Reset] [RPR](#) parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[Nb of MV Power On] NSV

Number of MV Power on display, can be set to 0 by using the [Counter Reset] [RPR](#) parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[Fan Operation Time] FT01

As soon as [Fan Operation Time] [FT01](#) reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning [Fan Counter Warning] [FCTA](#) is triggered.

[Fan Operation Time] [FT01](#) counter can be set to 0 by using the [Counter Reset] [RPR](#) parameter.

Setting	Description
0...1,800,000,000 s	Setting range Factory setting: Read Only

[QF1 Nb Of Starts] QFP0

Number of power on mains circuit breaker, can be set to 0 by using the [Counter Reset] [RPR](#) parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[QF2 Nb Of Starts] QFP2

Number of power on bypass circuit breaker, can be set to 0 by using the [Counter Reset] RPR parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[QF3 Nb Of Starts] QFP3

Number of power on bypass circuit breaker, can be set to 0 by using the [Counter Reset] RPR parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[QF91 Nb Of Starts] QFP4

Number of power on inrush circuit breaker, can be set to 0 by using the [Counter Reset] RPR parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[Counter Reset] RPR

This parameter can reset individually the timer and counter

Setting	Code / Value	Description
[No]	NO	No Factory setting
[Reset Run Time]	RTH	Run time reset
[Reset Tot Run Time]	RTHI	Internal Run Time Reset (Dedicated for services)
[Reset Power On Time]	PTH	Power ON time reset
[Reset Tot Pw On Time]	PTHI	Internal power ON time Reset (Dedicated for services)
[Reset Fan Counter]	FTH	Reset fan counter
[Reset Start Count]	NSM	Clear number of motor starts
[Reset Start Total]	NSMI	Clear number of starts (Dedicated for services)
[Clear LTHI]	LTHI	Clear running time in limitation (current & torque)

Setting	Code / Value	Description
[Clear GTH]	GTHI	Clear running time in generator mode
[Clear QF1]	QFP0	Clear number of Power On Mains Circuit Breaker
[Clear QF3]	QFP3	Clear number of Power On Bypass Circuit Breaker
[ClearQF91]	QFP4	Clear number of Power On Inrush Circuit Breaker
[Clear NSV]	NSV	Clear number of MV Power On.
[Clear NSVI]	NSVI	Clear number of MV Power On (Dedicated for services)
[Reset All (Service)]	ALL	Reset all

[Event Record] Menu

HMI Access

[Diagnostics] → [Event recorder]

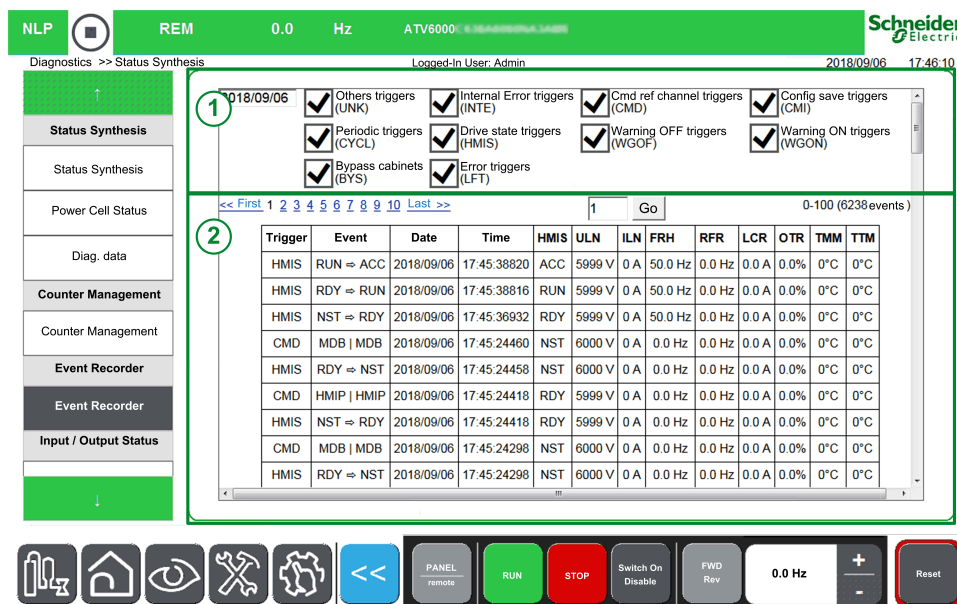
Overview

The Event record menu allows the user to consult and export the drive event log file. A configurable context is saved with each event trigger.

The configurable event cannot be configured using HMI Panel, it must be done using the DTM, and activated at the end of the commissioning by services.

NOTE:

- This function can be configured at any time, whatever the status of the drive.
- The HMI is able to store 9Gb of events, which represents 40 years of data stored on the HMI.



The Event Recorder panel is composed of 2 areas

1. Selection trigger area
2. Event display area.

Selection Trigger Area

The selection trigger area is composed of 2 parts

- **Date Selection**
 - It is used to select the required date.
 - When a date is selected, the "Event List display" area is automatically updated.
 - By default, when entering the menu, the selected date is "today".

- **Event Filter Selection**
 - It is used to select through “Checkboxes” the required event record types.
 - When an event type is selected, the “Event List display” area is automatically updated.
 - By default, when entering the menu, all the events are selected.
- NOTE:** All the data is saved in the CSV file and does not depend on the filter selection.

Event Display Area

Event display area is broken down into 2 parts

- **Pages Navigation**
 - There are 100 events per page.
- **Event List Display**

Export Files

The operation parameters are recorded automatically when the ATV6000 is running.

6 Types of event are recorded.

- Periodicity
- Channel for command and reference value
- Warning code
- Error code
- Drive state
- Configuration stored

They are stored in text file format into the Log folder of the HM hard disk everyday, see [Export Files, page 319 menu](#).

List of the Triggers Available

Trigger	Naming	Trigger	Naming
UNK	Other triggers	CMD	Cmd Ref channel triggers
CYCL	Periodic triggers	WGOF/ WGON	Warning ON/OFF triggers
BYS	Bypass Cabinet triggers	ULN	Mains triggers
POCS	PoC state triggers	CMI	Configs save triggers
HMIS	Drive state triggers	QFx	Breaker state triggers
LFT	Errors trigger	ONLK	On-lock triggers

Error History

What's in This Chapter

Error History 214

500 Last Detected Errors 216

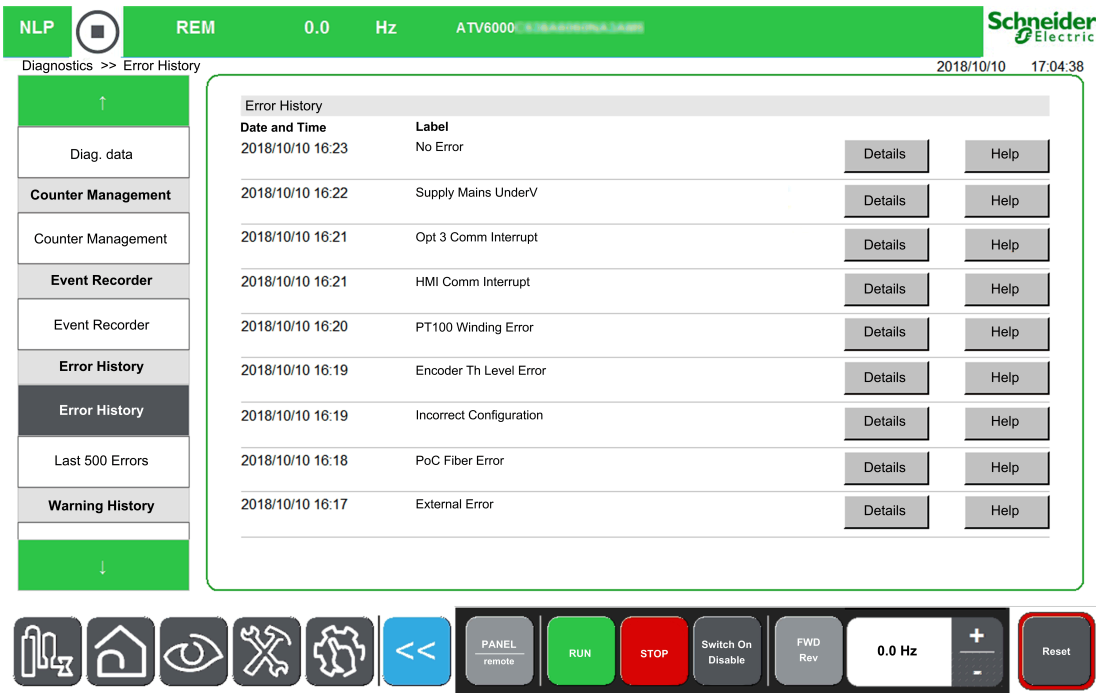
Error History

HMI Access

[Diagnostics] ➔ [Error History]

Overview

This menu presents the list of errors detected by the drive. You can navigate and select the error that you want analyzed.



Error History Panel is composed of several pages described below:

- **Error History**
 - **Details:** Clicking on this button opens a new page **Error details** linked to the error selected.
 - **Help:** Clicking on this button opens a new page **Error Description** linked to the error selected.
- **Error details**

This page displays the status and main characteristics of the drive at occurrence of the selected error.

 - **Help:** Clicking on this button opens a new page linked to the error selected.
 - **Close:** Clicking on this button allows to go back to the **Error History** page.

- **Error Description**

This page displays the **Description** and **Cause & Remedy** of the selected error.

NOTE: Click on **Cause** or **Remedy** section to have a full screen with more details.

A QR-code can be scanned from this HMI screen, It allows you to get an easy access to error description through your mobile device (as tablet or smartphone).

NOTE: For a complete list of error codes, refer to the part [Diagnostics and Troubleshooting](#), page 472

NOTE: By pushing the **contact information** button, a new page opens.

500 Last Detected Errors

HMI Access

[Diagnostics] → [500 Last detected errors]

Overview

NLP

REM

0.0

Hz

ATV6000

Schneider Electric

Diagnostics >> 500 Last Errors

2018/09/06 18:11:20

↑

Counter Management

Counter Management

Event Recorder

Event Recorder

Error History

Error History

Last 500 Errors

Warning History

Last Warnings

↓

500 Last Errors

Error number	Date and time	Description
1	2018/09/06 17:37	PoC Fiber Error
2	2018/09/06 16:54	PT100 Winding Error
3	2018/09/06 16:39	Encoder Th Level Error
4	2018/09/06 16:38	Incorrect Configuration
5	2018/09/06 16:37	Tranformer 1 Overheat
6	2018/09/06 16:32	HMI Comm Interrupt
7	2018/09/06 10:37	Internal Error 27
8	2018/09/06 10:33	Internal Error 27
9	2018/09/06 10:09	Opt 3 Comm Interrupt
10	2018/09/06 10:04	Supply Mains UnderV
11	2018/09/06 10:03	External Error
12	2018/09/06 10:02	
13	2018/09/06 10:01	
14	2018/09/06 10:01	
15	2018/09/06 10:00	
16	2018/09/06 09:59	
17	2018/09/06 09:58	
18	2018/09/06 09:58	
19	2018/09/06 09:58	
20	2018/09/06 09:58	

Export *.CSV

PANEL remote

RUN

STOP

Switch On Disable

FWD Rev

0.0 Hz

+

-

Reset

This menu presents the 500 last detected errors, it is possible to export this data, see Export files menu, page 319.

For a complete list of error codes, see the Diagnostics and Troubleshooting part, page 481.

[Warning History] Menu

HMI Access

[Diagnostics] → [Warning History]

Overview

This menu presents the list of warnings that occurred in the device.

The screenshot shows the HMI interface for a Schneider Electric device. The top status bar includes 'NLP', 'REM', '0.0 Hz', and 'ATV6000'. The left sidebar has a menu with 'Last Warnings' highlighted. The main display area shows a table titled 'Last Warnings' with two columns: 'Date and time' and 'Warning'. The table lists several warnings from 2018/09/06, including 'Over-voltage Warn', 'Ext. Error Warning', 'AI1 Th Warning', 'AI5 Th Warning', 'AI3 Th Warning', and 'Ext. Error Warning'. The bottom bar contains various control buttons: 'PANEL remote', 'RUN', 'STOP', 'Switch On Disable', 'FWD Rev', '0.0 Hz', and 'Reset'.

Date and time	Warning
2018/09/06 17:39	Over-voltage Warn
2018/09/06 17:29	Ext. Error Warning
2018/09/06 16:41	AI1 Th Warning
2018/09/06 16:41	AI5 Th Warning
2018/09/06 16:40	AI3 Th Warning
2018/09/06 16:40	Ext. Error Warning

For a complete list of warnings, see the Diagnostics and Troubleshooting part, page 477.

Advanced Diagnostic

What's in This Chapter

[Counter Management Advanced] Menu 219

[Counter Management Advanced] Menu

HMI Access

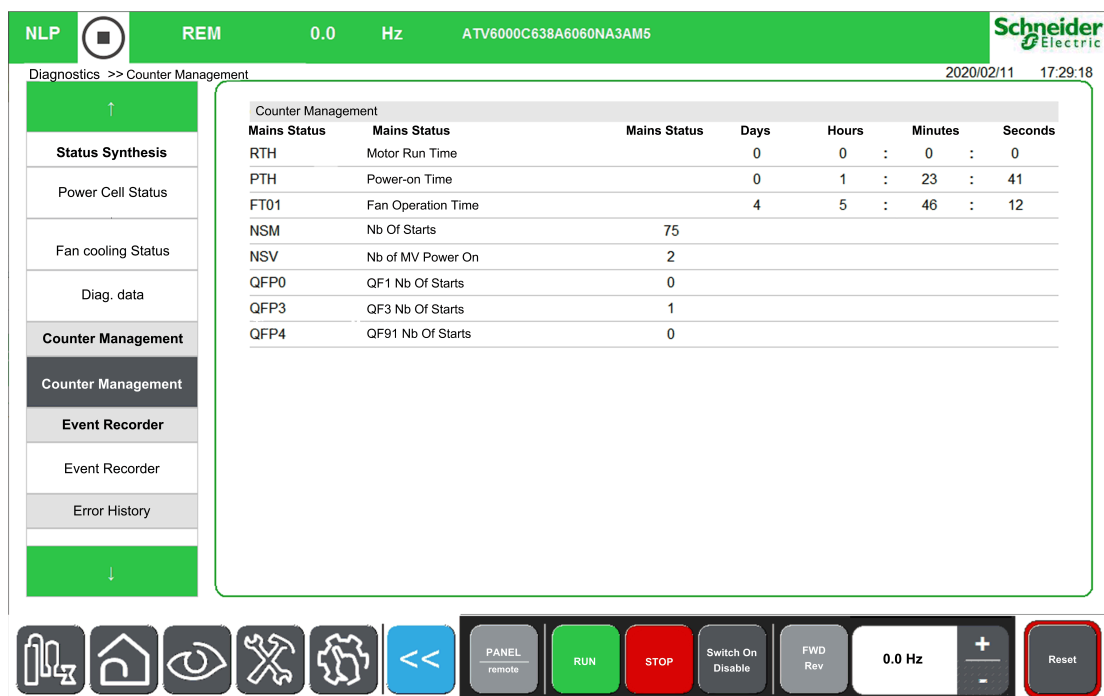
[Diagnostics] → [Advanced Diagnostic] → [Counter Management Advanced]

Overview

This menu shows the drive, fan, and motor-related counters.

Note:

- Specific counters are available once logged in with Services access.
- All the following counter can be set to 0 by using the **[Counter Reset]** [RPR](#) parameter.



[Motor Run Time] [RTHI](#)

Run elapsed time display in seconds (length of time the motor has been switched on). Can be set to 0 by using the **[Counter Reset]** [RPR](#) parameter.

Setting	Description
0...4,294,967,295 s	Setting range
	Factory setting: _

[Power-on time] [PTHI](#)

Power-on time, can be set to 0 by using the **[Counter Reset]** [RPR](#) parameter.

Setting	Description
0...4,294,967,295 s	Setting range Factory setting: _

[Nb Of Starts] NSMI

Number of motor starts, can be set to 0 by using the **[Counter Reset]** RPR parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[Nb of MV Power On] NSVI

Number of MV Power on display, can be set to 0 by using the **[Counter Reset]** RPR parameter.

Setting	Description
0...4,294,967,295	Setting range Factory setting: _

[Fan Operation Time] FT01

As soon as **[Fan Operation Time]** FT01 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning]** FCTA is triggered.

[Fan Operation Time] FT01 counter can be set to 0 by using the **[Counter Reset]** RPR parameter.

Setting	Description
0...1,800,000,000 s	Setting range Factory setting: Read Only

[Counter Reset] RPR

This parameter can reset individually the timer and counter

Setting	Code / Value	Description
[No]	NO	No Factory setting
[Reset Run Time]	RTH	Run time reset
[Reset Tot Run Time]	RTHI	Internal Run Time Reset (Dedicated for services)
[Reset Power On Time]	PTH	Power ON time reset
[Reset Tot Pw On Time]	PTHI	Internal power ON time Reset (Dedicated for services)

Setting	Code / Value	Description
[Reset Fan Counter]	FTH	Reset fan counter
[Reset Start Count]	NSM	Clear number of motor starts
[Reset Start Total]	NSMI	Clear number of starts (Dedicated for services)
[Clear LTHI]	LTHI	Clear running time in limitation (current & torque)
[Clear GTHI]	GTHI	Clear running time in generator mode
[Clear QF1]	QFP0	Clear number of Power On Mains Circuit Breaker
[Clear QF3]	QFP3	Clear number of Power On Bypass Circuit Breaker
[Clear QF91]	QFP4	Clear number of Power On Inrush Circuit Breaker
[Clear NSV]	NSV	Clear number of MV Power On.
[Clear NSVI]	NSVI	Clear number of MV Power On (Dedicated for services)
[Reset All (Service)]	ALL	Reset all

Settings functions for HMI Panel

What's in This Part

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Custom HMI.....	287
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Overview

This section can be accessed using the **Settings** Menu available only on the ATV6000 HMI Panel.

Drive Settings

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[Speed limits] Menu	223
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[Input/Output] Menu	235
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[Recall configuration] Menu	270
[Advanced Function] Menu	274
Command and Reference Channels	280

[Speed limits] Menu

HMI Access

[Settings] → [Drive Settings] → [Speed limits]

About This Menu

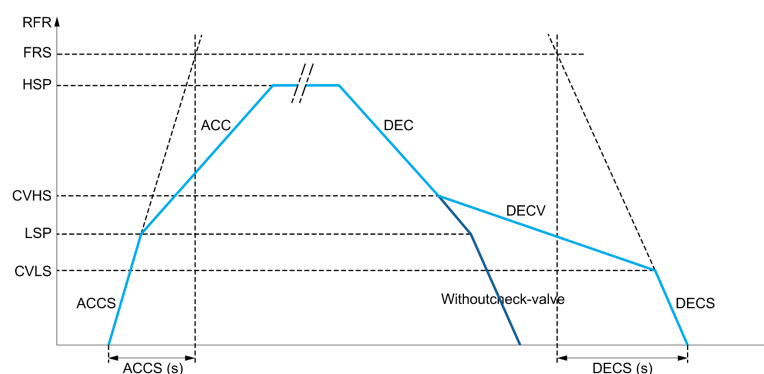
This function defines how the acceleration and deceleration are controlled during start and stop of the pump.

The pump working area is within the speed range **[Low Speed]** LSP - **[High Speed]** HSP.

The minimum speed is provided by the pump manufacturer according to the application.

Running below the minimum speed and/or starting the pump with a long acceleration ramp time has an impact on the lubrication of the seal, on the cooling of the impeller and the bearings.

A specific check-valve deceleration ramp is available to reduce any large variation of pressure that can generate an instability of the valve.



When the pump starts, the pump accelerates up to **[Low Speed]** LSP according to **[Start Accel Ramp]** ACCS. When the pump speed is above **[Low Speed]** LSP, the pump acceleration and deceleration are managed according to **[Acceleration]** ACC and **[Deceleration]** DEC if no other function is activated.

When the pump stops:

- The pump decelerates down to **[Check Valve Spd 2]** CVHS according to **[Deceleration]** DEC
- The pump decelerates from **[Check Valve Spd 2]** CVHS to **[Check Valve Spd 1]** CVLS according to **[Dec. Check Valve]** DECV

- The pump decelerates from **[Check Valve Spd 1]** **CVLS** to zero speed according to **[Final Dec. Ramp]** **DECS**

If **[Start Accel Ramp]** **ACCS** = 0, the start ramp is ignored and **[Acceleration]** **ACC** is used to start the pump.

If **[Dec. Check Valve]** **DECV** = 0, the check-valve ramp is ignored and is used to decelerate down to **[Low Speed]** **LSP**, then **[Final Dec. Ramp]** **DECS** is used (see below).

If **[Final Dec. Ramp]** **DECS** = 0, the normal deceleration **[Deceleration]** **DEC** is used to stop the pump.

[Low Speed] LSP

Low speed.

Setting	Description
0.0...300.0 Hz	Setting range Factory setting: 0 Hz

[High Speed] HSP

High speed.

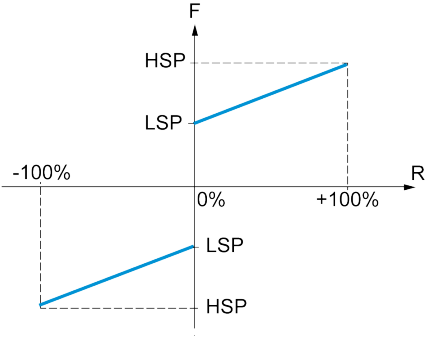
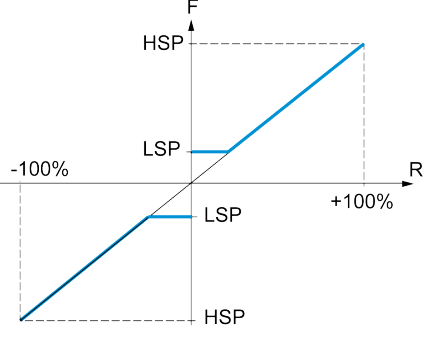
Setting	Description
0.0...300.0 Hz	Setting range Factory setting: 50.0 Hz

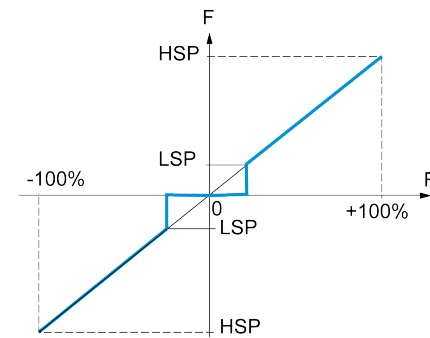
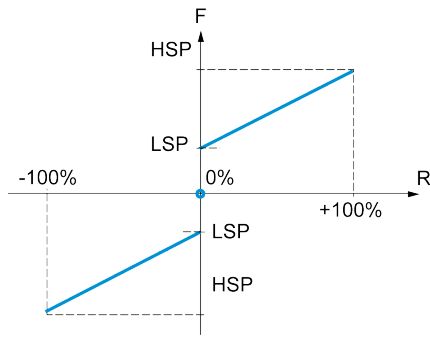
[Ref Freq template] BSP

Low speed management (template).

This parameter defines how the speed reference is taken into account, for analog inputs and pulse input only. In the case of the PID controller, this is the PID output reference.

The limits are set by the **[Low Speed]** **LSP** and **[High Speed]** **HSP** parameters.

Setting	Code / Value	Description
[Standard]	BSD	 <p>F Frequency</p> <p>R Reference At reference = 0, the frequency = [Low Speed] LSP</p> <p>Factory setting</p>
[Pedestal]	BLS	 <p>F Frequency</p> <p>R Reference At reference = 0 to [Low Speed] LSP, the frequency = [Low Speed] LSP</p>

Setting	Code / Value	Description
[Deadband]	BNS	<div></div> <p>F Frequency</p> <p>R Reference</p> <p>At reference = 0 to [Low Speed] LSP the frequency = 0</p>
[Deadband at 0%]	BNS0	<div></div> <p>F Frequency</p> <p>R Reference</p> <p>This operation is the same as [Standard] BSD, except that in the following cases at zero reference, the frequency = 0: The signal is less than [Min value], which is greater than 0 (example: 1 Vdc on a 2–10 Vdc input). The signal is greater than [Min value], which is greater than [Max value] (example: 11 Vdc on a 10–0 Vdc input).</p> <p>If the input range is configured as “bidirectional”, the operation remains identical to [Standard] BSD.</p>

[Ramp] Menu

HMI Access

[Settings] → [Drive Settings] → [Ramp]

[Ramp Type] RPT

Type of ramp.

Setting	Code / Value	Description
[Linear]	LIN	Linear ramp Factory setting
[S-Ramp]	S	S ramp
[U-Ramp]	U	U ramp
[Customized]	CUS	Customer ramp

[Ramp increment] INR

This parameter is valid for [Acceleration] ACC, [Deceleration] DEC, [Acceleration 2] AC2 and [Deceleration 2] DE2.

Setting	Code / Value	Description
[0.01]	001	Ramp up to 99.99 seconds
[0.1]	01	Ramp up to 999.9 seconds Factory setting
[1]	1	Ramp up to 6,000 seconds

[Acceleration] ACC

Time to accelerate from 0 to the [Nominal Motor Freq] FRS.

To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

Setting	Description
0.00...6,000.00 s ⁽¹⁾	Setting range Factory setting: 60.0 s
⁽¹⁾ Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1 to 6,000 according to [Ramp increment] INR	

[Deceleration] DEC

Time to decelerate from the [Nominal Motor Freq] FRS to 0.

To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

Setting	Description
0.00...6,000.00 s ⁽¹⁾	Setting range Factory setting: 60.00 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1 to 6,000 according to [Ramp increment] <i>INR</i>	

[Begin Acc round] *TA1*

Rounding of start of acceleration ramp as a percentage of the **[Acceleration]** *ACC* or **[Acceleration 2]** *AC2* ramp time.

Can be set from 0 to 100%.

This parameter can be accessed if the **[Ramp Type]** *RPT* is set to **[Customized]** *CUS*.

Setting	Description
0...100%	Setting range Factory setting: 10%

[End Acc round] *TA2*

Rounding of end of acceleration ramp as a percentage of the **[Acceleration]** *ACC* or **[Acceleration 2]** *AC2* ramp time.

Can be set between 0 and (100% - **[Begin Acc round]** *TA1*).

This parameter can be accessed if the **[Ramp Type]** *RPT* is set to **[Customized]** *CUS*.

Setting	Description
0...100%	Setting range Factory setting: 10%

[Begin Dec round] *TA3*

Rounding of start of deceleration ramp as a percentage of the **[Deceleration]** *DEC* or **[Deceleration 2]** *DE2* ramp time.

Can be set from 0 to 100%.

This parameter can be accessed if the **[Ramp Type]** *RPT* is set to **[Customized]** *CUS*.

Setting	Description
0...100%	Setting range Factory setting: 10%

[End Dec round] *TA4*

Rounding of end of deceleration ramp as a percentage of the **[Deceleration]** *DEC* or **[Deceleration 2]** *DE2* ramp time.

Can be set between 0 and (100% - **[Begin Dec round]** *TA3*).

This parameter can be accessed if the **[Ramp Type] RPT** is set to **[Customized] CUS**.

Setting	Description
0...100%	Setting range Factory setting: 10%

[Ramp 2 Thd] FRT

Ramp 2 frequency threshold.

The second ramp is switched if the value of **[Ramp 2 Thd] FRT** is not 0 (0 deactivates the function) and the output frequency is greater than **[Ramp 2 Thd] FRT**.

Setting	Description
0.0...300.0 Hz	Setting range Factory setting: 0.0 Hz

Use case 1: **[Ramp Switch Assign] RPS** is not configured and **[Ramp 2 Thd] FRT** > 0 Hz

DI or Bit	Frequency	Ramp
—	< FRT	ACC, DEC
—	> FRT	AC2, DE2

Use case 2: **[Ramp Switch Assign] RPS** is configured and **[Ramp 2 Thd] FRT** = 0 Hz

DI or Bit	Frequency	Ramp
0	—	ACC, DEC
1	—	AC2, DE2

Use case 3: **[Ramp Switch Assign] RPS** is configured and **[Ramp 2 Thd] FRT** > 0 Hz

DI or Bit	Frequency	Ramp
0	< FRT	ACC, DEC
0	> FRT	AC2, DE2
1	< FRT	AC2, DE2
1	> FRT	AC2, DE2

[Acceleration 2] AC2

Time to accelerate from 0 to the **[Nominal Motor Freq] FRS**. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if **[Ramp 2 Thd] FRT** is greater than 0 or if **[Ramp Switch Assign] RPS** is assigned.

Setting	Description
0.0...6,000 s ⁽¹⁾	Setting range Factory setting: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to [Ramp increment] <i>INR</i> .	

[Deceleration 2] *DE2*

Time to decelerate from the **[Nominal Motor Freq]** *FRS* to 0. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if:

- **[Ramp 2 Thd]** *FRT* is greater than 0, or
- **[Ramp Switch Assign]** *RPS* is assigned.

Setting	Description
0.0...6,000 s ⁽¹⁾	Setting range Factory setting: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to [Ramp increment] <i>INR</i> .	

[Ramp 3 Thd] FT3

Ramp 3 frequency threshold

The third ramp is switched if the value of **[Ramp 3 Thd] FT3** is not 0 (0 deactivates the function) and the output frequency is greater than **[Ramp 3 Thd] FT3**.

Setting	Description
0.0...300 Hz	Setting range Factory setting: 0 Hz

Use case 1: **[Ramp Switch Assign] RPS** is not configured and **[Ramp 3 Thd] FT3** > 0 Hz

DI or Bit	Frequency	Ramp
—	< FRT	ACC, DEC
—	> FRT	AC3, DE3

Use case 2: **[Ramp Switch Assign] RPS** is configured and **[Ramp 3 Thd] FT3** = 0 Hz

DI or Bit	Frequency	Ramp
0	—	ACC, DEC
1	—	AC2, DE2

Use case 3: **[Ramp Switch Assign] RPS** is configured and **[Ramp 3 Thd] FT3** > 0 Hz

DI or Bit	Frequency	Ramp
0	< FRT	ACC, DEC
0	> FRT	AC3, DE3
1	< FRT	AC3, DE3
1	> FRT	AC3, DE3

[Acceleration 3] AC3

Time to accelerate from 0 to the **[Nominal Motor Freq] FRS**. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if **[Ramp 3 Thd] FT3** is greater than 0 or if **[Ramp Switch Assign] RPS** is assigned.

Setting	Description
0.0...6,000 s ⁽¹⁾	Setting range Factory setting: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to [Ramp increment] INR .	

[Deceleration 3] DE3

Time to decelerate from the **[Nominal Motor Freq] FRS** to 0. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if:

- **[Ramp 3 Thd]** **FT3** is greater than 0, or
- **[Ramp Switch Assign]** **RPS** is assigned.

Setting	Description
0.0...6,000 s ⁽¹⁾	Setting range Factory setting: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to [Ramp increment] INR .	

[Profidrive - Tolerance] **PTR**

Profidrive profile - RFG Tolerance parameter

This parameter is visible when a VW3A3647 PROFInet module is inserted.

Setting	Description
0....100 %	Setting range Factory setting: 10 %

[Profidrive - Tmax] **PTM**

Profidrive profile - RFG Tmax parameter

This parameter is visible when a VW3A3647 PROFInet module is inserted.

The maximum time to accelerate from 0 to the **[Nominal Motor Freq]** **FRS**.

Setting	Description
0....9999	Setting range Factory setting: 60

[Jump frequency] Menu

HMI Access

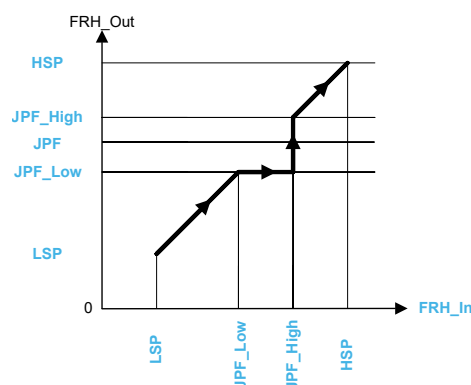
[Settings] → [Drive Settings] → [Jump frequency]

About This Menu

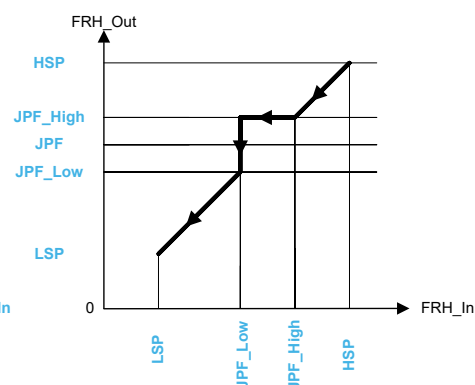
This function helps to prevent prolonged operation within an adjustable range around the regulated frequency.

This function can be used to help prevent reaching a frequency, which could cause resonance. Setting the parameter to 0 disables the function.

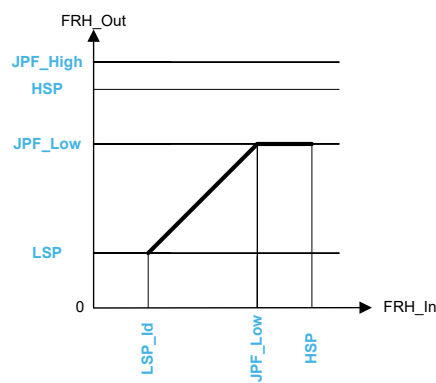
The following figures is an example of the jump frequency function:



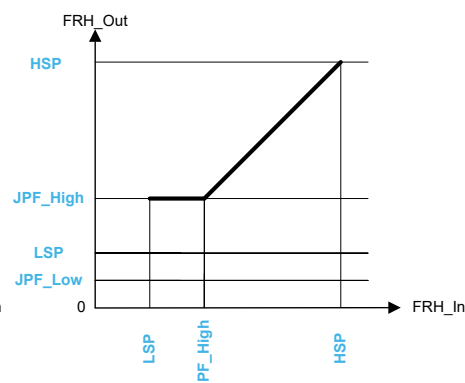
Jump frequency action when asked frequency is greater than motor speed



Jump frequency action when asked frequency is lower than motor speed



*Particular case :
HSP in forbidden frequency range*



*Particular case :
LSP in forbidden frequency range*

JPFx: xth Jump frequency value

WIDTH_FREQUENCY: Forbidden frequencies around JPFx

JPF_Low: JPFx – WIDTH_FREQUENCY

JPF_High: JPFx + WIDTH_FREQUENCY

FRH: Ramp input / Frequency reference

FRH_In: FRH value before jump frequency action

FRH_out: FRH value after jump frequency action

LSP: Low speed parameter

HSP: High speed parameter

[Skip Frequency] JPF

Skip frequency.

Setting	Description
0.0...300.0 Hz	Setting range Factory setting: 0.0 Hz

[Skip Frequency 2] JF2

Skip frequency 2.

Setting	Description
0.0...300.0 Hz	Setting range Factory setting: 0.0 Hz

[3rd Skip Frequency] JF3

3rd Skip frequency.

Setting	Description
0.0...300.0 Hz	Setting range Factory setting: 0.0 Hz

[Skip Freq.Hysteresis] JFH

Jump frequency bandwidth.

This parameter can be accessed if at least one skip frequency JPF, JF2, or JF3 is different from 0.

Skip frequency range: between $JPF - JFH$ and $JPF + JFH$ for example.

This adjustment is common to the 3 frequencies JPF, JF2, JF3.

Setting	Description
0.1...10.0 Hz	Setting range Factory setting: 1.0 Hz

[Input/Output] Menu

HMI Access

[Settings] ➔ [Drive Settings] ➔ [Input / Output]

About This Menu

This menu show information about Inputs and outputs of the drive such as the function assigned, the configuration and the present value or state

Analog Inputs			
Input/Output	Assignment	Value	
AI1 assignment	Ref Frequency 1	10.616	V
Parameter	Label	Value	Unit
AI1T	AI1 Type	Voltage	
UIL1	AI1 Min. Value	0.0	V
UIH1	AI1 Max. Value	10.0	V
CRL1	AI1 Min. Value		
CRH1	AI1 Max. Value		
AI1F	AI1 filter	0.00	s
AI1E	AI1 X Interm. Point	0	%
AI1S	AI1 Interm. Point Y	0	%

< 1 2 3 4 5 6 7 8 9 10 11 12 >

1. Panel : It presents current Analog input 1 menu available on page selection 1.

2. Page selection: Allows to navigate through several pages, it presents all following Input/Output menu :

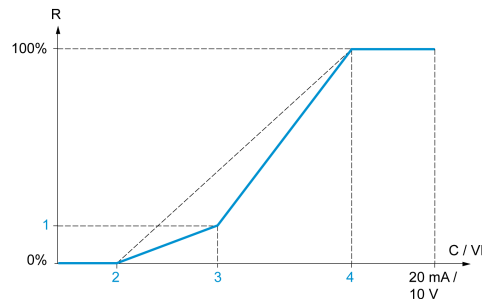
- Page 1 to 5: **[Analog Inputs]** Menu, page 236
- Page 6: **[Encoder]** Menu, page 241
- Page 7, 8 and 11, 12: **[Analog Output]** Menu, page 242
- Page 9: **[PTO Settings]** Menu, page 248
- Page 10: **[Pulse Inputs Settings]** Menu, page 250

[Analog Inputs] Menu

About This Menu

This menu shows the related Analog inputs parameters displayed from the HMI settings panel > Input/Output , page 235.

The input can be delinearized by configuring an intermediate point on the input/output curve of this input:



R Reference

C / VI Current or Voltage Input

1 [Y Interm. point]

2 [Min value] (0%)

3 [X Interm. point]

4 [Max value] (100%)

NOTE: For **[X Interm. point]**, 0% corresponds to **[Min value]** and 100% to **[Max value]**.

[AI1 assignment] AI1A

Read-only parameter, cannot be configured. It displays all the functions associated with input AI1 in order to verify, for example, for compatibility problems.

If no functions have been assigned, **[No]** NO is displayed.

Setting	Code / Value	Description
[No]	NO	Not assigned
[Ref Frequency 1]	AIFR1	Reference frequency 1
[Ref Frequency 2]	AIFR2	Reference frequency 2
[Ref Frequency 2 Summing]	AISA2	Reference frequency 2 summing
[PID feedback]	AIPIF	PI controller feedback
[Torque limitation]	AITAA	Torque limitation: activation by an analog value
[Subtract Ref Freq 2]	AIDA2	Subtract reference frequency 2
[Manual PID ref.]	AIPIM	Manual speed reference of the PID controller (auto-man)
[PID Ref Frequency]	AIFPI	PID reference frequency

Setting	Code / Value	Description
[Ref Frequency 3 Summing]	AISA3	Reference frequency 3 summing
[Ref Frequency 1B]	AIFR1B	Reference frequency 1B
[Subtract Ref Freq 3]	AIDA3	Subtract reference frequency 3
[Forced local]	AIFLOC	Forced local reference source1
[Ref Frequency 2 multiplier]	AIMA2	Reference frequency 2 multiplier
[Ref Frequency 3 multiplier]	AIMA3	Reference frequency 3 multiplier
[Torque reference]	AITR1	Torque regulation: torque set point 1
[Virtual AI1 Channel]	AIAIC1	Visual AI1 channel selector function
[Torque Ref Offset]	AITQO	Torque offset source
[Torque Ref Ratio]	AITQR	Torque ratio source
[Torque limitation 2]	AITAA2	Torque limitation: activation by an analog value
[Torque reference 2]	AITR2	Torque regulation: torque set point 2
[Frequency Meter]	FQF	Frequency meter function activation
[External Feed Forward]	AITEFF	External feed-forward
[Excitation Current Fdbk]	EXIF	External excitation feedback value
[M/S Speed Ref In]	MSSI	M/S Master speed reference input
[M/S Trq Ref In]	MSTI	M/S Master torque reference input

[AI1 Type] AI1T

Configuration of AI1.

Setting	Code / Value	Description
[Voltage]	10U	0-10 Vdc Factory setting
[Current]	0A	0-20 mA
[PTC]	PTC	1 to 6 PTC (in serial)
[KTY]	KTY	1 KTY84
[PT100]	1PT2	1 PT100 connected with 2 wires
[PT1000]	1PT3	1 PT1000 connected with 2 wires

[AI1 Min. Value] UI1L

AI1 voltage scaling parameter of 0%.

This parameter can be accessed if **[AI1 Type] AI1T** is set to **[Voltage] 10U**.

Setting	Description
0.0...10.0 Vdc	Setting range Factory setting: 0.0 Vdc

[AI1 Max Value] UI1H

AI1 voltage scaling parameter of 100%.

This parameter can be accessed if **[AI1 Type] AI1T** is set to **[Voltage] 10U**.

Setting	Description
0.0...10.0 Vdc	Setting range Factory setting: 10.0 Vdc

[AI1 Min. Value] CRL1

AI1 current scaling parameter of 0%.

This parameter can be accessed if **[AI1 Type] AI1T** is set to **[Current] 0A**.

Setting	Description
0.0...20.0 mA	Setting range Factory setting: 0.0 mA

[AI1 Max Value] CRH1

AI1 current scaling parameter of 100%.

This parameter can be accessed if **[AI1 Type] AI1T** is set to **[Current] 0A**.

Setting	Description
0.0...20.0 mA	Setting range Factory setting: 20.0 mA

[AI1 filter] AI1F

AI1 filter.

Setting	Description
0.00...10.00 s	Setting range Factory setting: 0.00 s

[AI2 Assignment] AI2A to [AI5 assignment] AI5A

Identical to **[AI1 assignment] AI1A**.

[AI2 Type] AI2T

Identical to **[AI1 Type] AI1T**.

Setting	Code / Value	Description
[Voltage]	10U	0-10 Vdc
[Voltage +/-]	N10U	-10/+10 Volts Factory setting

[AI3 Type] AI3T

Configuration of AI3.

Setting	Code / Value	Description
[Voltage]	10U	0-10 Vdc Factory setting
[Current]	0A	0-20 mA
[PTC]	PTC	1 to 6 PTC (in serial)
[KTY]	KTY	1 KTY84
[PT100]	1PT2	1 PT100 connected with 2 wires
[PT1000]	1PT3	1 PT1000 connected with 2 wires

[AI4 Type] AI4T

Configuration of AI4.

Setting	Code / Value	Description
[Voltage]	10U	0-10 Vdc Factory setting
[Current]	0A	0-20 mA
[PTC]	PTC	1 to 6 PTC (in serial)
[KTY]	KTY	1 KTY84
[PT100]	1PT2	1 PT100 connected with 2 wires
[PT1000]	1PT3	1 PT1000 connected with 2 wires
[3 PT100]	3PT2	3 PT100
[3 PT1000]	3PT3	3 PT1000
[PT100 in 3 wires]	1PT23	1 PT100 connected with three wires is used
[PT1000 in 3 wires]	1PT33	1 PT1000 connected with three wires is used
[3 PT100 in 3 wires]	3PT23	3 PT100 connected with three wires is used
[3 PT1000 in 3 wires]	3PT33	3 PT1000 connected with three wires is used

[AI5 Type] AI5T

Configuration of AI5.

Setting	Code / Value	Description
[Voltage]	10U	0-10 Vdc Factory setting
[Current]	0A	0-20 mA
[PTC]	PTC	1 to 6 PTC (in serial)
[KTY]	KTY	1 KTY84
[PT100]	1PT2	1 PT100 connected with 2 wires
[PT1000]	1PT3	1 PT1000 connected with 2 wires
[3 PT100]	3PT2	3 PT100
[3 PT1000]	3PT3	3 PT1000
[PT100 in 3 wires]	1PT23	1 PT100 connected with 2 wires
[PT1000 in 3 wires]	1PT33	1 PT1000 connected with 2 wires
[3 PT100 in 3 wires]	3PT23	3 PT100 connected with 2 wires
[3 PT1000 in 3 wires]	3PT33	3 PT1000 connected with 2 wires

[AI2 Min. Value] UII2 to [AI5 Min. Value] UII5

Identical to [AI1 Min. Value] UII1.

[AI2 Max value] UIH2 to [AI5 Max Value] UIH5

Identical to [AI1 Max Value] UIH1.

[AI2 filter] AI2F to [AI5 filter] AI5F

Identical to [AI1 filter] AI1F.

[AI3 Min. Value] CRL3 to [AI5 Min. Value] CRL5

Identical to [AI1 Min. Value] CRL1.

Setting	Description
0.0...20.0 mA	Setting range Factory setting: 0.0 mA

[AI3 Max Value] CRH3 to [AI5 Max Value] CRH5

Identical to [AI1 Max Value] CRH1.

Setting	Description
0.0...20.0 mA	Setting range Factory setting: 20.0 mA

[Encoder] Menu

About This Menu

This menu shows the related Encoder parameters displayed from the HMI settings panel > Input/Output , page 235.

[Enc Resistor Value] **THER**

Encoder thermal resistor value.

This parameter can be accessed if:

- An encoder option module has been inserted, and
- **[Enc Therm Sensor Type]** **THER** is not set to **[None]** **NONE**.

Setting	Description
-32,767...32,767	Setting range Factory setting: _

[Analog Output] Menu

About This Menu

This menu shows the related Analog Output parameters displayed from the HMI settings panel > Input/Output , page 235.

From HMI software version 1.7, users are able to configure up to 4 additional Analog Outputs.

Depending on your system, following analog Outputs are used with an :

- Embedded Analog output channels **AQ1** and **AQ2** configurable in mA or V.
- Additional TM3 module on PLC defined by:
 - 4 Analog outputs channels **AQ3** to **AQ6** only configurable in mA

For any given Analog output (AQx), the configuration consists of:

- **[AQx assignment]** **AOx**: the function associated with the analog output in order to verify, for example, compatibility problems with the multiple assignments.
- The minimum and maximum values according to the configured type **[AQx Type]** **AOxT**.
- **[Scaling AQx Min]** **ASLx** (respectively **[Scaling AQx Max]** **ASHx**).
- The configured value of the interference filtering: **[AQx Filter]** **AOxF**.

Note: “x” must be replaced by dedicated channel 1 to 6. (e.g. “x” = 3 for AQ3, AO3T...)

AQx Assignment

Up to 6 Analog outputs available are configurable through **[AQx assignment]** **AOx** parameters).

Physical value of AQx is monitored through HMI Display Panel > System Dashboard > I/O Map , page 127

Cabinet Analog Output			
Motor Frequency	16.666 mA	○	AQ3
Motor Current	8.702 mA	○	AQ4
Motor Power	7.016 mA	○	AQ5
Motor Torq.	5.829 mA	○	AQ6

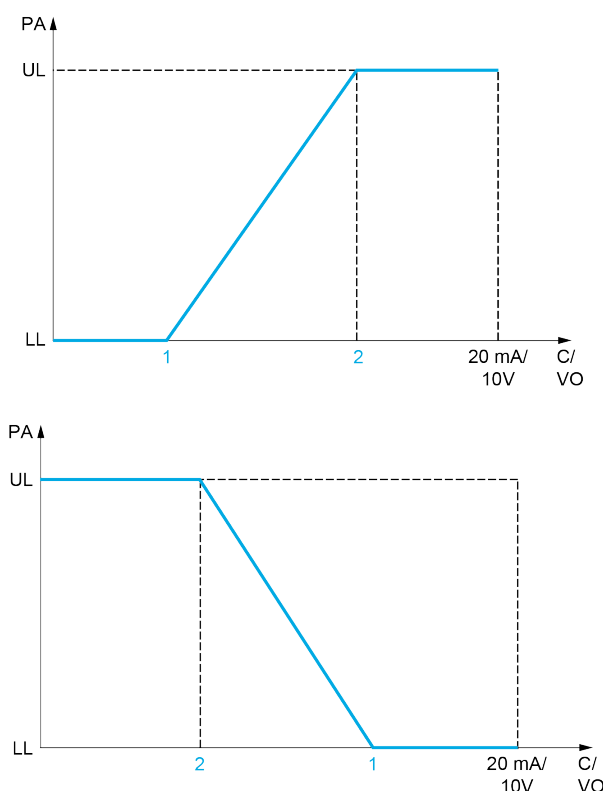
Minimum and Maximum Output Values

The minimum and maximum values are defined according to the configured type **[AQx Type]** **AOxT** (set to **[Voltage]** **10U** or **[Current]** **0A**):

- **[AQx min Output]** **UOLx** and **[AQx max Output]** **UOHx** with **[Voltage]** **10U** type,
- **[AQx min output]** **AOLx** and **[AQx max output]** **AOHx** with **[Current]** **0A** type.

Note: Analog outputs AQ3 to AQ6 are only configurable in mA (**[Current]** **0A** type).

The minimum output value corresponds to the lower limit of the assigned parameter and the maximum value corresponds to its upper limit. The minimum value may be greater than the maximum value.



PA Parameter assigned

C / VO Current or voltage output

UL Upper limit

LL Low limit

1 [AQx min output] AO_{Lx} or [AQx min Output] $UOLx$

2 [AQx max output] AO_{Hx} or [AQx max Output] $UOHx$

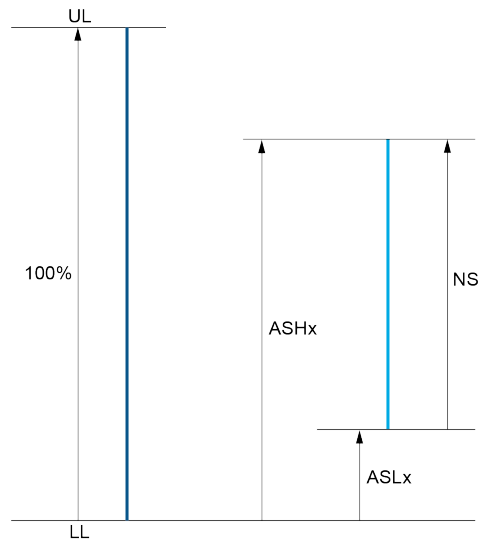
Scaling of the Assigned Parameter

The scale of the assigned parameter can be adapted in accordance with requirements by modifying the values of the lower and upper limits with two parameters for each analogic output.

These parameters are given in %. 100% corresponds to the total variation range of the configured parameter, so: 100% = upper limit - lower limit.

For example, **[Sign. Torque] STQ** which varies between -3 and $+3$ times the torque scaling according to calculation approach: **"Optimized Torque"** or **"Nameplate Torque"** defined during commissioning. 100% corresponds to 6 times the rated torque scaling.

- The **[Scaling AQx Min] $ASLx$** parameter modifies the lower limit: new value = lower limit + (range x $ASLx$). The value 0% (factory setting) does not modify the lower limit.
- The **[Scaling AQx Max] $ASHx$** parameter modifies the upper limit: new value = lower limit + (range x $ASHx$). The value 100% (factory setting) does not modify the upper limit.
- **[Scaling AQx Min] $ASLx$** must always be lower than **[Scaling AQx Max] $ASHx$** .



UL Upper limit of the assigned parameter

LL Lower limit of the assigned parameter

NS New scale

ASHx Scaling max

ASLx Scaling min

[AQx assignment] AOx

AQ1 assignment to AQ6 assignment.

Value	Code / Value	Description
[Not Configured]	NO	Not assigned Factory Setting
[Motor Current]	OCR	Current in the motor, from 0 to 2 In (In = Rated Power cell current indicated in the handbook manual, HMI or DTM ([PoC Current Rating] POCC)).
[Motor Frequency]	OFR	Output frequency, from 0 to [Max Frequency] TFR
[Ramp Out.]	ORP	From 0 to [Max Frequency] TFR
[Motor Torq.]	TRQ	Motor torque, from 0 to 3 times the torque scaling according to calculation approach: "Optimized Torque" or "Nameplate Torque" define during commissioning.
[Sign. Torque]	STQ	Signed motor torque, between -3 and +3 times the rated motor torque. The + sign corresponds to the motor mode and the - sign to the generator mode (braking).
[sign Ramp]	ORS	Signed ramp output, between -[Max Frequency] TFR and + [Max Frequency] TFR
[PID Ref.]	OPS	PID controller reference between [Min PID Process] PIP1 and [Max PID Process] PIP2
[PID Feedbk]	OPF	PID controller feedback between [Min PID feedback] PIF1 and [Max PID feedback] PIF2
[PID Error]	OPE	PID controller detected error between -5% and +5% of [Max PID feedback] PIF2 - [Min PID feedback] PIF1
[PID Output]	OPI	PID controller output between [Low Speed] LSP and [High Speed] HSP
[Mot Mech Power in %]	OPR	Motor power, between 0 and 2.5 times [Nominal Motor Power] NPR
[Mot Thermal]	THR	Motor thermal state, from 0 to 200% of the rated thermal state

Value	Code / Value	Description
[Drv Thermal]	THD	Drive thermal state
[Torque 4Q]	TR4Q	Signed motor torque, between -3 and +3 times the torque scaling according to calculation approach: "Optimized Torque" or "Nameplate Torque" define during commissioning. The + and - signs correspond to the physical direction of the torque, regardless of mode (motor or generator). 100% corresponds to 6 times the rated torque scaling.
[Measured Motor Freq]	OFRR	Measured motor frequency
[Sig. O/P Frq.]	OFS	Signed output frequency, between – [Max Frequency] TFR and + [Max Frequency] TFR
[Mot Therm2]	THR2	Motor thermal 2 state
[Mot Therm3]	THR3	Motor thermal 3 state
[Mot therm4]	THR4	Motor thermal 4 state
[Unsigned Trq Ref]	UTR	Unsigned torque reference
[Signed Trq Ref]	STR	Signed torque reference
[Torque Lim.]	TQL	Torque limit
[Motor volt.]	UOP	Voltage applied to the motor, between 0 and [Nom Motor Voltage] UNS
[Mains Voltage]	ULN	Mains voltage
[Mains Current]	ILN	Mains current
[Input Elec. Power]	IPR	Mains active power
[Input Reactive Power]	IQR	Mains reactive power
[Input Power Factor]	PWF	Power factor
[M/S Out Speed Reference]	MSSO	Master / slave output speed reference
[M/S Out Torque Reference]	MSTO	Master / slave output torque reference
[Excitation Current Ref]	EXIR	External excitation reference
[Error Group 1]	FG1	Assign to Fault Group 1
[Error Group 2]	FG2	Assign to Fault Group 2

[AQx Type] AOxT

Note: AQ3 to AQ6 are only configurable in mA ([Current] 0A)

Value	Code / Value	Description
[Voltage]	10U	0-10 Vdc
[Current]	0A	0-20 mA

[AQx min Output] UOLx

AQ1 minimum output to AQ6 minimum output.

This parameter can be accessed if [AQx Type] AOxT is set to [Voltage] 10U.

Value range	Description
0.0...10.0 Vdc	Factory setting: 0.0 Vdc

[AQx max Output] UOHx

AQ1 maximum output...AQ6 maximum output.

This parameter can be accessed if [AQx Type] AOxT is set to [Voltage] 10U.

Value range	Description
0.0...10.0 Vdc	Factory setting: 10.0 Vdc

[AQx min output] AOLx

AQ3 minimum output to AQ6 minimum output.

This parameter can be accessed if [AQx Type] AOxT is set to [Current] 0A.

Setting	Description
0.0...20.0 mA	Setting range Factory setting: 0.0 mA

[AQx max output] AOHx

AQ3 maximum output to AQ6 maximum output.

This parameter can be accessed if [AQx Type] AOxT is set to [Current] 0A.

Value range	Description
0.0...20.0 mA	Factory setting: 20.0 mA

[Scaling AQx Min] ASLx

Scaling of the lower limit of the assigned parameter, as a % of the maximum possible variation.

Setting	Description
0.0...100.0%	Setting range Factory setting: 0.0%

[Scaling AQx Max] ASHx

Scaling of the upper limit of the assigned parameter, as a percentage of the maximum possible variation.

Setting	Description
0.0...100.0%	Setting range Factory setting: 100.0%

[AQx Filter] AOxF

AQx filter.

Setting	Description
0.00...10.00 s	Setting range Factory setting: 0.00 s

[PTO Settings] Menu

About This Menu

This menu shows the PTO assignment and PTO settings displayed from the HMI settings panel > Input/Output , page 235.

[PTO Assign] PTO

PTO assignment.

Value	Code / Value	Description
[Not Configured]	NO	Not assigned Factory Setting
[Motor Current]	OCR	Current in the motor, from 0 to 2 In (In = Rated Power cell current indicated in the handbook manual, HMI or DTM ([PoC Current Rating] POCC)).
[Motor Frequency]	OFR	Output frequency, from 0 to [Max Frequency] TFR
[Ramp Out.]	ORP	From 0 to [Max Frequency] TFR
[Motor Torq.]	TRQ	Motor torque, from 0 to 3 times the torque scaling according to calculation approach: "Optimized Torque" or "Nameplate Torque" define during commissioning.
[Sign. Torque]	STQ	Signed motor torque, between -3 and +3 times the rated motor torque. The + sign corresponds to the motor mode and the - sign to the generator mode (braking).
[sign Ramp]	ORS	Signed ramp output, between -[Max Frequency] TFR and + [Max Frequency] TFR
[PID Ref.]	OPS	PID controller reference between [Min PID Process] PIP1 and [Max PID Process] PIP2
[PID Feedbk]	OPF	PID controller feedback between [Min PID feedback] PIF1 and [Max PID feedback] PIF2
[PID Error]	OPE	PID controller detected error between -5% and +5% of [Max PID feedback] PIF2 - [Min PID feedback] PIF1
[PID Output]	OPI	PID controller output between [Low Speed] LSP and [High Speed] HSP
[Mot Mech Power in %]	OPR	Motor power, between 0 and 2.5 times [Nominal Motor Power] NPR
[Mot Thermal]	THR	Motor thermal state, from 0 to 200% of the rated thermal state
[Drv Thermal]	THD	Drive thermal state
[Torque 4Q]	TR4Q	Signed motor torque, between -3 and +3 times the torque scaling according to calculation approach: "Optimized Torque" or "Nameplate Torque" define during commissioning. The + and - signs correspond to the physical direction of the torque, regardless of mode (motor or generator). 100% corresponds to 6 times the rated torque scaling.
[Measured Motor Freq]	OFRR	Measured motor frequency
[Sig. O/P Frq.]	OFS	Signed output frequency, between - [Max Frequency] TFR and + [Max Frequency] TFR
[Mot Therm2]	THR2	Motor thermal 2 state
[Mot Therm3]	THR3	Motor thermal 3 state
[Mot therm4]	THR4	Motor thermal 4 state
[Unsigned Trq Ref]	UTR	Unsigned torque reference

Value	Code / Value	Description
[Signed Trq Ref]	STR	Signed torque reference
[Torque Lim.]	TQL	Torque limit
[Motor volt.]	UOP	Voltage applied to the motor, between 0 and [Nom Motor Voltage] UNS
[Mains Voltage]	ULN	Mains voltage
[Mains Current]	ILN	Mains current
[Input Elec. Power]	IPR	Mains active power
[Input Reactive Power]	IQR	Mains reactive power
[Input Power Factor]	PF	Power factor
[M/S Out Speed Reference]	MSSO	Master / slave output speed reference
[M/S Out Torque Reference]	MSTO	Master / slave output torque reference
[Excitation Current Ref]	EXIR	External excitation reference
[Error Group 1]	FG1	Assign to Fault Group 1
[Error Group 2]	FG2	Assign to Fault Group 2

[PTO Max Output Freq] PTOH

Pulse train output maximum output frequency.

This parameter can be accessed if [PTO Assign] PTO is not set to [Not Configured] NO.

Setting	Description
1.00...30.00 kHz	Setting range Factory setting: 4.00 kHz

[PTO Min Output Freq] PTOL

Pulse train output minimum output frequency.

This parameter can be accessed if [PTO Assign] PTO is not set to [Not Configured] NO.

Setting	Description
1.00...30.00 kHz	Setting range Factory setting: 1.00 kHz

[Pulse Inputs Settings] Menu

About This Menu

This menu shows the related pulse inputs assignment and pulse inputs settings displayed from the HMI settings panel > Input/Output , page 235.

[DI7 Pulse Input Assign] P17A

It displays all the functions associated with the pulse input in order to verify, for example, for compatibility problems.

If no functions have been assigned, **[No]** NO is displayed.

Setting	Code / Value	Description
[No]	NO	Not assigned
[Ref Frequency 1]	AIFR1	Reference frequency 1
[Ref Frequency 2]	AIFR2	Reference frequency 2
[Ref Frequency 2 Summing]	AISA2	Reference frequency 2 summing
[PID feedback]	AIPIF	PI controller feedback
[Torque limitation]	AITAA	Torque limitation: activation by an analog value
[Subtract Ref Freq 2]	AIDA2	Subtract reference frequency 2
[Manual PID ref.]	AIPIM	Manual speed reference of the PID controller (auto-man)
[PID Ref Frequency]	AIFPI	PID reference frequency
[Ref Frequency 3 Summing]	AISA3	Reference frequency 3 summing
[Ref Frequency 1B]	AIFR1B	Reference frequency 1B
[Subtract Ref Freq 3]	AIDA3	Subtract reference frequency 3
[Forced local]	AIFLOC	Forced local reference source1
[Ref Frequency 2 multiplier]	AIMA2	Reference frequency 2 multiplier
[Ref Frequency 3 multiplier]	AIMA3	Reference frequency 3 multiplier
[Torque reference]	AITR1	Torque regulation: torque set point 1
[Virtual AI1 Channel]	AIAIC1	Visual AI1 channel selector function
[Torque Ref Offset]	AITQO	Torque offset source
[Torque Ref Ratio]	AITQR	Torque ratio source
[Torque limitation 2]	AITAA2	Torque limitation: activation by an analog value

Setting	Code / Value	Description
[Torque reference 2]	AITR2	Torque regulation: torque set point 2
[Frequency Meter]	FQF	Frequency meter function activation
[External Feed Forward]	AITEFF	External feed-forward
[M/S Speed Ref In]	MSSI	M/S Master speed reference input
[M/S Trq Ref In]	MSTI	M/S Master torque reference input

[DI7 PulseInput Low Freq] P_{IL}7

Pulse input scaling parameter of 0% in Hz x 10 unit.

Setting	Description
0.00...30,000.00 Hz	Setting range Factory setting: 0 Hz

[DI8 Pulse Input Assign] P_I8A

Identical to [DI7 Pulse Input Assign] P_I7A.

[DI8 PulseInput Low Freq] P_{IL}8

Identical to [DI7 PulseInput Low Freq] P_{IL}7.

[DI8 PulseInput High Freq] P_{IH}8

Identical to [DI7 PulseInput High Freq] P_{IH}7.

[DI8 Frequency Filter] P_{FI}8

Interference filtering pulse input cut-off time of the low-filter.

Identical to [DI7 Frequency Filter] P_{FI}7.

[Analog Function] Menu

HMI Access

[Settings] → [Drive Settings] → [Analog Function]

Overview

As of software version 1.6, users can configure their Analog Inputs. This menu allow to configure up to 8 Analog input which can be monitored on display panel , page 161.

8 Analog functions can be configured

Analog Function Assignments

Parameter	Label	Value
AM1A	Analog Monitor 1 Assign	AI10
AM2A	Analog Monitor 2 Assign	AI11
AM3A	Analog Monitor 3 Assign	AI12
AM4A	Analog Monitor 4 Assign	AI13
AM5A	Analog Monitor 5 Assign	AI14
AM6A	Analog Monitor 6 Assign	AI15
AM7A	Analog Monitor 7 Assign	AI16
AM8A	Analog Monitor 8 Assign	AI17

Save changes

Tap here to access display

< 1 2 3 4 5 6 7 8 9 >

All related parameters for analog monitoring function 1 are displayed on page 2

Analog Function Channel 1

Parameter	Label	Value	Unit
AM1I	AI Monitor 1 Increment	x 01	
AM1F	AI Monitor 1 Filter	0.0	s
AM1X	AI Monitor 1 Fdbk Min	0.0	%
AM1Y	AI Monitor 1 Fdbk Max	100.0	%
AM1L	AI Monitor 1 Process Min	0.0000	< Enter unity name >
AM1H	AI Monitor 1 Process Max	0.0000	< Enter unity name >
AM1B	AI Monitor 1 Behavior	Always	
AM1D	AI Monitor 1 Delay	0.0	s
AM1U	AI Monitor 1 Warn High Level	0.0000	< Enter unity name >
AM1V	AI Monitor 1 Warn Low Level	0.0000	< Enter unity name >
AM1W	AI Monitor 1 Warn Delay	0.0	s
AM1R	AI Monitor 1 Error High level	0.0000	< Enter unity name >
AM1S	AI Monitor 1 Error Low level	0.0000	< Enter unity name >
AM1T	AI Monitor 1 Error Delay	0.0	s
AM1Z	AI Monitor 1 Error Response	Freewheel Stop	

Save changes

Tap here to access display

< 1 2 3 4 5 6 7 8 9 >

Item	Description
1	Panel: Displays up to 8 analog monitoring functions for setting (page 1).
2	Page selection: Allows to navigate through several pages, for display of all other parameters linked to the monitoring functions 1 to 8 (from page 2 to 9)

Item	Description
A	Save changes: It is mandatory to save any changes by clicking on this element.
B	Tap Here to access Display: Allows to access on the Analog function display panel which is used to monitor all the configured Analog input , page 161.

Module And Parameters Definition

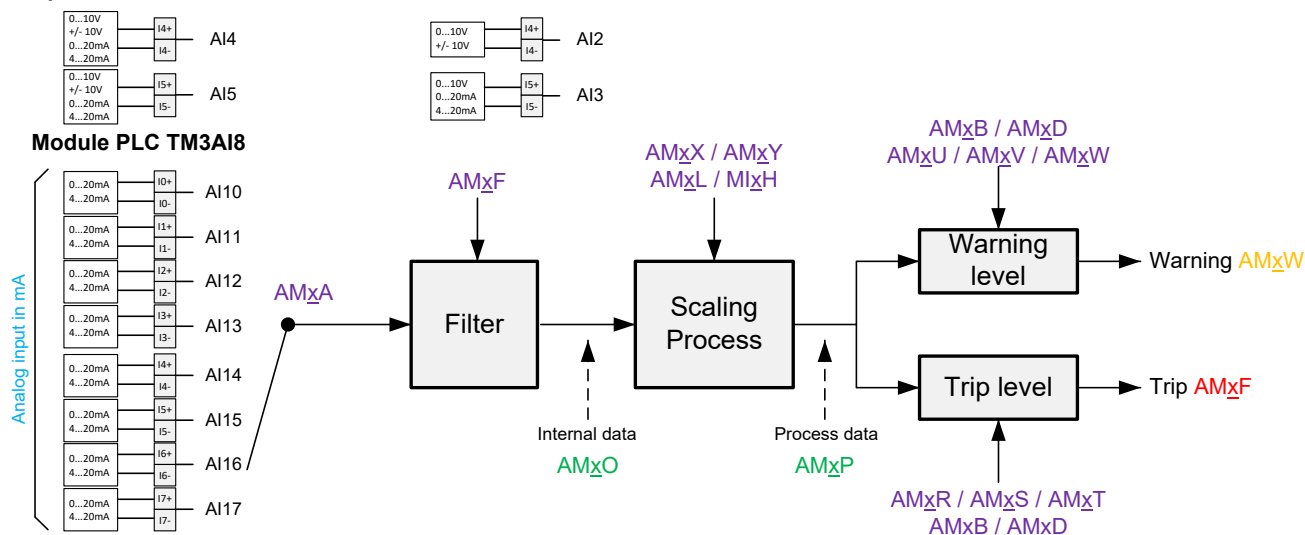
Depending on your system, following embedded I/O or module I/O can be used:

- Embedded I/O on control block as standard solution defined by:
 - 1 analog input channel **AI2** configurable in V,
 - 1 analog input channel **AI3** configurable in mA or V.
- Option Module I/O on control block as standard solution defined by:
 - 2 analog input channels **AI4** and **AI5** configurable in mA or V.
- Module PLC TM3AI8 as extended solution defined by:
 - 8 analog Input channels **AI10** to **AI17** only in mA.

NOTE: Check HW protection if Analog input configured in voltage is used in current.

NOTE: Check HW protection if Analog input configured in current is used in voltage.

Option Module I/O as Standard and Embedded I/O as Standard



Legend: \bar{x} regarding function 1 to function 8.

Designation	Function 1	Function 2	Function 3	Function 4
Analog monitoring assignment	AM1A	AM2A	AM3A	AM4A
Analog monitoring increment	AM1I	AM2I	AM3I	AM4I
Analog monitoring filter	AM1F	AM2F	AM3F	AM4F
Analog monitoring scaling	AM1X / AM1Y AM1L / AM1H	AM2X / AM2Y AM2L / AM2H	AM3X / AM3Y AM3L / AM3H	AM4X / AM4Y AM4L / AM4H
Analog monitoring behavior	AM1B	AM2B	AM3B	AM4B
Analog monitoring delay	AM1D	AM2D	AM3D	AM4D
Analog monitoring warning level	AM1U / AM1V AM1W	AM2U / AM2V AM2W	AM3U / AM3V AM3W	AM4U / AM4V AM4W
Analog monitoring error level	AM1R / AM1S AM1T	AM2R / AM2S AM2T	AM3R / AM3S AM3T	AM4R / AM4S AM4T
Analog Monitor error response	AM1Z	AM2Z	AM3Z	AM4Z
Error register	DF5.12	DF5.13	DF5.14	DF5.15
Error analog monitoring	AM1F	AM2F	AM3F	AM3F
Warning register	ST24.0	ST24.1	ST24.2	ST24.3
Warning Analog monitoring	AW01	AW02	AW03	AW04

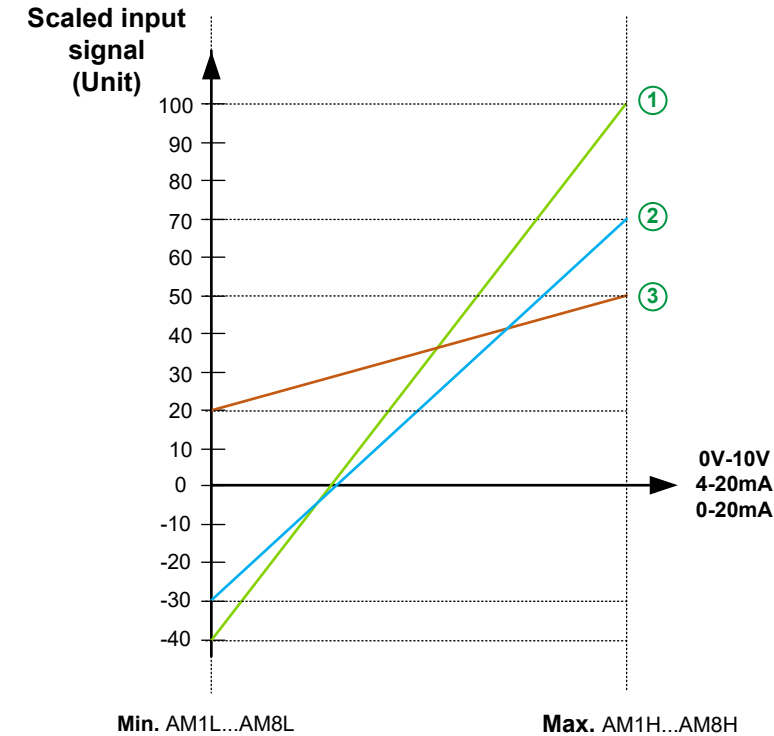
Analog Monitor physical value	AM1O	AM2O	AM3O	AM4O
Analog monitoring process value	AM1P	AM2P	AM3P	AM4P
Warning register loss x-20mA	ST24.4			
Warning loss x-20mA	AW05			
Analog Monitoring register-loss x-20mA	AM00.0	AM00.1	AM00.2	AM00.3

Designation	Function <u>5</u>	Function <u>6</u>	Function <u>7</u>	Function <u>8</u>
Analog monitoring assignment	AM5A	AM6A	AM7A	AM8A
Analog monitoring increment	AM5I	AM6I	AM7I	AM8I
Analog monitoring filter	AM5F	AM6F	AM7F	AM8F
Analog monitoring scaling	AM5X / AM5Y AM5L / AM5H	AM6X / AM6Y AM6L / AM6H	AM7X / AM7Y AM7L / AM7H	AM8X / AM8Y AM8L / AM8H
Analog monitoring behavior	AM5B	AM6B	AM7B	AM8B
Analog monitoring delay	AM5D	AM6D	AM7D	AM8D
Analog monitoring warning level	AM5U / AM5V AM5W	AM6U / AM6V AM6W	AM7U / AM7V AM7W	AM8U / AM8V AM8W
Analog monitoring error level	AM5R / AM5S AM5T	AM6R / AM6S AM6T	AM7R / AM7S AM7T	AM8R / AM8S AM8T
Analog Monitor error response	AM5Z	AM6Z	AM7Z	AM8Z
Error register	DF14.11	DF14.12	DF14.13	DF14.14
Error analog monitoring	AF05	AF06	AF07	AF08
Warning register	ST24.10	ST24.11	ST24.12	ST24.13
Warning Analog monitoring	AW11	AW12	AW13	AW14
Analog Monitor physical value	AM5O	AM6O	AM7O	AM8O
Analog monitoring process value	AM5P	AM6P	AM7P	AM8P
Warning register loss x-20mA	ST24.4			
Warning loss x-20mA	AW05			
Analog Monitoring register-loss x-20mA	AM00.4	AM00.5	AM00.6	AM00.7

Process Value Range

Process value range is defined by Min/Max values regarding type of monitoring and unit customized on HMI Display Panel., page 161

- Min. : **[AI Monitor 1 Process Min]** AM1L... **[AI Monitor 8 Process Min]** AM8L
- Max. : **[AI Monitor 1 Process Max]** AM1H... **[AI Monitor 8 Process Max]** AM8H



Example with 3 types of range process monitored:

Element	Description
①	Milliampere: <ul style="list-style-type: none">Min: -40 mAMax: 100 mA
②	Temperature <ul style="list-style-type: none">Min: -30° CMax: 70° C
③	Vibration <ul style="list-style-type: none">Min: 20 cm/s²Max: 50 cm/s²

Process Value Warning And Error Levels

An error or warning message is triggered when analog monitoring process value is out of range which is defined by High process level and Low process level.

- Warning range values for
 - High Level: [AI Monitor 1 Warn High Level] AM1U... [AI Monitor 8 Warn High Level] AM8U
 - Low Level: [AI Monitor 1 Warn Low Level] AM1V... [AI Monitor 8 Warn Low Level] AM8V
- Error range values for
 - High Level: [AI Monitor 1 Error High Level] AM1R... [AI Monitor 8 Error High Level] AM8R
 - Low Level: [AI Monitor 1 Error Low level] AM1S... [AI Monitor 8 Error Low level] AM8S

[AI Monitor 1 Assign] AM1A... [AI Monitor 8 Assign] AM8A

Analog monitoring 1 assignment to Analog monitoring 8 assignment.

Setting	Code / Value	Description
[No]	NO	No affectation
[AI10 (mA)]	AI10	Module TM3 analog AI10 (mA)
[AI11 (mA)]	AI11	Module TM3 analog AI11 (mA)
[AI12 (mA)]	AI12	Module TM3 analog AI12 (mA)
[AI13 (mA)]	AI13	Module TM3 analog AI13 (mA)
[AI14 (mA)]	AI14	Module TM3 analog AI14 (mA)
[AI15 (mA)]	AI15	Module TM3 analog AI15 (mA)
[AI16 (mA)]	AI16	Module TM3 analog AI16 (mA)
[AI17 (mA)]	AI17	Module TM3 analog AI17 (mA)
[AI2 (AI2T)]	AI2	Control embedded analog AI2 (AI2T)
[AI3 (AI3T)]	AI3	Control embedded analog AI3 (AI3T)
[AI4 (AI4T)]	AI4	Control option module analog AI4 (AI4T)
[AI5 (AI5T)]	AI5	Control option module analog AI5 (AI5T)

[AI Monitor 1 Behavior] AM1B... [AI Monitor 8 Behavior] AM8B

Analog monitoring 1 behavior to Analog monitoring 8 behavior.

Setting	Code / Value	Description
[Always]	ALL	Monitor always active
[Mains Supply ON]	PWR	Monitor when MV power supply ON Main present
[Run State]	RUN	Monitor in Run state Operation enable (ETA.b2=1)

[AI Monitor 1 Filter] AM1F...[AI Monitor 8 Filter] AM8F

Analog monitoring 1 filter to Analog monitoring 8 filter.

Setting	Description
0...60s	Setting range Factory setting: 0s

[AI Monitor 1 Increment] AM1I... [AI Monitor 8 Increment] AM8I

Analog monitoring 1 increment to Analog monitoring 8 increment.

Setting	Code / Value	Description
[x 0001]	0001	Increment 0,001
[x 001]	001	Increment 0,01
[x 01]	01	Increment 0,1
[x 1]	1	Increment 1 Factory setting

[AI Monitor 1 Fdbk Min] AM1X...[AI Monitor 8 Fdbk Min] AM8X

Analog monitoring 1 scaling feedback min to Analog monitoring 8 scaling feedback min

Setting	Description
0...100%	Setting range Factory setting: 0%

[AI Monitor 1 Fdbk Max] AM1Y...[AI Monitor 8 Fdbk Max] AM8Y

Analog monitoring 1 scaling feedback max to Analog monitoring 8 scaling feedback max

Setting	Description
0...100%	Setting range Factory setting: 100%

[AI Monitor 1 Process Min] AM1L... [AI Monitor 8 Process Min] AM8L

Analog monitoring 1 scaling process min to Analog monitoring 8 scaling process min

Setting	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Process Max] AM1H... [AI Monitor 8 Process Max] AM8H

Analog monitoring 1 scaling process max to Analog monitoring 8 scaling process max

Setting	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Delay] AM1D...[AI Monitor 8 Delay] AM8D

Analog monitoring 1 delay to Analog monitoring 8 delay

Setting	Description
0...60s	Setting range Factory setting: 0s

[AI Monitor 1 Warn High Level] AM1U... [AI Monitor 8 Warn High Level] AM8U

Analog monitoring 1 warning high level to Analog monitoring 8 warning high level

A warning is triggered when analog monitoring process value is outside the range which is defined by High process level and Low process level .

Setting	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Warn Low Level] AM1V... [AI Monitor 8 Warn Low Level] AM8V

Analog monitoring 1 warning low level to Analog monitoring 8 warning low level

A warning is triggered when analog monitoring process value is outside the range which is defined by High process level and Low process level .

Setting	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Warn Delay] AM1W... [AI Monitor 8 Warn Delay] AM8W

Analog monitoring 1 warning delay to Analog monitoring 8 warning delay

Setting	Description
0...60s	Setting range Factory setting: 0s

[AI Monitor 1 Error High Level] AM1R... [AI Monitor 8 Error High Level] AM8R

Analog monitoring 1 error high level to Analog monitoring 8 error high level

An error is triggered when analog monitoring process value is outside the range which is defined by High process level and Low process level .

Setting	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Error Low level] AM1S... [AI Monitor 8 Error Low level] AM8S

Analog monitoring 1 error low level to Analog monitoring 8 error low level

An error is triggered when analog monitoring process value is outside the range which is defined by High process level and Low process level .

Setting	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Error Delay] AM1T... [AI Monitor 8 Error Delay] AM8T

Analog monitoring 1 error delay to Analog monitoring 8 error delay

Setting	Description
0...60s	Setting range Factory setting: 0s

[AI Monitor 1 Error Response] AM1Z...[AI Monitor 8 Error Response] AM8Z

Response to analog monitoring 1 error to Response to analog monitoring 8 error

Setting	Code / Value	Description
[Ignore]	NO	Detected error ignored
[Freewheel Stop]	YES	Freewheel stop Factory setting
[Configured Stop]	STT	Stop according to [Type of stop] STT parameter but without an error triggered after stop
[Fallback Speed]	LFF	Change to fallback speed, maintained as long as the detected error persists and the run command has not been removed ⁽¹⁾
[Speed maintained]	RLS	Speed maintained as long as the detected error persists and the run command has not been removed ⁽¹⁾
[Ramp stop]	RMP	Stop on ramp
¹ Because, in this case, the detected error does not trigger a stop, it is recommended to assign a relay or logic output to its indication.		

[AI Monitor 1 Physical Value] AM1O... [AI Monitor 8 Physical Value] AM8O

Analog monitoring 1 input physical value to Analog monitoring 8 input physical value

Value range	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor 1 Process Value] AM1P... [AI Monitor 8 Process Value] AM8P

Analog monitoring 1 process value to Analog monitoring 8 process value

Value range	Description
-32767...32767	Setting range Factory setting: _

[AI Monitor Link Loss] AM00

Analog monitoring link loss, warning message **AW05** is triggered.

Bit	Description, Value
0	Link loss AI10
1	Link loss AI11
2	Link loss AI12
3	Link loss AI13
4	Link loss AI14
5	Link loss AI15
6	Link loss AI16
7	Link loss AI17

[Temperatures settings] Menu

HMI Access

[Settings] → [Drive Settings] → [Temperatures]

About This Menu

This menu allows to set numbers of PT100 monitored by HMI, it also give the possibility to manage 2 levels of monitoring:

- 1. A Temperature Warning Level: the drive triggers an event without stopping the application.
- 2. A Temperature Error Level: the drive triggers an event and stops the application.

Note: By default wiring is managed during manufacturing, depending your selection:

- On page 1: up to 8 PT100 for motor thermal monitoring (as standard)
- Up to 8 additional PT100 for thermal sensor monitoring (as option)
 - Page 2a: 4 sensors connected (Sensors 9 to 12 connected to TM3 modules)
 - Page 2b: 6 sensors connected (Sensors 9 to 14 connected to the MAC)
 - Page 3: 4 sensors connected (Sensors 13 to 16 connected to TM3 modules)

This panel show PT100 for motor thermal monitoring (Sensors 1 to 8 connected to TM3 modules).

Motor Temperature Warning Levels

Parameter	Label	Value	Unit
THW1	Winding 1 Th Warn Level	<input type="text" value="130"/>	°C
THW2	Winding 2 Th Warn Level	<input type="text" value="130"/>	°C
THW3	Bearing 1 Th Warn Level	<input type="text" value="105"/>	°C
THW4	Bearing 2 Th Warn Level	<input type="text" value="105"/>	°C

Motor Temperature Error Levels

Parameter	Label	Value	Unit
THT1	Winding 1 Th Err Level	<input type="text" value="150"/>	°C
THT2	Winding 2 Th Err Level	<input type="text" value="150"/>	°C
THT3	Bearing 1 Th Err Level	<input type="text" value="115"/>	°C
THT4	Bearing 2 Th Err Level	<input type="text" value="115"/>	°C

Motor Temperature PT100 configuration

U1

V1

W1

DE

U2



V2

W2

NDE

1 2 >

1) You can deactivate or activate sensor PT100 by clicking on this element:

-  (green when activated)
-  (grey when deactivated)

Element on HMI	Parameters
U1 / V1 / W1	Thermal warning level for winding 1: THW1 Thermal error level for winding 1: THT1
DE (Drive End)	Thermal warning level for bearing 1: THW3 Thermal error level for bearing 1: THT3

U2 / V2 / W2	Thermal warning level for winding 2: THW2 Thermal error level for winding 2: THT2
NDE (Non Drive End)	Thermal warning level for bearing 2: THW4 Thermal error level for bearing 2: THT4

This panel shows PT100 for thermal sensor monitoring (Sensors 9 to 12 connected to TM3 Modules)

Sensor Temperature Warning Levels

Parameter	Label	Value	Unit
THW5	Sensor 9 Th Warn Level	<input type="text" value="130"/>	°C
THW6	Sensor 10 Th Warn Level	<input type="text" value="130"/>	°C
THW7	Sensor 11 Th Warn Level	<input type="text" value="130"/>	°C
THW8	Sensor 12 Th Warn Level	<input type="text" value="130"/>	°C

Sensor Temperature Error Levels

Parameter	Label	Value	Unit
THT5	Sensor 9 Th Err Level	<input type="text" value="150"/>	°C
THT6	Sensor 10 Th Err Level	<input type="text" value="150"/>	°C
THT7	Sensor 11 Th Err Level	<input type="text" value="150"/>	°C
THT8	Sensor 12 Th Err Level	<input type="text" value="150"/>	°C

Sensor Temperature PT100 configuration

Module Sensor

1

Sensor 9

Sensor 10

Sensor 11

Sensor 12

<



1

2

3

>

1) You can deactivate or activate sensor PT100 by clicking on this element:

-  (green when activated)
-  (grey when deactivated)

Element on HMI	Parameters
Sensor 9	Thermal warning level for sensor 9: THW5 Thermal error level for sensor 9: THT5
Sensor 10	Thermal warning level for sensor 10: THW6 Thermal error level for sensor 10: THT6
Sensor 11	Thermal warning level for winding 11: THW7 Thermal error level for winding 11: THT7
Sensor 12	Thermal warning level for bearing 12: THW8 Thermal error level for bearing 12: THT8

This panel shows PT100 for thermal sensor monitoring (sensors 9 to 14 connected to MAC)

Sensor Temperature Warning Levels

Parameter	Label	Value	Unit
THW5	Sensor 9 Th Warn Level	<input type="text" value="130"/>	°C
THW6	Sensor 10 Th Warn Level	<input type="text" value="130"/>	°C
THW7	Sensor 11 Th Warn Level	<input type="text" value="130"/>	°C
THW8	Sensor 12 Th Warn Level	<input type="text" value="130"/>	°C
THW9	Sensor 13 Th Warn Level	<input type="text" value="130"/>	°C
THWA	Sensor 14 Th Warn Level	<input type="text" value="130"/>	°C

Sensor Temperature Error Levels

Parameter	Label	Value	Unit
THT5	Sensor 9 Th Err Level	<input type="text" value="150"/>	°C
THT6	Sensor 10 Th Err Level	<input type="text" value="150"/>	°C
THT7	Sensor 11 Th Err Level	<input type="text" value="150"/>	°C
THT8	Sensor 12 Th Err Level	<input type="text" value="150"/>	°C
THT9	Sensor 13 Th Err Level	<input type="text" value="150"/>	°C
THTA	Sensor 14 Th Err Level	<input type="text" value="150"/>	°C

PT1

PT2

PT3

PT4

PT5

PT6

1

< 1 2 3 >

1) You can deactivate or activate sensor PT100 by clicking on this element:





- (green when activated)
- (grey when deactivated)

Element on HMI	Parameters
Sensor 9	Thermal warning level for sensor 9: THW5 Thermal error level for sensor 9: THT5
Sensor 10	Thermal warning level for sensor 10: THW6 Thermal error level for sensor 10: THT6
Sensor 11	Thermal warning level for winding 11: THW7 Thermal error level for winding 11: THT7
Sensor 12	Thermal warning level for bearing 12: THW8 Thermal error level for bearing 12: THT8
Sensor 13	Thermal warning level for bearing 13: THW9 Thermal error level for bearing 13: THT9
Sensor 14	Thermal warning level for bearing 14: THWA Thermal error level for bearing 14: THTA

This panel shows PT100 for thermal sensor monitoring (sensors 13 to 16 connected to MAC)



Sensor Temperature Warning Levels			
Parameter	Label	Value	Unit
THW9	Sensor 13 Th Warn Level	<input type="text" value="130"/>	°C
THWA	Sensor 14 Th Warn Level	<input type="text" value="130"/>	°C
THWB	Sensor 15 Th Warn Level	<input type="text" value="130"/>	°C
THWC	Sensor 16 Th Warn Level	<input type="text" value="130"/>	°C

Sensor Temperature Error Levels			
Parameter	Label	Value	Unit
THT9	Sensor 13 Th Err Level	<input type="text" value="150"/>	°C
THTA	Sensor 14 Th Err Level	<input type="text" value="150"/>	°C
THTB	Sensor 15 Th Err Level	<input type="text" value="150"/>	°C
THTC	Sensor 16 Th Err Level	<input type="text" value="150"/>	°C

Sensor Temperature PT100 configuration			
General Purpose Sensor Module			
Sensor 13	Sensor 14	Sensor 15	Sensor 16
			

< 1 2 3 >

1) You can deactivate or activate sensor PT100 by clicking on this element:

-  (green when activated)
-  (grey when deactivated)

Element on HMI	Parameters
Sensor 13	Thermal warning level for bearing 13: THW9 Thermal error level for bearing 13: THT9
Sensor 14	Thermal warning level for bearing 14: THWA Thermal error level for bearing 14: THTA
Sensor 15	Thermal warning level for bearing 15: THWB Thermal error level for bearing 15: THTB
Sensor 16	Thermal warning level for bearing 16: THWC Thermal error level for bearing 16: THTC

NOTICE

OVERHEATING

Verify that the threshold level to trigger error and warning are properly set according to the technical data of the motor.

Failure to follow these instructions can result in equipment damage.

[Winding 1 Th Warn Level] THW1

Thermal warning level for winding 1 (U1,V1,W1)

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Winding 2 Th Warn Level] THW2

Thermal warning level for winding 2 (U2,V2,W2)

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Winding 1 Th Err Level] THT1

Thermal error level for winding 1 (U1,V1,W1)

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Winding 2 Th Err Level] THT2

Thermal error level for winding 2 (U2,V2,W2)

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Bearing 1 Th Warn Level] THW3

Thermal warning level for bearing 1

Setting	Description
0 °C...250 °C	Setting range Factory setting: 105°C

[Bearing 2 Th Warn Level] THW4

Thermal warning level for bearing 2

Setting	Description
0 °C...250 °C	Setting range Factory setting: 105°C

[Bearing 1 Th Err Level] THT3

Thermal error level for bearing 1

Setting	Description
0 °C...250 °C	Setting range Factory setting: 115°C

[Bearing 2 Th Err Level] THT4

Thermal error level for bearing 2

Setting	Description
0 °C...250 °C	Setting range Factory setting: 115°C

[Sensor 9 Th Warn Level] THW5

Thermal warning level for sensor 9

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 9 Th Error Level] THT5

Thermal error level for sensor 9

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 10 Th Error Level] THT6

Thermal error level for sensor 10

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 10 Th Warn Level] THW6

Thermal warning level for sensor 10

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 11 Th Error Level] THT7

Thermal error level for sensor 11

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 11 Th Warn Level] THW7

Thermal warning level for sensor 11

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 12 Th Error Level] THT8

Thermal error level for sensor 12

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 12 Th Warn Level] THW8

Thermal warning level for sensor 12

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 13 Th Warn Level] THW9

Thermal warning level for sensor 13.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 13 Th Error Level] THT9

Thermal error level for sensor 13.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 14 Th Warn Level] THWA

Thermal warning level for sensor 14.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 14 Th Error Level] **THTA**

Thermal error level for sensor 14.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 15 Th Warn Level] **THWB**

Thermal warning level for sensor 15.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 15 Th Error Level] **THTB**

Thermal error level for sensor 15.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Sensor 16 Th Warn Level] **THWC**

Thermal warning level for sensor 16.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 130°C

[Sensor 16 Th Error Level] **THTC**

Thermal error level for sensor 16.

Setting	Description
0 °C...250 °C	Setting range Factory setting: 150°C

[Recall configuration] Menu

HMI Access

[Settings] ➔ [Drive Settings] ➔ [Recall configuration]

About This Menu

This menu allows you to restore the configuration set according to customer application needs that was previously saved during commissioning through the DTM.

Prerequisites: There are two types of factory settings sources:

- **Schneider Electric factory settings:** Defines Schneider Electric settings as the default factory source (used by default).
- **OEM:** Defines the current configuration as OEM settings and the default factory source.

NOTE: For this selection and more details, refer to the ATV6000 DTM Online Help >> Customizing Factory Settings.

Depending on these two sources of factory settings, the HMI recall configuration can involve up to three configurations. When **Schneider Electric factory settings** is defined, up to three configurations can be restored (only one of them can be restored per recall). When **OEM** is defined, only one configuration can be restored.

These following panels are only displayed if configuration is already saved.

Recall With Default Factory Source

Recall configuration

Select one configuration

Configuration 1
ATV6000_device01

Configuration 2
ATV6000_device02

Configuration 3
ATV6000_device03

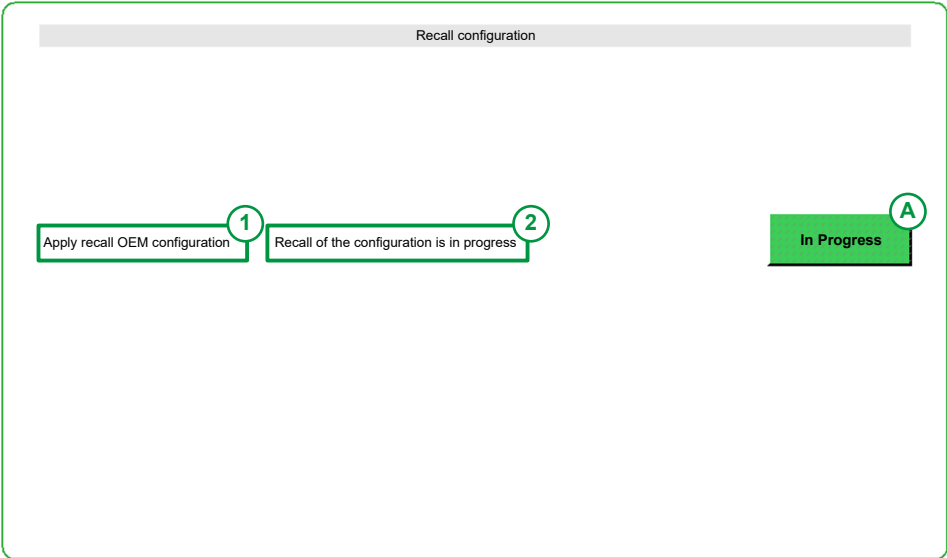
Recall of the configuration is not possible, please select first a configuration

Restored configuration Config. No.2 ATV6000_device02

Apply

Item	Description
A	Configuration to restore. (For selection)
1	Configuration naming which is customized during commissioning.
2	Information regarding current action.
3	Information linked to the current configuration or configuration already restored.
B	Allows to apply recall configuration when configuration is selected. Different status can be displayed after pressing on Apply : <ul style="list-style-type: none"> • In progress: recall in progress, • Done: recall done, • Failed: Invalid recall.

Recall With OEM Factory Source



Item	Description
1	Configuration to restore. (Only one configuration is available)
2	Information regarding current drive state.
A	Allows to apply recall configuration when configuration is selected. Different status can be displayed after pressing on Apply : <ul style="list-style-type: none">• In progress: recall in progress,• Done: recall done,• Failed: Invalid recall.

Example of Recall Configuration (with default factory source)


The following table gives the procedure to recall configuration 3:

Step	Action
1	Selects the configuration required by pressing the button (Item A). Result: The color of the button changes to green.
2	Press the Apply button (Item B). Result: Warning message is displayed.
3	Consider the following dialog box. <div><div><div>WARNING</div><div>UNANTICIPATED EQUIPMENT OPERATION<ul style="list-style-type: none">• Verify that modifying the configuration is compatible with the type of wiring used.• If you are recalling a stored configuration, perform a comprehensive commissioning test to verify correct operation.Failure to follow these instructions can result in dead, serious injury, or equipment damage.</div><div>CancelConfirm</div></div><p>Press Cancel to get back to the step 1 Press Confirm to acknowledge the warning and perform this action. Result: item B state changes from Confirm to In Progress.</p></div>


- Message **Recall of the configuration is in progress** (see Item 2) is displayed

Recall configuration


Select one configuration

 Configuration 1

ATV6000_device01

 Configuration 2

ATV6000_device02

 Configuration 3

ATV6000_device03

Recall of the configuration is in progress


Restored configuration
Config. No.2
ATV6000_device02

In Progress


- After a while when recall is done, message **Recall of the configuration is finished, check new configuration below** (see Item 2) is displayed.

Recall configuration


Select one configuration

 Configuration 1

ATV6000_device01

 Configuration 2

ATV6000_device02

 Configuration 3

ATV6000_device03

Recall of the configuration is finished, check new configuration below

Restored configuration
Config. No.3
ATV6000_device03

Done

Step	Action
4	Check that configuration 3 is correctly restored (see item 3)

[Advanced Function] Menu

This menu is only accessible for **Expert users** and **Services Expert users**.

- Refer to the section Power Stage Charging Sequence, page 275.
- Refer to the section Speed Synchronization, page 277.

Power Stage Changing Sequence

Parameter	Label	Value
POVT	DC Bus Overvoltage Time	0.00s
DCT	DC Bus Charge Time	0.00s
POVB	DC Bus Overvoltage Response	No
When setting POVB to No, the monitoring of power-cells error [DC bus overvoltage] OBF is always active.		

Speed Synchronization

SSPS	Analog Monitor 6 Assign	Not Assigned
SSPA	Analog Monitor 7 Assign	1000ms
SSPF	Analog Monitor 8 Assign	1000ms

Power Stage Charging Sequence

HMI Access

[Settings] → [Drive Settings] → [Advanced Function]

About This Menu

This Menu helps to manage the Overvoltage detection OBF at MV power-on.

- Can be used from firmware V1.5IE01 without power cell bypass configuration.
- Can be used from firmware V1.6 with power cell bypass configuration.

[DC Bus Overvoltage] OBF can be inhibited during the PoC charging sequence through **[DC Bus Overvoltage Response] POVB** parameter.

[DC Bus Charge Time] DCT can be used to apply a delay during the PoC charging sequence to avoid **[DC Bus Overvoltage] OBF** detected error.

When **[DC Bus Overvoltage Response] POVB** is set to **[Yes] YES**, the monitoring of the **[DC Bus Overvoltage] OBF** error is only inactive during PoC charging sequence (1s + DCT) .

SERVICE NOTE: Commissioning procedure involving the bypass PoC function:

1. First, commission this "DC Bus charging" function to prevent OBF (POVT, POVB, DCT).
2. Then, commission the "Bypass PoC" function (BYP0, BYP1, BYP2, etc.).

[DC Bus Overvoltage Time] POVT

DC Bus overvoltage time during PoC charging sequence

Power cell overvoltage time in seconds (Unit 0.01s), **POVT** value must be lower than **DCT**.

Without POC Bypass configured

- when **[DC Bus Overvoltage Response] POVB** is set to **NO** or **YES**, the counter **POVT** which monitor the OBF error is always incremented during the DC bus charging sequence.

With POC Bypass configured

- when **[DC Bus Overvoltage Response] POVB** is set to **NO**, the counter **POVT** which monitor the OBF error is never incremented during the DC bus charging sequence.
- when **[DC Bus Overvoltage Response] POVB** is set to **YES**, the counter **POVT** which monitor OBF error is only incremented during the DC bus charging sequence time DCT+1s.

Setting	Description
0...655.35 s	Range value Factory setting: _

[DC Bus Charge Time] DCT

DC Bus charge option time in seconds.

Delay time which is applied during the PoC charging sequence to avoid OBF error. **DCT** value must be set higher than **POVT**.

Setting	Description
0...60 s	Setting range Factory setting: 0 s

[DC Bus Overvoltage Response] **POVB**

Power cell overvoltage detection inhibition during the PoC charging sequence.

NOTICE

OVERVOLTAGE

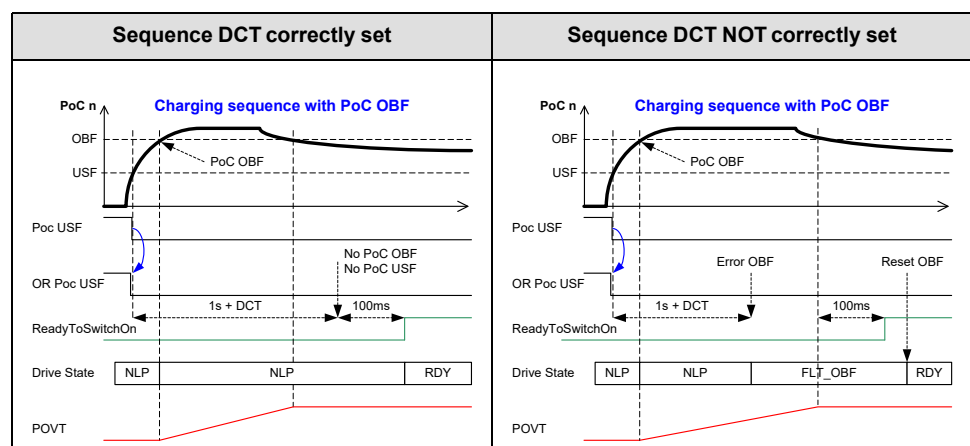
- Only set the parameter **[DC Bus Overvoltage Response] POVB** to **[Yes] YES** if you have experienced some triggering of OBF at the Power ON.
- Verify correct settings of the DC Bus Overvoltage monitoring during the commissioning procedure.

Failure to follow these instructions can result in equipment damage.

This parameter manages the behavior of OBF error during PoC charging sequence.

Setting	Code / Value	Description
[No]	NO	The monitoring of the Power Cell OBF error is always active. (Including during DC Bus charging sequence.) Factory setting
[Yes]	YES	The monitoring of the OBF error is only disable during Power Cell charging sequence (1s + DCT ¹). For all other drive states, the monitoring of OBF error remains active. ¹) DCT = DC Bus charging option time in [s]

Charging Sequence with PoC OBF error (DCT + 1 s, POVB = [YES])



- POVT** is managed during PoC charging sequence event if OBF is masked
- At the end of PoC charging sequence (DCT + 1s), if
 - there is no OBF error, a delay of 100ms is added before set "ReadyToSwitchOn = 1"
 - OBF is present, the drive triggers **[DC Bus Overvoltage] OBF** detected error.
 - The **[DC Bus Overvoltage] OBF** needs to be reset (Auto or manually)
 - [DC Bus Overvoltage] OBF** must be not present during 100ms in order to set "ReadyToSwitchOn = 1"

Speed Synchronization

HMI Access

[Settings] → [Drive Settings] → [Advanced Function]

About This Menu

When references are sent from the DCS to the multiple VSDs, the writing cycle (PLC program, communication transfer time) should be fast enough to ensure that each VSD receives the same speed reference at the same time for synchronization.

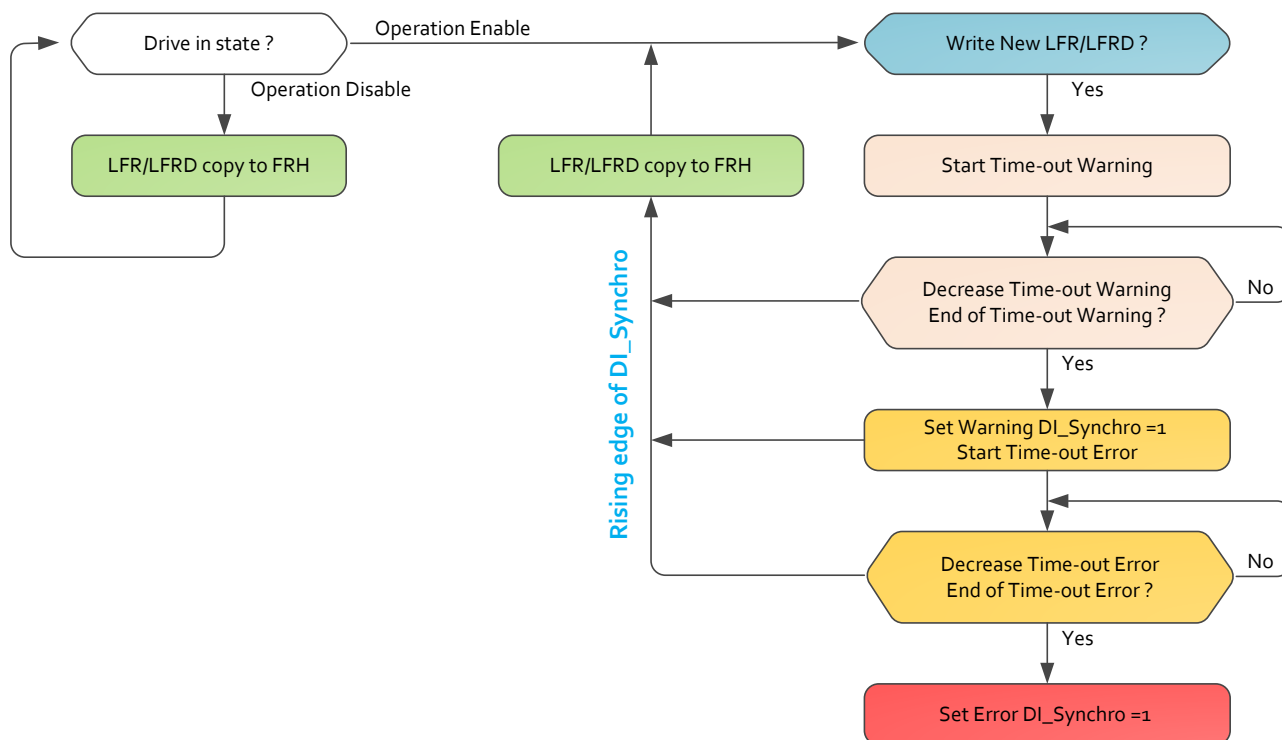
This speed synchronization function allows the synchronization of references sent from the DCS to several VSDs.

When the speed synchronization function is used between VSDs, the written reference (LFR/LFRD) is not directly taken into account. Instead, the external PLC synchronizes consideration of the speed reference word (LFR/LFRD) with a digital input signal between all VSDs (with the rising edge of DIx).

Management of internal speed reference **[Pre-Ramp Ref Freq] FRH** according to drive state and DIx synchronization:

- In the drive state "Operation disable" (such as NLP, RDY, FLT, NST), the DIx synchronization function is not active, and the speed reference LFR/LFRD is copied to FRH.
- In the drive state "Operation enable" (such as ACC, DEC, RUN...), the speed reference LFR/LFRD is copied to FRH on the rising edge of DIx synchronization.
- The warning **[Speed Synchro Warn] SSPA** is triggered when DIx synchronization is not raised before parameter **[Speed Synchro Warn Timeout] SSPA**.
- The error **[Speed Synchro Error] SSPF** is triggered when DIx synchronization is not raised before parameter **[Speed Synchro Error Timeout] SSPF**.

NOTE: The Error Timeout starts when the Warning Timeout has been triggered.



Condition

- The speed synchronization function is **only active** for **REMOTE** references from parameter **FR1/FR1B** in the following communication modes:
 - Embedded Modbus.
 - Embedded Ethernet.
 - Optional CANopen communication module⁽¹⁾.
 - Other optional communication module⁽¹⁾.
- The speed synchronization function is **not active** for **REMOTE** references from parameter **FR1/FR1B** in the following modes:
 - Terminal (Analog Input, Virtual Input)
- The speed synchronization function is **not active** for command references from:
 - Panel (HMI).
 - Local (PLCI).

(1) For more details refer to the section “**Communication Buses and Networks**” to the Handbook manual QGH83255.

Parameter Definition

Designation	Parameter
Speed set point Synchronization Assignment Digital Input assignment at high level ⁽¹⁾	SSPS Dlx synchronization signal <ul style="list-style-type: none"> DI1 to DI8 DI11 to DI16 if VW3A3203 I/O extension module has been inserted.
Synchronization Speed Timeout before warning	SSPA
Synchronization Speed Timeout before error	SSPF
Synchronization Speed Monitoring Warning Register	SSPA ALR7 bit 15
Synchronization Speed Monitoring Error Register	SSPF DF10 bit 8

(1) an error **[Invalid Configuration]** CFI is raised in case of assignment to:

- Digital input active low level DlxL
- Command word Cxxx

[Speed Synchronization] SSPS

Speed synchronization assignment.

Value range	Code / Value	Description
[Not Assigned]	NO	Not assigned Factory setting
[DI1]...[DI8]	LI1...LI8	Digital input DI1...DI8
[DI11]...[DI16]	LI11...LI16	Digital input DI11...DI16 if VW3A3203 I/O extension module has been inserted

[Speed Synchro Warn Timeout] SSPA

Speed synchronization warning timeout.

Setting	Description
0...60000 ms	Setting range Factory setting: 1000 ms

[Speed Synchro Error Timeout] SSPF

Speed synchronization error timeout.

Setting	Description
0...60000 ms	Setting range Factory setting: 1000 ms

Command and Reference Channels

Overview

About This Menu

This menu shows the:

- Overview of the Switch selection
 - Via digital Signals example a selector switch is used (on the front of the product): Maximum 3 inputs can be used.
 - A HMI switch: with maximum 2 positions. (on the HMI Toolbar, page 42)
- Switching Transition
- Setting parameters linked to the command channel selection , page 283

NOTE: Refer also to the monitoring parameters linked to the command channel selection , page 346

⚠ WARNING

UNANTICIPATED EQUIPMENT

Verify that the motor is at a standstill before modifying the position of the selector switch for the control mode at the drive.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

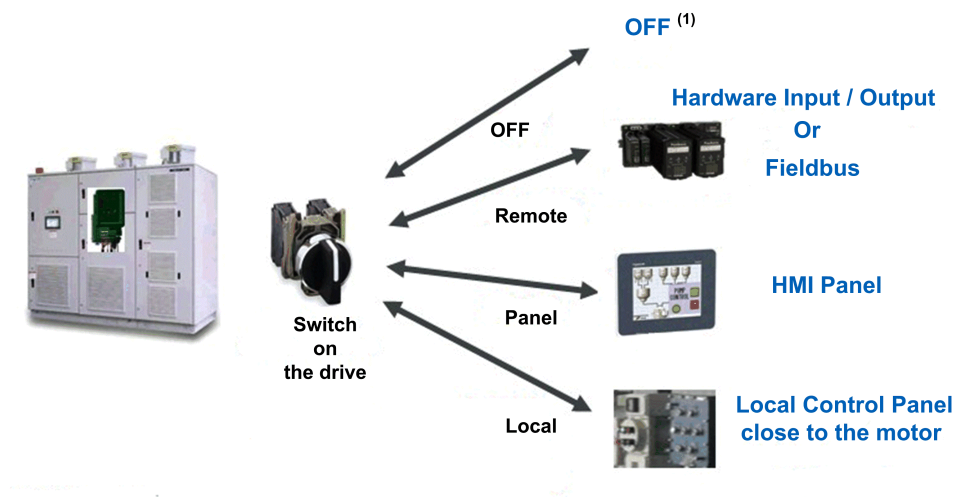
The stop commands (DI STOP in 3 wires control, NST) set for each of the channel command "remote/local/panel" will continue to be taken into account whatever the active channel command.

Cabinet Switch Option Selection

To select the different command/reference channels, this switch can have either 2, 3 or 4 positions in the enclosure door:

- **Switch Panel/Remote: as standard solution** Used to switch between Panel or Remote control of the drive.
- **Switch Off/Local/Panel/Remote: As optional solution** Used to switch between Motor Local, Remote and Panel control of the drive.

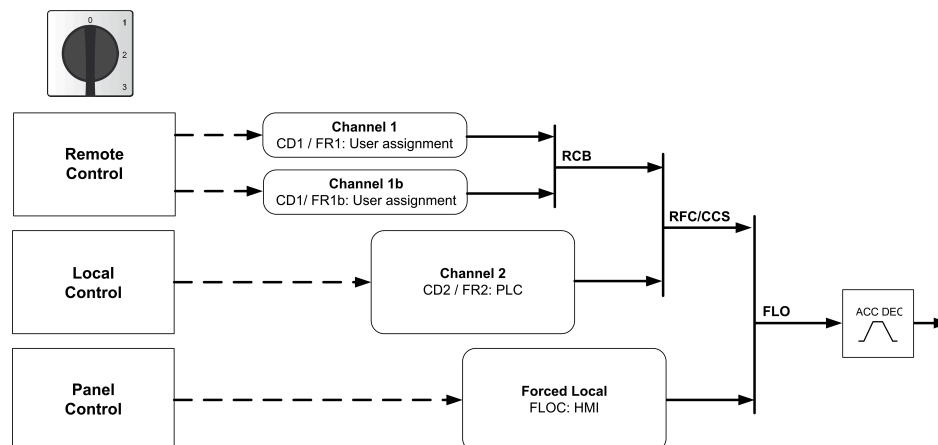
Note: This setting is defined during the commissioning.



(1) Drive is in NST state

Typical Architecture for Command and Reference Value

Can be with the option switch or via Digital inputs sent from customer.

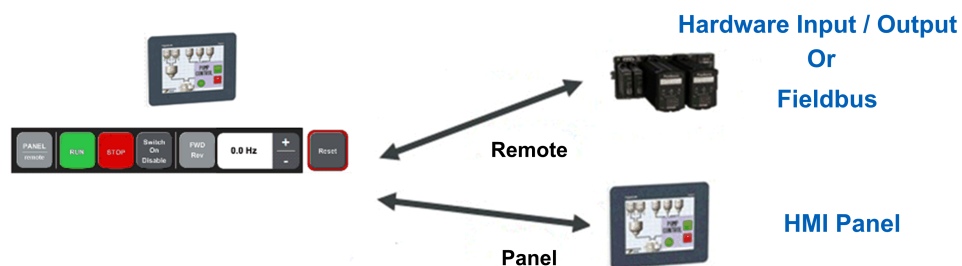


Type of Control	Channel	Description
Remote Control	FR1/CD1: User setting	Control system drive receives start/stop inputs via IO or fieldbus.
Motor Local Control	FR2/CD2: PLC Inside	Control system drive receives via start/stop IO or push button on your equipment.
Panel Control	FLOC: HMI Panel	Control system drive receives inputs via HMI Panel.

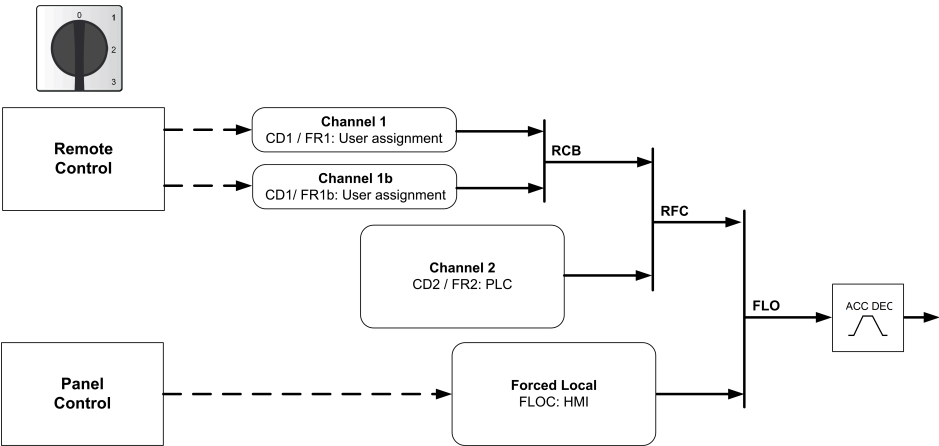
HMI Switch Selection

The HMI makes it possible to switch between remote and panel mode.

Remote/Panel button on HMI is available if related parameters are set during the commissioning.



Typical Architecture for Command and Reference Value.



Type of Control	Channel	Description
Remote Control	FR1/CD1: User setting	Control system drive receives start/stop inputs via IO or fieldbus.
Panel Control	FLOC: HMI Panel	Control system drive receives inputs via HMI Panel.

Command and Reference Channel Switching Transition

Switching between these modes is possible using the option Selector switch or 3 Digital input (DI) or using HMI panel.

The following table shows the different switching transitions.

Source	Destination	Description
Remote, Motor Local	Panel (HMI)	Command and reference switching defines by [HMI L/R cmd] BMP . <ul style="list-style-type: none">BMP = [Stop On Switching] STOP: Copy but motor stops.BMP = [Bumpless] BUMP: Copy if running, motor does not stop.BMP = [Disabled] DIS: No copy
Remote	Motor Local	No copy: according to [Copy Ch1-Ch2] COP = [No] NO
Panel (HMI)	Motor Local	No copy
Panel (HMI)	Remote	
Motor Local	Remote	

Parameters

HMI Access

[Settings] → [Drive Settings] → [Command / Reference Channels]

[Ref Freq 1 Config] FR1

Configuration reference frequency 1.

Value range	Code / Value	Description
[Not Configured]	NO	Not assigned
[AI1]	AI1	Analog input AI1 Factory Setting
[AI2]...[AI3]	AI2...AI3	Analog input AI2...AI3
[AI4]...[AI5]	AI4...AI5	Analog input AI4...AI5 if VW3A3203 I/O extension module has been inserted
[HMI]	LCC	Reference Frequency via remote terminal
[Ref. Freq-Modbus]	MDB	Reference frequency via Modbus
[Modbus 2]	MDB2	Modbus 2 source
[Ref. Freq-CANopen]	CAN	Reference frequency via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Reference frequency via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Embedded Ethernet
[HMI Panel]	HMIP	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Cmd channel 1] CD1

Command channel 1 assignment.

This parameter can be accessed if [Control Mode] **CHCF** is set to [Separate] **SEP** or [I/O profile] **IO**.

Value range	Code / Value	Description
[Terminal]	TER	Terminal block source Factory Setting
[HMI]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	MDB	Command via Modbus
[Ref. Freq-CANopen]	CAN	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	MDB2	Modbus 2 source

Value range	Code / Value	Description
[HMI Panel]	HMIP	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Ref.1B channel] FR1B

Configuration ref. 1B.

Value range	Code / Value	Description
[Not Configured]	NO	Not assigned
[AI1]	AI1	Analog input AI1 Factory Setting
[AI2]...[AI3]	AI2...AI3	Analog input AI2...AI3
[AI4]...[AI5]	AI4...AI5	Analog input AI4...AI5 if VW3A3203 I/O extension module has been inserted
[HMI]	LCC	Reference Frequency via remote terminal
[Ref. Freq-Modbus]	MDB	Reference frequency via Modbus
[Modbus 2]	MDB2	Modbus 2 source
[Ref. Freq-CANopen]	CAN	Reference frequency via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Reference frequency via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Embedded Ethernet
[HMI Panel]	HMIP	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Ref 1B switching] RCB

⚠ WARNING

UNANTICIPATED EQUIPMENT OPERATION

This parameter can cause unintended movements, for example, inversion of the direction of rotation of the motor, sudden acceleration or stops.

- Verify that the setting of this parameter does not cause unintended movements.
- Verify that the setting of this parameter does not result in unsafe conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Select switching (1 to 1B).

- If the assigned input or bit is at 0, [Ref Freq 1 Config] FR1 is active.
- If the assigned input or bit is at 1, [Ref.1B channel] FR1B is active.

[Ref 1B switching] RCB is forced to [Ref Freq 1 Config] FR1 if [Control Mode] CHCF is set to [Not separ.] SIM with [Ref Freq 1 Config] FR1 assigned via the terminals (analog inputs, pulse input).

NOTE: Activating this function from an other active command channel also activates the monitoring of this new channel.

Value range	Code / Value	Description
[Ref Freq 1 Config]	FR1	Reference frequency channel 1
[Ref.1B channel]	FR1B	Reference frequency channel 1b
[DI1]...[DI8]	LI1...LI8	Digital input DI1...DI8
[DI11]...[DI16]	LI11...LI16	Digital input DI11...DI16 if VW3A3203 I/O extension module has been inserted
[CD00]...[CD10]	CD00...CD10	Virtual digital input CMD.0...CMD.10 in [I/O profile] IO configuration
[CD11]...[CD15]	CD11...CD15	Virtual digital input CMD.11...CMD.15 regardless of configuration
[C101]...[C110]	C101...C110	Virtual digital input CMD1.01...CMD1.10 with integrated Modbus Serial in [I/O profile] IO configuration
[C111]...[C115]	C111...C115	Virtual digital input CMD1.11...CMD1.15 with integrated Modbus Serial regardless of configuration
[C201]...[C210]	C201...C210	Virtual digital input CMD2.01...CMD2.10 with CANopen® fieldbus module in [I/O profile] IO configuration
[C211]...[C215]	C211...C215	Virtual digital input CMD2.11...CMD2.15 with CANopen® fieldbus module regardless of configuration
[C301]...[C310]	C301...C310	Virtual digital input CMD3.01...CMD3.10 with a fieldbus module in [I/O profile] IO configuration
[C311]...[C315]	C311...C315	Virtual digital input CMD3.11...CMD3.15 with a fieldbus module regardless of configuration
[C501]...[C510]	C501...C510	Virtual digital input CMD5.01...CMD5.10 with integrated Ethernet in [I/O profile] IO configuration
[C511]...[C515]	C511...C515	Virtual digital input CMD5.11...CMD5.15 with integrated Ethernet regardless of configuration
[C601]...[C610]	C601...C610	Virtual digital input CMD6.01...CMD6.10 reserved
[C611]...[C615]	C611...C615	Virtual digital input CMD6.11...CMD6.15 reserved

[Internal PID ref] RPI

Internal PID reference.

This parameter can be accessed if:

- [PID feedback Assign] PIF is not set to [Not Configured] NO, and
- [Intern PID Ref] PII is set to [Yes] YES.

Setting	Description
[Min PID Process] PIP1...[Max PID Process] PIP2	Setting range Factory setting: 150

[Ref PID Preset 2] RP2

This parameter can be accessed only if [2 PID Preset Assign] PR2 is assigned.

Setting	Description
[Min PID Process] PIP1...[Max PID Process] PIP2	Setting range Factory setting: 300

[Ref PID Preset 3] RP3

This parameter can be accessed only if **[4 PID Preset Assign] PR4** is assigned.

Setting	Description
[Min PID Process] PIP1...[Max PID Process] PIP2	Setting range Factory setting: 600

[Ref PID Preset 4] RP4

This parameter can be accessed only if **[4 PID Preset Assign] PR4** and **[2 PID Preset Assign] PR2** are assigned.

Setting	Description
[Min PID Process] PIP1...[Max PID Process] PIP2	Setting range Factory setting: 900

[Local Preset Speed] PL23

If **[Local Reference Assignment] PL12** is selected to "Preset speed" and **[Local Preset Speed] PL23** is selected to a value between "0 -120"Hz the motor turns according this preset value.

Setting	Description
0...120 Hz	Setting range Factory setting: 0

Custom HMI

What's in This Chapter

[Labels] Menu	287
[Events] Menu	291

[Labels] Menu

HMI Access

[Settings] → [Custom HMI] → [Labels]

About This Menu

The menu allows to customize some pre-defined labels, this feature can be managed during commissioning and during operation by the users.

Caption:

1. Default labels.
2. Custom labels.
3. Check marks for selection and implementation.
4. Page selection. Refer to [List of Custom Parameters](#), page 288.


Note: It is possible to export customized labels, see [Export files menu](#), page 319.

Note: Though the custom label has a limit of 50 characters, it is advised to use only a certain number of characters to view the custom label clearly in the HOME screen
(For example : 9-10 number of characters)

Procedure

The following table gives the procedure to customize default labels by new one.

Step	Action
1	Choose the name of the default labels to modify from the predefined list. (Item 1).
2	Select dedicated area "<enter a custom label >" (Item 2).

Step	Action
	Result: The software keyboard shows pop up..
3	Type your new label and click ok . Result: The software keyboard is closed.
4	Click on check marks selection (Item 3). Result:  Green check mark is displayed, all related new labels are implemented.

List of Custom Parameters

Custom labels are organized by group of functions though several pages.

Function	Default Label	HMI Page
Recall configuration list element	Configuration 0 active Configuration 1 active Configuration 2 active Configuration 3 active	1
Cabinet switch list element	Not selected Remote Local Panel	1
Customer Event Error/Warning	Customer Warning 1 ... Customer Warning 5	2
Analog Input process monitoring	AI Monitor 1 Process Value (AM1P) ...AI Monitor 8 Process Value (AM8P)	2–3
External error	External detected error External error warning	3–4
Analog monitoring Error/Warning	Analog monitoring 1 error ... Analog monitoring 8 error Analog monitoring 1 warning ... Analog monitoring 8 warning	3–4
Monitor Circuit Error/Warning	Monitor circuit A error ... Monitor circuit D error Monitor circuit A warning ... Monitor circuit D warning	5–6
Monitoring Circuit on lock	Monitoring Circuit A on lock, Monitoring Circuit B on lock	5
Monitoring Circuit freewheel stop	Monitoring Circuit A freewheel stop ... Monitoring Circuit D freewheel stop	5–6
Cabinet Circuit Error/Warning	Cabinet circuit A error ... Cabinet circuit C error Cabinet circuit A warning ... Cabinet circuit C warning	6–7
Motor winding Error/Warning	Motor winding A error ... Motor winding B error Motor winding A warning ... Motor winding B warning	7
Motor bearing Error/Warning	Motor bearing A error ... Motor bearing B error Motor bearing A warning ... Motor bearing B warning	7
Sensor thermal monitoring Sensor thermal Error/Warning	Thermal sensor 9 ... Thermal sensor 11 Sensor 9 thermal error ... Sensor 11 thermal error Sensor 9 thermal warning ... Sensor 11 thermal warning	8
	Thermal sensor 12 ... Thermal sensor 14 Sensor 12 thermal error ... Sensor 14 thermal error Sensor 12 thermal warning ... Sensor 14 thermal warning	9
	Thermal sensor 15 ... Thermal sensor 16 Sensor 15 thermal error ... Sensor 16 thermal error Sensor 15 thermal warning ... Sensor 16 thermal warning	10

Note: Please keep in mind that customizing the labels defined by the user in the HMI does not affect either the Webserver, DTM or the user documents, as these labels remain in their original format (Default Label).

Customized Labels for Recall configuration function

When configuration 3 is restored.

Default Labels	Custom Labels	
Configuration 0 active	Motor default	✓
Configuration 1 active	Motor 1	✓
Configuration 2 active	Motor 2	✓
Configuration 3 active	Motor 3	✓

- From recall configuration menu, “Motor 3” is displayed.

Recall configuration

Select one configuration

Configuration 1

Configuration 2

Configuration 3

Conf Motor 1

Conf Motor 2

Conf Motor 3

Recall of the configuration is not possible, please select first a configuration.

Restored configuration

Motor 3

Conf Motor 3

Apply

- Related active configuration (e.g. configuration 3 > Motor 3) is displayed to Home menu:

Home

Actual Error

No Error

On Lock Register

0000 0000 0000 0000

QF1 State

QF1 Tripped

Config. active

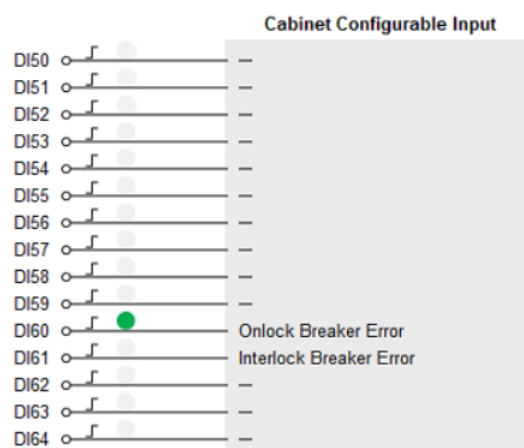
Motor 3

Customized Labels for Monitoring Circuit Error and warning

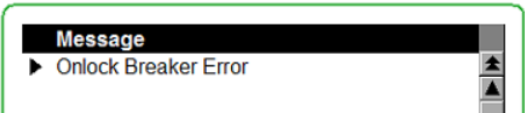
When monitoring Circuit error A/B are configured:

Default Labels	Custom Labels	
Monitoring circuit A error	Onlock Breaker Error	✓
Monitoring circuit A warning	Onlock Breaker warning	✓
Monitoring circuit A on lock	Onlock Breaker	✓
Monitoring circuit A freewheel stop	Onlock Breaker Freewheel	✓
Monitoring circuit B error	Interlock Breaker Error	✓

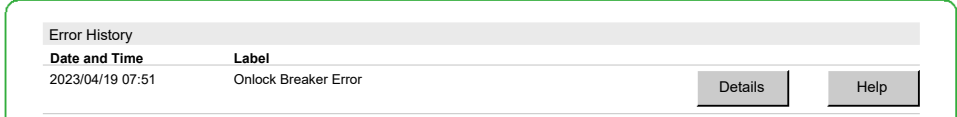
- Digital input (DI60 and DI61) on Input/output display menu are updated.



- Related active error message (e.g. from DI60) or warning message is also updated to Home menu.



- Related active error message (e.g. from DI60) is also updated to Diagnostics >> Error history menu.



NOTE: Once the custom label is activated/de-activated. The after selection is considered and is applied to all the historical error history screen.

- Related active warning message is also updated to Diagnostics >> Warning history menu.



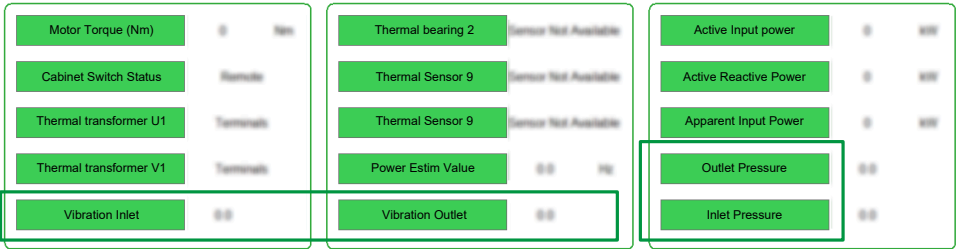
NOTE: Once the custom label is activated/de-activated. The after selection is considered and is applied to all the historical warning history screen.

Customized Monitoring Parameters on HMI Menu

When Analog Input process monitoring 1 to 4 are configured:

Default Labels	Custom Labels	
AI Monitor 1 Process Value	Vibration Inlet	✓
AI Monitor 2 Process Value	Vibration Outlet	✓
AI Monitor 3 Process Value	Outlet Pressure	✓
AI Monitor 4 Process Value	Inlet Pressure	✓

- Customized monitoring parameters from Home menu are updated.



[Events] Menu

HMI Access

[Settings] → [Custom HMI] → [Events]

About This Menu

This menu allows user to define customized customer events based on the counter, and date and time. This setting is defined during commissioning and can be updated by the customer according to access right (change counter limit or date and time, reset warning).

Customer Event 1

Parameter	Label	Value	Unit
CCA1	Config Warning 1	Counter	
CCS1	Counter source 1	Mains Supply ON	

	Days	Hours	Minutes	Seconds	
CCL1	Counter limit 1	1	02	03	04
CC1	Timer counter 1	1	2	3	4

Custom warning 1 Reset warning Reset

Customer Event 2

Parameter	Label	Value	Unit
CCA2	Config Warning 2	Date and Time	

Years	Months	Days	Hours	Minutes
2023	06	24	00	20

Custom warning 2 Reset warning Reset

Custom label configuration A

< 1 2 3 > 3

1: Customer Event 1.

2: Customer Event 2.

3: Page selection:

- Page 1: Linked to customer event 1, customer event 2.
- Page 2: Linked to customer event 3, customer event 4.
- Page 3: Linked to customer event 5.

A: Opens **Custom HMI labels** Menu. , page 287.

Customer Event set to Counter

In this example Customer Event 1 is set to **Counter**.

The counter source is set to **Mains supply ON**, the counter increases after each mains supply ON.

If the counter limit is reached therefore the warning is triggered, this warning is resettable.

Customer Event 1

Parameter	Label	Value	Unit
CCA1	Config Warning 1	Counter	
CCS1	Counter source 1	Mains Supply ON	

	Days	Hours	Minutes	Seconds	
CCL1	Counter limit 1	1	02	03	04
CC1	Timer counter 1	1	2	3	4

Custom warning 1 C

Reset warning Reset B

- 1: Settings are defined during commissioning or by the customer according to access rights.
- A: Makes it possible to set the counter limit.
- B: Depending custom event 1 to 5, it makes it possible to reset dedicated customer event warning.
- C: Depending on customer event 1 to 5, it displays if dedicated customer event warning is triggered (orange: warning active, Grey: warning inactive).

Customer Event set to Date and Time

In this example Customer Event 2 is set to **Data and Time** and counter defined to: 2023/06/24 at 00:20.
If the date and time defined is reached therefore the warning is triggered, this warning is resettable.

1

Customer Event 2

Parameter	Label	Value	Unit
CCA2	Config Warning 2	Date and Time	

A

YearsMonthsDaysHoursMinutes

202306240020

C

Custom warning 2

Custom label configuration

B

Reset warningReset

- 1: Settings are defined during commissioning or by the customer according to access rights.
- A: Makes it possible to set the date and time limit.
- B: Depending custom event 1 to 5, it makes it possible to reset dedicated customer event warning.
- C: Depending customer event 1 to 5, it displays if dedicated customer event warning is triggered (orange: warning active, Grey: warning inactive).

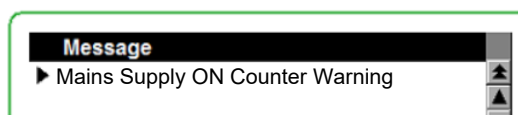
Customized Labels for Customer Event 1 and 2

Up to 5 customer event warnings can be customized , page 287. For this example, only warning 1 and warning 2 are customized:

Default Labels	Custom Labels	
Custom warning 1	Mains Supply ON Counter Warning	✓
Custom warning 2	Life Cycle time Warning	✓

- Customized warning are updated

- Related active warning message is also updated to Home Menu.



- List of warnings is also updated to the **[Warning History]** Menu, page 217 and to the **[Status Synthesis]** Menu, page 179.

[Config Warning 1] CCA1...[Config Warning 5] CCA5

Configuration of customer warning 1...Configuration of customer warning 5

Setting	Code / Value	Description
[Not Configured]	NO	Not configured Factory setting
[Counter]	CPT	Counter
[Date and Time]	DT	Date and time

[Counter Source 1] CCS1...[Counter Source 5] CCS5

Configuration counter Source 1....Configuration counter Source 5

Setting	Code / Value	Description
[Mains/ Control ON]	0	Mains or control supply on
[Mains Supply ON]	1	Mains supply on
[Drive is Running]	2	Drive in running state Factory setting

[Counter limit 1] CCL1...[Counter limit 5] CCL5

Configuration counter limit 1...Configuration counter limit 5

The maximum counter is defined by:

- Days = 24854
- Hours = 23
- Minutes = 59
- Seconds = 59

[Time counter 1] CC1...[Time counter 5] CC5

Time counter 1...Time counter 5

Defines the Years/Months/Days/Hours/Minutes

Communication

What's in This Chapter

[Communication] Menu	296
[Modbus Fieldbus] Menu	297
[Embd Eth Config] Menu	299
[CANopen] Menu	300
[DeviceNet] Menu	302
[Profibus] Menu	304
[Profinet] Menu	305
[EtherCAT Module] Menu	309

[Communication] Menu

HMI Access

[Settings] → [Communication]

Overview

This menu shows information from several fieldbuses used by ATV6000, it also makes it possible to configure dedicated communication parameters.

Modbus Fieldbus

Parameter	Label	Value	Unit
ADD	Modbus Address	1	
AMOC	Modbus add Com.C.	OFF	
TBR	Modbus Baud Rate	19200 bps	
TWO	Term word oder	ON	
TFO	Modbus Format	8-E-1	
TTO	ModbusTimeout	10.0	S
COM1	MBD com stat	R0T0	
MRJ	Comm port 1 Assign	Modbus 1	

Embd Eth Config

Parameter	Label	Value	
IM00	IP Mode Ether. Embd	Fixed	
IP Address			
IC01	IC02	IC03	IC04
192	168	1	101
Mask			
IM01	IM02	IM03	IM04
255	255	255	000
Gateway			
IG01	IG02	IG03	IG04
0	0	0	0

Save changes

Ethernet parameter will be taken into account after powering-off control supply.

< 1 2 3

1. Panel: It presents current Modbus and Embedded Ethernet parameters from page 1.

2. Page selection: Makes it possible to navigate through several pages, it presents all other fieldbuse and parameters.

- Page 1: Modbus fieldbus and Embedded Ethernet configuration.
- Page 2: CANopen, DeviceNet, Profibus.
- Page 3: Profinet, EtherCAT Module.

A. Save changes: It is mandatory to save any change (value/settings) by clicking on this element.

B. Depending on the conditions to Ethernet parameter setting, the related message is displayed:

- *Ethernet parameter can be changed when the drive is not in operation enabled state.*
- *Ethernet parameter is taken into account after powering-off control supply.*

[Modbus Fieldbus] Menu

HMI Access

[Settings] → [Communication] → [Modbus Fieldbus]

About This Menu

This menu is related to the Modbus serial communication port on the bottom of the control block, it displayed parameters from HMI **[Communication]** Menu, page 296.

For more details refer also to the Modbus serial manual MFR24213.

[Modbus Address] ADD

Device modbus address.

Setting	Description
[OFF] OFF ...247	Setting range Factory setting: [OFF] OFF

[Modbus add Com.C.] AMOC

Mdb add comm. module.

Setting	Description
[OFF] OFF ...247	Setting range Factory setting: [OFF] OFF

[Modbus Baud Rate] TBR

Modbus baud rate.

Setting	Code / Value	Description
[4800 bps]	4800	4,800 Bauds
[9600 bps]	9600	9,600 Bauds
[19200 bps]	19200	19,200 Bauds Factory setting
[38.4 Kbps]	38400	38,400 Bauds

[Term word order] TWO

Terminal Modbus: Word order.

Setting	Code / Value	Description
[OFF]	LOW	Low word first
[ON]	HIGH	High word first Factory setting

[Modbus Format] TFO

Modbus format.

Setting	Code / Value	Description
[8-O-1]	8O1	8 bits odd parity 1 stop bit
[8-E-1]	8E1	8 bits even parity 1 stop bit Factory setting
[8-N-1]	8N1	8 bits no parity 1 stop bit
[8-N-2]	8N2	8 bits no parity 2 stop bits

[Modbus Timeout] TTO

Modbus timeout.

Setting	Description
0.1 ...30.0 s	Setting range Factory setting: 10.s

[Mdb com stat] COM1

Modbus com. status.

Setting	Code / Value	Description
[R0T0]	R0T0	Modbus no reception, no transmission
[R0T1]	R0T1	Modbus no reception, transmission
[R1T0]	R1T0	Modbus reception, no transmission
[R1T1]	R1T1	Modbus reception and transmission

[Comm Port 1 Assign] MRJ

Communication port 1 assignment.

Setting	Code / Value	Description
[Modbus 1]	MDB	Modbus 1 channel
[Vscope tools]	VSCP	Vscope access
[SHELL tools]	SHELL	SHELL access
[Printf tools]	PRINTF	Output printf access

[Embd Eth Config] Menu

HMI Access

[Settings] → [Communication] → [Embd Eth Config]

About This Menu

This menu is related to the Ethernet embedded parameters displayed from HMI **[Communication]** Menu, page 296.

Embd Eth Config											
Parameter				Label				Value			
IM00				IP Mode Ether. Embd				Fixed			
IP Address				Mask				Gateway			
IC01	IC02	IC03	IC04	IM01	IM02	IM03	IM04	IG01	IG02	IG03	IG04
192	168	1	101	255	255	255	000	0	0	0	0

- 1: IP Address
- 2: Subnet mask
- 3: Gateway address

The three elements above are defined and based on the IP mode Ethernet embedded (**[IP Mode Ether. Embd]** IM00).

Note: For more details refer also to the Ethernet embedded manual PHA30472.

[IP Mode Ether. Embd] IM00

IP mode Ethernet Embd.

Setting	Code / Value	Description
[Fixed]	MANU	Fixed address.
[BOOTP]	BOOTP	Device obtains the IP address from BOOTP server.
[DHCP]	DHCP	Device obtains the IP address from DHCP server.
		Factory setting

[CANopen] Menu

HMI Access

[Settings] → [Communication] → [CANopen]

About This Menu

This menu is related to the CANopen parameters displayed from HMI [Communication] Menu, page 296.

For more details refer also to the CANopen fieldbus module manual .

[CANopen Address] ADCO

This parameter defines the address of the drive on the network. This parameter is taken into account after a power cycle.

This is a read/write parameter.

The parameter number is 6051 via Modbus access.

Settings	Code / Value	Description
[OFF]	OFF	CANopen address is not assigned.
[1 to 127]	1 ... 127	CANopen address is assigned. Factory setting: OFF

[CANopen Baudrate] BDCO

This parameter defines the baud rate at which data is transferred. This parameter is taken into account after a power cycle.

This is a read/write parameter.

The parameter number is 6053 via Modbus access.

Settings	Code / Value	Description
[50 kbps]	50K	Baud rate is set to 50 Kbps.
[125 kbps]	125K	Baud rate is set to 125 Kbps.
[250 kbps]	250K	Baud rate is set to 250 Kbps.
[500 kbps]	500K	Baud rate is set to 500 Kbps.
[1 Mbps]	1M	Baud rate is set to 1 Mbps. Factory setting: 250 Kbps

[CANopen Error] ERCO

This parameter indicates the last active CANopen detected error.

This is a read-only Parameter.

The parameter number is 6056 via Modbus access.

Settings	Code / Value	Description
[0]	0	No errors detected since the last start of CANopen communication.
[1]	1	Bus off or CAN overrun.
[2]	2	Node guarding error requiring a return to the NMT initialization state.
[3]	3	CAN overrun (possible alternative values: 32, 64 or 128).
[4]	4	Heartbeat error requiring a return to the NMT initialization state.
[5]	5	NMT states chart error.
NOTE: If the motor is running, a [CANopen Com Interrupt] COF is triggered in case of change of NMT state.		

[DeviceNet] Menu

HMI Access

[Settings] → [Communication] → [DeviceNet]

About This Menu

This menu is related to the DeviceNet parameters displayed from HMI [Communication] Menu, page 296.

For more details refer also to the DeviceNet fieldbus module manual PHA30471.

[Address] ADRC

This parameter defines the address of the drive on the network.

This is a read/write parameter.

The parameter number is 6601

Settings	Code / Value	Description
[0] ... [63]	0 ... 63	Factory settings: 63

[Baudrate] BDR

This parameter displays the baud rate and the transmission mode currently used by the fieldbus module.

This is read/write parameter.

The parameter number is 6603.

Settings	Code / Value	Description
[Automatic]	AUTO	Baud rate is set automatically
[125 Kbps]	125K	Baud rate is set to 125 Kbauds
[250 Kbps]	250K	Baud rate is set to 250 kbauds
[500 Kbps]	500K	Baud rate is to 500 kbauds
		Factory settings: Auto

[Conf. Assembly] CIOA

This parameter shows the configured Input/Output assembly.

This is a read/write parameter.

The parameter number is 6667

Settings	Code / Value	Description
[20/70]	20	CIP basic speed control
[21/71]	21	CIP extended speed control

Settings	Code / Value	Description
[100/101]	100	Native drive control
[Unconfig.]	UNCG	Not configured Factory settings: 21

[Profibus] Menu

HMI Access

[Settings] → [Communication] → [Profibus]

About This Menu

This menu is related to the PROFIBUS DP parameters displayed from HMI **[Communication]** Menu, page 296.

For more details refer also to the PROFIBUS DP fieldbus module manual PHA30474 .

[Address] ADRC

This parameter defines the PROFIBUS DP slave address.

This is a read/write parameter.

The parameter number is 6601

Settings	Code	Value	Description
[2...126]	2 ... 126	2...126	PROFIBUS address Factory setting: 126

[Profinet] Menu

HMI Access

[Settings] ➔ [Communication] ➔ [Profinet]

About This Menu

This menu is related to the PROFINET parameters displayed from HMI **[Communication]** Menu, page 296 , for more details refer also to the PROFINET fieldbus module manual (VW3A3627): PHA30475. or PROFINET fieldbus module manual (VW3A3647): TME79313.

The PROFINET fieldbus module (VW3A3647) is compliant with iPar server function. The purpose of this function is to save (upload) the parameters (iParameter) of any PROFINET I/O device within the same host controller that is maintaining the GSD-based parameters and diagnosis messages.

The configuration can be:

- Saved:
 - manually by using **[IPAR Action]** **IPAA** parameter when set to **[Save]** **SAVE**
 - automatically by using **[iPar Autosave Act]** **IPAS** when set to **[Yes]**. **[iPar Local Conf]** **ICFG** must be set to **[Yes]**.
- Restored:
 - manually by using **[IPAR Action]** **IPAA** parameter when set to **[Restore]** **REST**
 - at each restart of the drive using **[iPar Local Conf]** **ICFG** when set to **[No]**.

The status of the Save/Restore action is viewed with the **[IPAR Action Status]** **IPAC**.

[IP mode] **IPM**

This parameter is used to select the IP address assignment method.

This is a read/write parameter

The parameter number is 64250.

Settings	Code	Value	Description
[Fixed]	MANU	0	Manually type the IP address.
[DHCP]	DHCP	2	Automatically gets the IP address from the DHCP server.
[DCP]	DCP	3	Automatically gets the IP address from the DCP server.

[iPar Activation] **IPAV**

This parameter is used to enable the iPar service.

This is a read/write parameter

The parameter number is 64274.

⚠ WARNING**UNANTICIPATED EQUIPMENT OPERATION**

Verify that enabling iPAR service which allows to restore the configuration from the PLC is compatible with the type of wiring used and perform a comprehensive commissioning test to verify correct operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Settings	Code	Value	Description
[No]	NO	0	Indicates that the iPar service is disabled.
[Yes]	YES	1	Indicates that the iPar service is enabled.

[iPar Autosave Act] IPAS

This parameter is used to enable the iPar autosave service.

This is a read/write parameter

The parameter number is 64275.

Settings	Code	Value	Description
[No]	NO	0	Indicates that the iPar autosave service is disabled
[Yes]	YES	1	Indicates that the iPar autosave service is enabled
Factory setting: 0			

[iPar Autosave Timer] IPAT

This parameter is used to set the interval for periodic saving of the iPar service.

This is a read/write parameter

The parameter number is 64278.

Settings	Code	Value	Description
–	–	0	No autosave
		1...9999 min	iPar service is saved after specified interval of time.
Factory setting: 10 min			

[iPar Error Response] IPAF

This parameter is used to enable the iPar error handling.

This is a read/write parameter

The parameter number is 64277.

Settings	Code	Value	Description
[No]	NO	0	Indicates that the iPar error handling is disabled
[Yes]	YES	1	Indicates that the iPar error handling is enabled
Factory setting: 1			

[iPar Local Conf] ICFG

This parameter is used to select local or server configuration.

This is a read/write parameter

The parameter number is 64276.

Settings	Code	Value	Description
[No]	NO	0	Indicates that the drive configuration is downloaded from the iPar server at power-on of the drive.
[Yes]	YES	1	Indicates that the drive configuration is available locally in the drive. Factory setting: 0

[IPAR Action] IPAA

This parameter is used to transfer the configuration between the drive and the PLC.

NOTE: When parameters requiring a restart are modified, it is essential to restart the drive for the restore to succeed.

This is a read/write parameter

The parameter number is 64284.

Settings	Code	Value	Description
[Inactive]	DEAC	0	The configuration transfer through iPar is disabled (Factory setting).
[Save]	SAVE	1	The configuration is transferred from the drive to the PLC.
[Restore]	REST	2	The configuration is restored from the PLC.

[IPAR Action Status] IPAC

This parameter shows the status of the [IPAR Action] IPAA.

This is a read parameter

The parameter number is 64285.

Value range	Code	Value	Description
[In Progress]	EXEC	0	The transfer is under execution.
[Save - Success]	SASU	1	Save - Success.
[Save - Error]	SAER	2	Save - Error.
[Restore - Success]	RESU	3	Restore - Success.
[Restore - Error]	REER	4	Restore - Error.

[PNT Mdb Word Order] **TWOP**

Profinet ModbusTCP word order

This parameter is used to invert the words order.

Settings	Code	Value	Description
[OFF]	LOW	0	Low word first.
[ON]	HIGH	1	High word first. Factory setting

[PNU 1000 Behavior] **PNU**

PNU 1000 behavior

This parameter allows to define the behavior of the PNU 1000

The parameter number is 64288.

Settings	Code	Value	Description
[Conformance Mode]	PROF	0	The PNU 1000 is compatible with the PROFINET Standard. NOTE: All drive parameters are defined as 32-bit values in this mode. Only read access is allowed, while write access is restricted. Factory setting
[Manufacturer Mode]	COMP	1	The PNU 1000 behaves as presented in the VW3A3627 PROFINET module.

[EtherCAT Module] Menu

HMI Access

[Settings] ➔ [Communication] ➔ [EtherCAT Module]

About This Menu

This menu is related to the EtherCAT parameters displayed from HMI **[Communication]** Menu, page 296.

For more details refer also to the EtherCAT fieldbus module manual PHA30473.

[EthCat slave status] ECSS

This parameter displays the ESM status of the drive on the network.

This is a read-only parameter.

The parameter number is 6690

Settings	Code	Value	Description
[Init]	INIT	1	Device is in Initialization state
[PreOp]	PROP	2	Device is in Pre-Operational state
[Boot]	BOOT	3	Device is in Bootstrap state
[SafeOp]	SFOP	4	Device is in Safe Operational state
[Op]	OP	8	Device is in Operational state

[EthCat 2nd addr] ECSA

This parameter is used to select the EtherCAT second address.

This is a read/write parameter.

The parameter number is 6691

Settings	Code / Value	Description
[0...65535]	0...65535	EtherCAT second address Factory setting: 0

[EthCat addr] ECAA

This parameter displays the actual EtherCAT address.

This is a read-only parameter.

The parameter number is 6692

Settings	Code / Value	Description
[0...65535]	0...65535	EtherCAT actual address Factory setting: 0

My Preferences

What's in This Chapter

[Localization Settings] Menu 310

[User Login] Menu 311

[User Management] Menu 313

[Communication] Menu 316

[HW Scope] Menu 318

[Localization Settings] Menu

HMI Access

[Settings] → [My preferences] → [Localization Settings]

About This Menu

Localization screen is used to perform configuration settings related to the user interface.

Language selection

Label

Language

Português

English

Polskie

Français

Magyar

Deutsch

Italia

Русский

Español

中文

Tech

Device Name

Label

Value

Device Name

Customized Device Name

Update Name

Item	Description
A	Language Selection: Used to change HMI Internal System Language: <ul style="list-style-type: none">EnglishFrançaisDeutschРусский языкEspañol中文PortuguêsPolskieMagyarItalian
B	Tech: By pushing the respective button, all labels are replaced by technical label/Code. (For service only)
C	Device Name: Used to display the application name. Once the device name is customized, click on this button.

[User Login] Menu

HMI Access

[Settings] → [My preferences] → [User Login]

About This Menu

Each Menu and parameter has an access Level. These access levels are password protected and defined during the commissioning.

Regarding the creation of passwords and naming, the first step should be completed on the DTM side, and the second step should be completed on the HMI side. The information must match (password, naming, etc.) between the DTM and HMI.

HMI Panel start at the first time with the **Basic** user profile.

NOTE:

- After 15 minutes of inactivity the user is automatically logged off .
- User passwords can only be modified by the admin or Schneider Services.
- If you attempt to login to the HMI using an incorrect password, your session is locked for security reasons after 10 attempts. Contact your local Schneider Electric representative.

Access level and Profile

It is possible to use different user profiles linked to different access levels.

Basic users

- Users: Operator, advanced operator
- Access Rights:
 - Monitoring data only (Diagnostics, Settings, Configuration panels are not accessible).
 - Control and Command panel

Expert users

- Users: Maintenance engineer / technician, Support. (Users trained by Schneider.)
- Access Rights:
 - Settings and monitoring with limitation.
 - Device Name
 - Control and Command panel
 - No Firmware update.

Services Expert users

- Users: Maintenance engineer / Support engineer, Commissioning Engineer.
- Access Rights:
 - All access, monitoring and settings
 - Create account
 - Firmware update
 - Control and Command panel

Access Levels for the HMI panel

User profile	Custom Application (1)	Home	Display	Diagnostics	Even Recorder Export	Settings	Command Panel
Basic	✓	✓	✓	R	—	—	✓
Expert	✓	✓	✓	R	✓	R	✓
Services Expert	✓	✓	✓	✓	✓	✓	✓
(1) Only available if customized applications are programmed							

✓	Full access
R	Limited access
—	No access

Login

Procedure to login, whatever the user profile.

Step	Action
1	Input the desired user profile. Refer to the user profile naming defined during the commissioning.
2	Enter the password for the given level. The password can be entered directly via the soft keyboard.
3	Press OK

Logout

Logs out the actual logged in Basic user profile.

[User Management] Menu

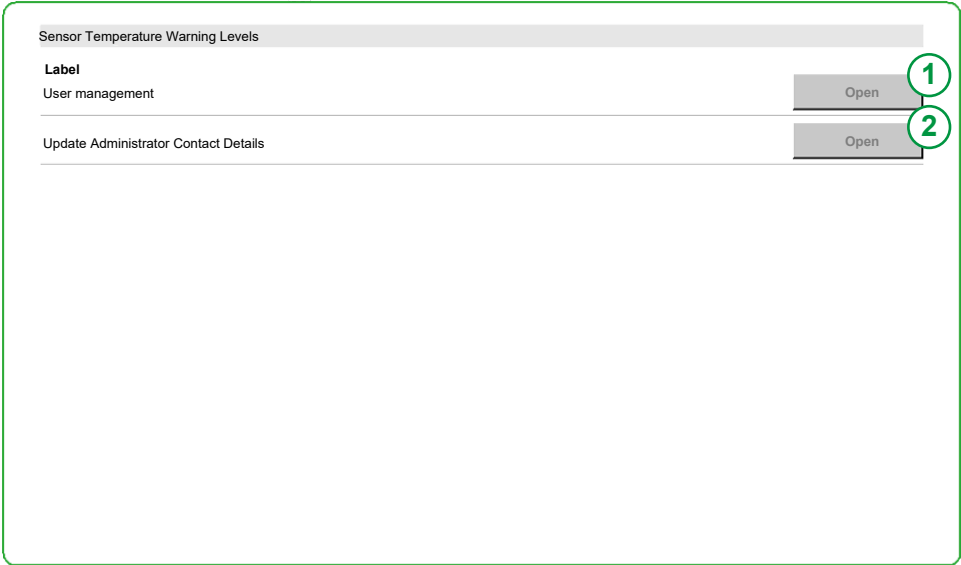
HMI Access

[Settings] ➡ [My preferences] ➡ [HW Scope]

About This Menu

This menu allows the service team to create passwords/names for each profile. It also allows customization of the contact information for the local administrator. All these steps are managed during the commissioning process.

It's essential to ensure that the information matches between the DTM and HMI.



Items	Description
①	<ul style="list-style-type: none">User Management, page 314: By pushing the respective button, the User management panel opens.
②	<ul style="list-style-type: none">Update Administrator Contact Details, page 315: By pushing the respective button, the contact information panel opens.

User Management

The information given in the Commissioning Assistant (DTM) needs to be entered also on HMI panel.

The password needs to meet this requirement:

- be at least 8 characters long
- have at least one letter
- have at least one capital letter
- have at least one number
- have no special characters (except "_" underscore)
- not be used for the last 5 passwords

User Management

User Group

User_Advanced

Username

Password

Confirm Password

1

Create new User

Update existing User

Delete User

Exit

HMI password requirements:

• be at least 8 characters long

• have at least one letter

• have at least one capital letter

• have at least one number

• have no special characters (except "_" underscore)

• not be used for the last 5 passwords

Close

Items	Description
①	Legend: No interaction is possible.
②	Create new user, update or remove user by pushing the respective button.

Update Administrator Contact Details

The contact information previously entered in the Commissioning Assistant (DTM) must also be entered in the HMI.

7 lines with 40 characters each can be configured.

User Management

Create/Update the contact details for the local Administrator.

Contact Information

Administrator Name:	Customer Care Center Austria
Company Name	Schneider Electric
Administrator Name:	Am Europlatz 2
	Stg. 6 / 3. OG
City, Zip code:	Wien, 1120
Phone Number:	+43 720 380 180
Email Address:	office.at@se.com

Close

The contact information panel is accessible through:

- “About” Menu, page 41.
- “Error history” Menu

[Communication] Menu

HMI Access

[Settings] → [My preferences] → [Communication]

About This Menu

This menu allows to manage Web services. Depending on option module inserted, some parameters are not available.

User and password are stored during commissioning, before reset password, contact your local Schneider Electric representative.

For more information refer also to the ATV6000 Embedded Ethernet manual.

In the below example, Profinet V2 option module is inserted.

For more information refer also to the ATV6000 Profinet Manual - VW3A3647

Webserver			
Parameter	Label	Value	Action
1 EWEE	EnableEmbdWeb	Webserver is enabled	Disable A
2 RWPE	Reset Eth Embd Pwd		Reset B
Profinet			
Parameter	Label	Value	Action
3 RWPP	Reset PNT Password		Reset C

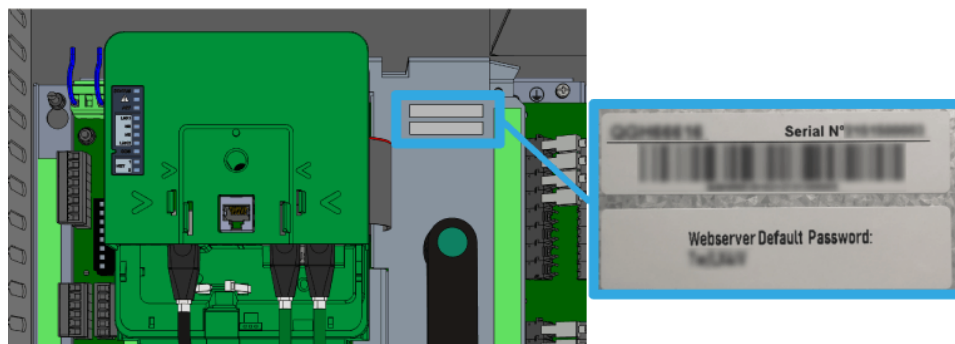
- 1 . **EWEE**: Enable Embedded Webserver.
- A. Disable/Enable**: Allows you to enable or disable Web services for the embedded Ethernet adapter.
- NOTE**: This setting is executed at next power-on.
2. **RWPE**: Reset Ethernet embedded password.
- B. Reset**: Allows you to reset webserver password and user authentication password.
3. **RWPP**: Reset Profinet password.
- C. Reset**: Allows you to reset Profinet password.
- NOTE**: When Ethernet embedded password is reset, the old password saved during commissioning (and also available at your Local Schneider Electric Representative) does not work anymore.

Default Password (Ethernet Embedded / Webserver)

The default password consists of 8 characters. The sticker located on the Master Controller shows the Ethernet embedded default password used for both webserver connection (Administrator access) and PC software tool connection (such as SoMove FDT – DTM) in order to have access to the drive configuration.

Irrespective of the type of connection, the first connection requires to change this default password. The new defined password is applicable for both administrator webserver access and PC software tool access. This password is set during commissioning.

NOTE: The default password available on the Master Controller sticker can be used at first connection or after a password reset via **RWPE**.



Default Password (Profinet)

It provides the eight characters default password linked to the inserted option module. The password is required for PC software tool connection (such as SoMove FDT - DTM) in order to have access to the drive configuration. At first connection via the Profinet option module it is required to change the default password.

This default password is available on the sticker of the option module.

NOTE: The default password available on the Profinet sticker can be used at first connection or after a password reset via **RWPP**.

[HW Scope] Menu

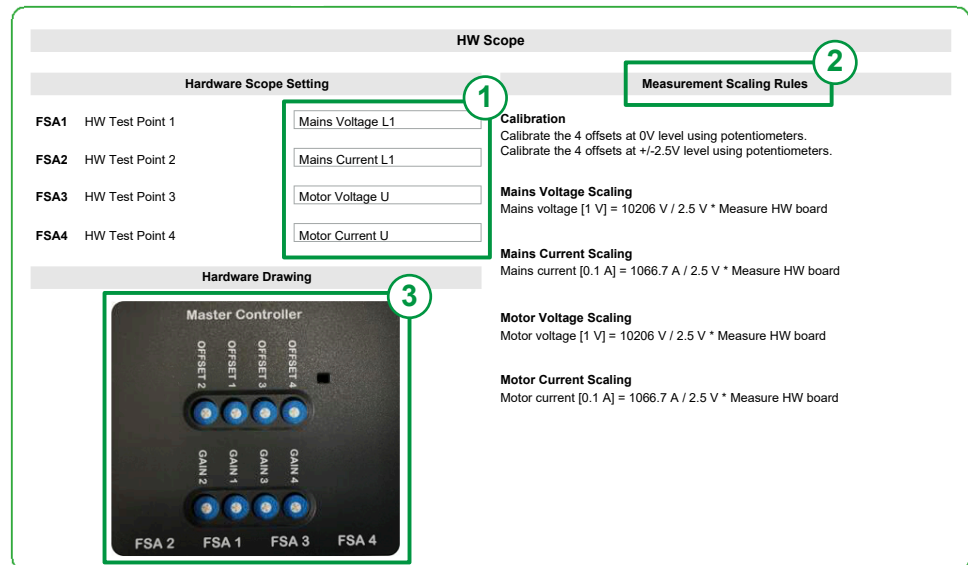
HMI Access

[Settings] → [My preferences] → [HW Scope]

About This Menu

This menu allows setting the values of the FPGA scope logical address (FSA1/FSA2/FSA3/FSA4) and also displays information about the actual maximum values for current and voltage (to determine the scaling).

NOTE: This menu is only available for service team.



1: Hardware test points are available to monitor FPGA selectable measurements, configurable through:

- Calibration
- Mains current I1
- Mains current I2
- Mains voltage UL1
- Mains voltage UL2
- Mains voltage UL3
- Motor current IU
- Motor current IV
- Motor current IW
- Motor voltage U
- Motor voltage V
- Motor voltage W
- DC Bus

2: Scaling rules (to determine the scaling)

3: Drawing

File Management

What's in This Chapter

[Export Files] Menu..... 319

[Export Files] Menu

HMI Access

[Settings] → [File Management] → [Export Files]

Overview

The HMI panel has an SD card slot and two USB host ports for external storage.

Export files mode can be used with several functions, some of them are managed in their own menus

Export configuration files to connected USB drive

☒ Drive configuration
 ☒ Error history
 ☒ Warning history
 ☒ Last 500 errors

☒ Recorded events
 ☒ Distribution logging
 ☒ KW reports
 ☒ Oscilloscope screenshots

☒ Custom Labels
 ☒ System Error Logs

E:\

No export status available

It is possible to select, using “checkbox” in this menu, the data to export among the following functions:

Functions	File Path	Customer file name	Description	Menu
Drive Configuration	<i>Ctrl - User:/Drive/Conf/ ConfPackage.cfg</i>	<i>ConfPackage.cfg</i>	Configuration upload	Export files
Error History	<i>Hmi- C:\temp\FaultHistory.csv</i>	<i>FaultHistory.csv</i>	Last 15 Error History	Export files
Warning History	<i>Hmi- C:\temp\500lastwarnings.html</i>	<i>Lastwarnings.html</i>	Last warning history	Export files
Last 500 Errors	<i>Hmi- C:\temp\500lastfaults.html</i>	<i>500lastfaults.html</i>	Last 500 error history	Last 500 Error , page 216
Event recorder	<i>Hmi- D:\KALA_persistent\Events \xxx</i>	<i>Events_record_YYYY_MM_DD.csv.gz</i>	All Events history	Event recorder , page 212
Custom labels	<i>n.a.</i>	<i>Custom_labels.txt</i>	Parameters code, old labels and new labels are exported.	Custom HMI , page 287
System Error Logs	<i>n.a.</i>	<i>ALyymmddnnnnnn.csv</i>	HMI System Error Log (date format YY/MM/DD)	HMI Log Internal Status

Functions	File Path	Customer file name	Description	Menu
Distribution Logging	Ctrl - User:/Drive/Log/Distribution.csv	<i>Distribution.csv</i>	Distribution logging	Export files
KW Report	Ctrl - User:/Drive/Log/KWReport.csv	<i>KWReport.csv</i>	KW Report logging	Export files
Oscilloscope Snapshot	Hmi- C:\temp\scope_screenshots\xxx	<i>scope_scn_YYYY_MM_DD_TTTT.png</i>	Oscilloscope capture	Oscilloscope , page 141
NOTE: Due to technical reasons, do not open your .CSV file by double-clicking it; Open your spreadsheet software and use the "import" functionality to open the file.				

Procedure

Step	Action
1	Select which function(s) you want to export.
2	Plug the USB key into the USB slot Result: The USB key is detected, a new element appears on the HMI.
3	Click on the "E:\\" element. Result: During the export a message indicates that the export in progress. Result: Data is then transferred to the USB key.

NOTE: The files are exported onto the selected USB key in the folder "ATV6000_export".

- If the folder already exists, it is overwritten.
- It is not possible to import from a USB key to HMI Panel

Display Parameters for DTM

What's in This Part

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Overview

Display menu shows monitoring data related to the drive and the application.

It offers an application-oriented display in terms of energy, cost, cycle, efficiency, ...

This is available with customized units and graphics view.

This information can be accessed using the **Display** Menu available in ATV6000 DTM launched through the SoMove FDT.

System Dashboard

What's in This Chapter

Monitoring DashBoard	322
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Elapsed Time customer	365
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Monitoring DashBoard

[Mains] Menu

DTM Access

[Display] → [System Dashboard] → [Monitoring Dashboard] → [Mains]

About This Menu

This menu shows the mains-related parameters.

Read-only parameters cannot be configured.

[Mains Voltage] **ULN**

Mains voltage based on AC bus measurement, motor running or stopped.

Value range	Description
According to nominal input voltage of product.	[No meas.] ULNUNK is displayed if no value is measured. Factory setting: –

[Mains Current] **ILN**

Mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Value range	Description
According to drive rating	Factory setting: –

[Mains Frequency] **FAC**

Mains frequency.

Value range	Description
-3476.7...3276.7 Hz	Factory setting: –

[Active Input Power] **IPRW**

Instantaneous active input power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Reactive Power] **IQRW**

Input reactive power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Apparent Input Power] **ISRW**

Apparent input power

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Power Factor] **PWF**

Input power factor.

Value range	Description
According to the drive rating	The value is displayed as a percentage Factory setting: _

[Input Ground Value] **GIVD**

Ground input monitoring display.

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.

Value range	Description
-	Read only, unit: 0.1% of input reference voltage Factory setting: _

[Power] Menu

DTM Access

[Display] → [System Dashboard] → [Monitoring Dashboard] → [Power]

About This Menu

This menu shows the power-related parameters.

Read-only parameters cannot be configured.

[Transfo Cab Temp 1] TT1M

Transformer cabinet temperature 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer U1] TP1U

Thermal transformer U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer V1] TP1V

Thermal transformer V1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer W1] TP1W***Thermal transformer W1.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Transfo Cab Temp 2] TT2M***Transformer cabinet temperature 2***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer U2] TP2U***Thermal transformer U2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer V2] TP2V***Thermal transformer V2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer W2] TP2W***Thermal transformer W2.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error] , serial communication link loss between PLC and Measurement BOX

[Motor] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Monitoring Dashboard] ➔ [Motor]

About This Menu

This menu shows the motor-related parameters.

Read-only parameters cannot be configured.

[Motor Frequency] **RFR**

This parameter displays the estimated rotor frequency without motor slip.

Value range	Description
-3,276.7...3,276.7 Hz	Factory setting: 0.0 Hz

[Motor voltage] **UOP**

Motor voltage.

Value range	Description
0...65,535 V	Factory setting: –

[Motor Current] **LCR**

Motor current.

Value range	Description
0.00...65,535 A	According to drive ratings Factory setting: –

[Motor Torque (Nm)] **OTQN**

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Value range	Description
-32,767 Nm...32,767 Nm	According to drive ratings Factory setting: –

[Acv Elc Out Pwr in kW] **EPRW**

Active Electrical output power in kW.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Power Estim Value] OPRW

Motor mechanical power estimation.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Output Ground Value] GOVD

Ground output monitoring display.

Monitoring behaviour from GOVD

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.
- Value only displayed when PoC PWM is enabling to avoid “capacitor parasite” value.
- When PoC PWM is not enabling GOVD = 0

Value range	Description
0...32767	Read only, unit: 0.1% output reference voltage Factory setting: _
Output reference voltage : example for “ATV6000••••A••66” = 6.6 kV	

[Thermal winding U1] THM1

Thermal winding U1.

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error] , sensor circuit error measurement

[Thermal winding V1] THM2

Thermal winding V1

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W1] THM3

Thermal winding W1

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 1] THM4

Thermal bearing 1.

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding U2] THM5

Thermal winding U2

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V2] THM6

Thermal winding V2.

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W2] THM7

Thermal winding W2.

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 2] THM8

Thermal bearing 2.

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

Mains data

[Mains Data] Menu

DTM Access

[Display] → [System Dashboard] → [Mains Data]

About This Menu

This menu shows the mains-related parameters.

Read-only parameters cannot be configured.

[Mains Voltage] **ULN**

Mains voltage based on AC bus measurement, motor running or stopped.

Value range	Description
According to nominal input voltage of product.	[No meas.] ULNUNK is displayed if no value is measured. Factory setting: –

[Mains voltage phase 1-2] **UL1**

Mains voltage phase 1-2.

Value range	Description
According to nominal input voltage of product.	Factory setting: –

[Mains voltage phase 2-3] **UL2**

Mains voltage phase 2-3.

Value range	Description
According to nominal input voltage of product.	Factory setting: –

[Mains voltage phase 3-1] **UL3**

Mains voltage phase 3-1

Value range	Description
According to nominal input voltage of product.	Factory setting: –

[Mains Current] **ILN**

Mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Value range	Description
According to drive rating	Factory setting: –

[Mains Current L1] I_{L1}

Mains current L1

Value range	Description
According to drive rating	Factory setting: –

[Mains Current L2] I_{L2}

Mains current L2

Value range	Description
According to drive rating	Factory setting: –

[Mains Current L3] I_{L3}

Mains current L3

Value range	Description
According to drive rating	Factory setting: –

[Mains Frequency] F_{AC}

Mains frequency.

Value range	Description
-3476.7...3276.7 Hz	Factory setting: –

[Active Input Power] I_{PRW}

Instantaneous active input power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Reactive Power] I_{QRW}

Input reactive power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Apparent Input Power] **ISRW**

Apparent input power

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Power Factor] **PWF**

Input power factor.

Value range	Description
According to the drive rating	The value is displayed as a percentage Factory setting: _

[Mains Unbalance Ratio] **UMV**

Mains unbalance ratio.

Value range	Description
-327.67...327.67%	Factory setting: –

[Input Ground Value] **GIVD**

Ground input monitoring display.

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.

Value range	Description
-	Read only, unit: 0.1% of input reference voltage Factory setting: _
Input reference voltage: example for "ATV6000••••A66••" = 6.6 kV	

Power stage data

These menus show the Transformer and Power cell thermal monitoring parameters.
Read-only parameters cannot be configured.

Following parameters are available if **[Cab Transfo PT100]** OCT2 is configured.

Thermal monitoring for:								
Transformer 1			Transformer 2			Power Cell 1	Power Cell 2	Control box
TT1M			TT2M					
Winding U	Winding V	Winding W	Winding U	Winding V	Winding W			
TP1U	TP1V	TP1W	TP2U	TP2V	TP2W	TPC1	TPC2	TCCM
Humidity monitoring for:								
Transformer 1			Transformer 2			Power Cell 1	Power Cell 2	Control box
HT1M			HT2M			HP1M	HP2M	HCCM

[Thermal transformer] Menu

DTM Access

[Display] → [System Dashboard] → [Power Stage Data] → [Thermal Transformer]

About This Menu

This menu shows the Transformer thermal monitoring parameters.
Read-only parameters cannot be configured.

[Transfo Cab Temp 1] TT1M

Transformer cabinet temperature 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer U1] TP1U

Thermal transformer U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]

Value range	Code / Value	Description
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer V1] TP1V

Thermal transformer V1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer W1] TP1W

Thermal transformer W1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Transfo Cab Temp 2] TT2M

Transformer cabinet temperature 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer U2] TP2U

Thermal transformer U2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]

Value range	Code / Value	Description
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer V2] TP2V

Thermal transformer V2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

[Thermal transformer W2] TP2W

Thermal transformer W2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], serial communication link loss between PLC and Measurement BOX

Drive data

[Drive Reference] Menu

DTM Access

[Display] → [System Dashboard] → [Drive Data] → [Drive Reference]

About This Menu

This menu shows the drive-related parameters.

[AIV1 Image input] AIV1

This parameter is read-only. It enables to display the speed reference applied to the motor, or the sensor value, via the fieldbus channel.

Setting	Description
-8,192...8,192	Factory setting: –

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

This parameter is read-only. It enables to display the speed reference applied to the motor, regardless of which channel for reference value has been selected.

Value range	Description
-300.0...300.0 Hz	Factory setting: 0 Hz

[Ref Frequency] LFR

This parameter only appears if the function has been enabled. It is used to change the reference frequency from the remote control.

Setting	Description
-300.0...300.0 Hz	Factory setting: –

[Torque ref.] LTR ★

Torque reference.

It is used to change the torque reference value from the remote control.

NOTE: When torque reference is configure to fieldbus ([Torque Ref 2 Channel] TR2 or [Torque ref. channel] TR1 = MDB or ETH or NET or CAN) It is necessary to write LTR before apply RUN command in order to activate the command channel.

Setting	Description
-300.0...300.0%	Factory setting: –

[Torque reference] TRR ★

This parameter can be accessed if:

- [M/S Device Role] MSDT is set to [Slave] SLAVE, and
- [M/S Control Type] MSCT is set to:
 - [Torque Direct] TRQD, or
 - [Torque Reverse] TRQR, or
 - [Torque Custom] TRQC.

Value range	Description
-32,767...32,767	Factory setting: –

[Measured Freq] FQS ★

Pulse input measured frequency.

This parameter can be accessed if [Frequency meter] FQF is not set to [Not Configured] NO.

Value range	Description
0...30 KHz	Factory setting: –

[Drive Status] Menu

DTM Access

[Display] → [System Dashboard] → [Drive Data] → [Drive Status]

About This Menu

This menu shows the status of the drive, cabinet Switch and on-lock status register.

[Device State] HMIS

Device state.

Value range	Code / Value	Description
[Autotuning]	TUN	Autotuning, the motor identification is running.
[Ready]	RDY	Drive ready, all conditions to start the drive are ok.
[Freewheel]	NST	Freewheel stop control, One or more Freewheel stop command are active. Check parameter [2/3-Wire Control] TCC and [Local 2/3-wire Control] PL10 for 3 wire control and verify the status of the dedicated inputs.
[Running]	RUN	Motor in steady state or run command present and zero reference
[Accelerating]	ACC	Acceleration
[Decelerating]	DEC	Deceleration
[Current Limitation]	CLI	In current limitation, the drive has reached the current limitation threshold according to parameter [Current Limitation] CLI.
[Mot. fluxing]	FLU	Fluxing function is activated
[No Mains Voltage]	NLP	Control is powered on but the DC bus is not loaded
[control.stop]	CTL	Control stopping
[Dec. adapt.]	OBR	Adapted deceleration
[Undervoltage Warning]	USA	Undervoltage warning
[TC Mode Active]	TC	TC indus mode activated
[In autotest]	ST	Self test in progress
[Autotest error]	FA	Self test not successful
[Autotest OK]	OK	Self test Ok
[EEProm test]	EP	Self test Eeprom error
[Operating State "Fault"]	FLT	Product has detected an error
[DCP Flashing Mode]	DCP	DCP flashing mode
[STO active]	STO	Safe Torque Off active
[Firmware Update]	FWUP	Firmware update
[Angle test]	ASA	Angle Value range

Value range	Code / Value	Description
[Voltage Limitation]	VLI	Motor speed limited by voltage limitation
[ON Lock active]	ONLK	Input MV ON Lock, input MV On Lock active, one or more interlocks are active to inhibit the MV Circuit Breaker closing contact.
[POE active]	POD	Power output disable active, the digital input POEA or POEB is not supplied with 24V.
[Torque Limitation]	TLI	Torque limitation, the drive has reached the torque limitation threshold according to parameter [Motor torque limit] TLIM , [Gen. torque limit] TLIG .
[Power Limitation]	PLI	Power limitation
[Init]	INI	Drive is initializing
[Reset]	RST	Drive is reset
[Synchro. To Mains]	SYTM	Synchronization to Mains
[Rdy Transfer To Mains]	RTTM	Ready to transfer to mains
[Transfer In Progress]	TTMI	Transfer to mains in progress
[Synchro. To Drive]	SYTD	Synchronization to drive
[SD Transfer Ready]	RTTD	Ready to transfer to drive
[Transfer To Drive In Progress]	TTDI	Transfer to drive in progress
[Run Delay In Progress]	RDIP	Run delay in progress

[Cabinet Switch Status] CMDS

This parameter describes the actual control channel of the drive. This can be realized by digital cabinet inputs (from Remote) or the Mode selector switch on the front panel of the drive.

Value range	Code / Value	Description
[Not Selected]	NO	No command selected
[Remote]	REM	Remote command selected
[Local]	LOC	Local command selected
[Panel]	PAN	Panel (HMI) command selected

[On Lock Register] PLO1

The drive inhibits the medium voltage to be energized by a relay interlocked with the medium voltage circuit breaker or fused switch. (Check circuit diagram for contact "Enable to close")

Bit	Description, Value
0	1 = Door Open
1	1 = Fan feedback not ready
2	1 = Mains OFF Button
3	1 = MVCB Tripped

Bit	Description, Value
4	1 = MVCB grounding contact
5	1 = MVCB Isolated
6	1 = Monitoring circuit A Onlock
7	1 = Monitoring circuit B Onlock
8	Reserved
9	Reserved
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[On Lock Source] PLO1

On Lock source.

Value range	Code / Value	Description
[No On Lock]	NO	No onlock
[Door Interlock On Lock]	DOOR	Door interlock on lock
[Cooling Fan On Lock]	FAN	Cooling fan on lock
[Mains Off Button On Lock]	MVOFF	Mains off button on lock

Value range	Code / Value	Description
[QF1 Feedback On Lock]	QF1T	QF1 feedback on lock
[QF1 Grounded Contact On Lock]	MVEARTH	QF1 grounded contact on lock
[QF1 isolated Contact On Lock]	MVISO	QF1 isolated contact on lock
[QF2 Feedback On Lock]	QF2T	QF2 feedback on lock
[QF3 Feedback On Lock]	QF3T	QF3 feedback on lock
[QF91 Feedback On Lock]	QF91T	QF91 feedback on lock
[QF11 Feedback On Lock]	QF11T	QF11 feedback on lock
[LV Surge Arrestor On Lock]	SURGE	LV surge arrestor on lock
[Fan Supply On Lock]	FANPWR	Fan supply on lock
[QF2 Feedback On Lock]	QF2E	QF2 feedback on lock
[QF2 Feedback On Lock]	QF2I	QF2 feedback on lock
[MV Power-ON Cycling On Lock]	CYCLE	MV power-on cycling on lock
[Reserved]	PL016	Reserved
[Bypass Breaker QF11=0 QF2=0 QF3=0 On Lock]	PL017	Bypass breaker QF11=0 QF2=0 QF3=0 On Lock
[Bypass Breaker QF11=0 QF2=1 QF3=0 On Lock]	PL018	Bypass breaker QF11=0 QF2=1 QF3=0 On Lock
[Bypass Breaker QF11=0 QF2=1 QF3=1 On Lock]	PL019	Bypass breaker QF11=0 QF2=1 QF3=1 On Lock
[Bypass Breaker QF11=1 QF2=0 QF3=0 On Lock]	PL020	Bypass breaker QF11=1 QF2=0 QF3=0 On Lock
[Bypass Breaker QF11=1 QF2=0 QF3=1 On Lock]	PL021	Bypass breaker QF11=1 QF2=0 QF3=1 On Lock
[Bypass Breaker QF11=1 QF2=1 QF3=1 On Lock]	PL022	Bypass breaker QF11=1 QF2=1 QF3=1 On Lock

Value range	Code / Value	Description
1 QF3=1 On Lock]		
[Bypass Breaker QF2=0 QF3=0 On Lock]	PL025	Bypass breaker QF2=0 QF3=0 On Lock
[Bypass Breaker QF2=0 QF3=1 On Lock]	PL026	Bypass breaker QF2=0 QF3=1 On Lock
[Bypass Breaker QF2=1 QF3=1 On Lock]	PL027	Bypass breaker QF2=1 QF3=1 On Lock
[QF3 Feedback On Lock]	PL031	QF3 feedback on lock
[QF3 Feedback On Lock]	PL032	QF3 feedback on lock

[Freewheel Stop Source] NSTS

Freewheel stop source displayed on HMI and DTM.

Value range	Code / Value	Description
[No Freewheel]	NO	No freewheel stop
[Cmd register CMD.0 Freewheel]	CMD0	Command register CMD.0 freewheel stop
[Cmd register CMD.1 Freewheel]	CMD1	Command register CMD.1 freewheel stop
[Cmd register CMD.2 Freewheel]	CMD2	Command register CMD.2 freewheel stop
[Run Order Freewheel]	RUN	Run order present freewheel stop
[Gating Locked Freewheel]	GAT	Gating locked freewheel stop
[3-wire Remote Order Freewheel]	3WT	3-wire remote order freewheel stop
[3-wire Local Order Freewheel]	3WC	3-wire local order freewheel stop
[Digital Input NST Freewheel]	LI	Digital input NST freewheel stop
[HMI Stop Key Freewheel]	STOP	HMI Stop key freewheel stop
[Synchronous transfer freewheel]	SYT	Synchronous transfer freewheel stop
[Voltage Dip Freewheel]	DIP	Voltage dip freewheel stop
[Unknown Cmd Channel Freewheel]	UCMD	Unknown command channel freewheel stop

Value range	Code / Value	Description
[Drive Profile Locked Freewheel]	VVDL	Drive profile locked freewheel stop
[DC injection on DI Freewheel]	DCLI	DC injection on digital input Freewheel stop
[Master Slave Freewheel]	MS	Master/slave
[MonitorCircuit A Freewheel]	IFAA	Cabinet IO interlock circuit A
[MonitorCircuit B Freewheel]	IFAB	Cabinet IO interlock circuit B
[MonitorCircuit C Freewheel]	IFAC	Cabinet IO interlock circuit C
[MonitorCircuit D Freewheel]	IFAD	Cabinet IO interlock circuit D

[Freewheel Stop Register 1] NST1

Freewheel Stop source register 1 displayed on HMI and DTM.

Bit	Description, Value
0	1 = CIA402 switch on command CMD.0
1	1 = CIA402 freewheel command CMD.1
2	1 = CIA402 Stop on Ramp command CMD.2
3	1 = Run order present
4	1 = Gating locked
5	1 = 3 wires command terminal
6	1 = 3 wires command cabinet
7	1 = NST logical input
8	1 = HMI stop key
9	1 = Synchronous transfer
10	1 = Voltage dip
11	1 = Unknown command channel
12	1 = VVD profile locked
13	1 = DC injection on logical input
14	1 = Master/slave
15	1 = Reserved ETO

[Freewheel Stop Register 2] NST2

Freewheel stop register 2 displayed on HMI and DTM.

Bit	Description, Value
0	1 = Monitoring circuit A freewheel stop
1	1 = Monitoring circuit B freewheel stop
2	1 = Monitoring circuit C freewheel stop

Bit	Description, Value
3	1 = Monitoring circuit D freewheel stop
4...15	Reserved

[POE fct status] POES

Power output Enable function status

Value range	Code / Value	Description
[Not active]	IDLE	POE not active
[Active]	POD	POE active
[Error]	FLT	POE in error

[POEx Input State] POEF

POEx digital input state.

Power Output Enable Off Feedback A and B monitoring

Bit	Description, Value
0	Set to 1: POE_A feedback status
1	Set to 1: POE_B feedback status

[STO fct status] STOS

Safe torque Off function Status

Value range	Code / Value	Description
[Not active]	IDLE	STO not active
[Active]	POD	STO active. This setting is displayed when STOA and STOB both have a low status.
[Error]	FLT	Drive is in error. This state is displayed when STOA and STOB have different status (High/Low).

[STOx Input State] STOF

Safe Torque Off Feedback A and B monitoring, read only parameter.

Bit	Description, Value
0	1 = STO_A feedback status active
1	1 = STO_B feedback status active

[Command Status] Menu

DTM Access

[Display] → [System Dashboard] → [Drive Data] → [Command Status]

About This Menu

Read only parameters cannot be configured.

This menu shows monitoring parameters linked to the command selection. For settings and configuration refer to the Command and Reference Menu , page 280.

[Command Channel] CMDC

Command channel.

Value range	Code / Value	Description
[Terminal]	TER	Terminal block source Factory Setting
[HMI]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	MDB	Command via Modbus
[Ref. Freq-CANopen]	CAN	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	MDB2	Modbus 2 source
[HMI Panel]	HMI P	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Cmd Register] CMD

[Control Mode] CHCF is not set to [I/O profile] IO

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	Set to 1: "Switch on"/Contactor command
1	Set to 0: "Disable voltage"/Authorization to supply AC power
2	Set to 0: "Stop on Ramp"
3	Set to 1: "Enable operation"/Run command
4 to 6	Reserved (= 0)
7	"Fault reset" acknowledgment active on 0 to 1 rising edge
8	Set to 1: Stop according to the [Type of stop] STT parameter without leaving the operation enabled state
9 and 10	Reserved (= 0)
11 to 15	Can be assigned to commands

Possible values in the I/O profile. On state command **[2-Wire Control]** 2C:

Bit	Description, Value
0	Forward (on state) command: 0: No forward command 1: Forward command NOTE: The assignment of bit 0 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bit 0 CD00 is only active if the channel of this control word is active.
1 to 15	Can be assigned to commands

Possible values in the I/O profile. On edge command **[3-Wire Control]** 3C:

Bit	Description, Value
0	Stop (run authorization): 0: Stop 1: Run is authorized on a forward or reverse command
1	Forward (on 0 to 1 rising edge) command
2 to 15	Can be assigned to commands
NOTE: The assignment of bits 0 and 1 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bits 0 CD00 and 1 CD01 are only active if the channel of this control word is active.	

[Ref Freq Channel] RFCC

Channel for reference frequency.

Identical to **[Command Channel]** CMDC

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

CIA402 [Status Register] ETA

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	"Ready to switch on", awaiting power section line supply
1	"Switched on", ready
2	"Operation enabled", running
3	Operating detected error state: 0: Inactive 1: Active
4	"Voltage enabled", power section line supply present:

Bit	Description, Value
	0: Power section line supply unavailable 1: Power section line supply present NOTE: When the drive is powered by the power section only, this bit is always at 1.
5	Stop on Ramp
6	"Switched on disabled", power section line supply locked
7	Warning: 0: No warning 1: Warning
8	Reserved (= 0)
9	Remote: command or reference via the network 0: Command or reference via the Display Terminal 1: Command or reference via the network
10	Targets reference reached: 0: The reference is not reached 1: The reference has been reached NOTE: When the drive is in speed mode, this is the speed reference.
11	"Internal limit active", reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits NOTE: When the drive is in speed mode, the limits are defined by the [Low Speed] <small>LSP</small> and [High Speed] <small>HSP</small> parameters.
12	Reserved
13	Reserved
14	"Stop key", STOP via stop key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal
15	"Direction", direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The combination of bits 0, 1, 2, 4, 5 and 6 defines the state in the DSP 402 state chart (see the communication manuals).	

Possible values in the I/O profile:

Bit	Description, Value
0	Reserved (= 0 or 1)
1	Ready: 0: Not ready 1: Ready
2	Running: 0: The drive does not start if a reference other than zero is applied 1: Running, if a reference other than zero is applied, the drive can start
3	Operating detected error state: 0: Inactive 1: Active

Bit	Description, Value
4	Power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present
5	Reserved (= 1)
6	Reserved (= 0 or 1)
7	Warning 0: No warning 1: Warning
8	Reserved (= 0)
9	Command via a network: 0: Command via the terminals or the Display Terminal 1: Command via a network
10	Reference reached: 0: The reference is not reached 1: The reference has been reached
11	Reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits NOTE: When the drive is in speed mode, the limits are defined by LSP and HSP parameters.
12	Reserved (= 0)
13	Reserved (= 0)
14	Stop via STOP key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal
15	Direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The value is identical in the CiA402 profile and the I/O profile. In the I/O profile, the description of the values is simplified and does not refer to the CiA402 (Drivecom) state chart.	

[PID Regulator] Menu

DTM Access

[Display] → [System Dashboard] → [Drive Data] → [PID Regulator]

About This Menu

NOTE: This function cannot be used with some other functions.
Read-only parameters cannot be configured.

[Internal PID ref] RPI ★

Internal PID reference.

Setting ()	Description
0...32,767	Factory setting: 150

[PID reference] RPC ★

PID reference.

Value range	Description
0...65,535	Factory setting: 0

[PID feedback] RPF ★

PID feedback.

Value range	Description
0...65,535	Factory setting: 0

[PID Error] RPE ★

PID error.

Value range	Description
-32,767...32,767	Factory setting: –

[PID Output] RPO ★

PID output.

Value range	Description
[PID Min Output] ^{POL} ...[PID Max Output] ^{POH}	Factory setting: _

[Thermal Monitoring] Menu

DTM Access

[Display] → [System Dashboard] → [Drive Data] → [Thermal Monitoring]

About This Menu

This menu shows the present thermal value measured via analog inputs used.

NOTE: An encoder can also be used with the thermal monitoring function.

[AI1 Th Value] TH1V, [AI3 Th Value] TH3V, [AI4 Th Value] TH4V, [AI5 Th Value] TH5V ★

AI1 thermal value, AI3 thermal value, AI4 thermal value and AI5 thermal value.

NOTE: AI4 and AI5 can only be accessed if the I/O extension option module (VW3A3203) has been inserted.

Value range	Description
-15.0...200.0 °C (step: 0.1 °C)	The unit depends on the setting of [Temperature unit] SUTP. Factory setting: Read-only parameter.
5.0...392.0 °F (step: 0.1 °F)	

[Enc Th Value] THEV ★

Encoder thermal value.

Value range	Description
-15...200 °C (step: 0.1 °C)	The unit depends on the setting of [Temperature unit] SUTP. Factory setting: Read-only parameter.
5.0...392.0 °F (step: 0.1 °F)	

Motor Data

[Motor Control Data] Menu

DTM Access

[Display] → [System Dashboard] → [Motor Data] → [Motor Control Data]

About This Menu

This menu shows the motor-related parameters.

Read-only parameters cannot be configured.

[Pre-Ramp Ref Freq] **FRH**

Reference frequency before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[Frequency Reference After Ramp] **FRO**

Frequency reference after ramp.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[Motor Frequency] **RFR**

This parameter displays the estimated rotor frequency without motor slip.

Value range	Description
-3,276.7...3,276.7 Hz	Factory setting: 0.0 Hz

[Motor Speed] **SPD**

This parameter displays the estimated rotor speed without motor slip.

Value range	Description
0...65,535 rpm	Factory setting: –

[Measured output fr.] **MMF**

This parameter can be accessed only if the encoder module has been inserted, and the available selections depend on the type of encoder module used.

Value range	Description
-3,276.7...3,276.7	Factory setting: –

[Motor Mechanical speed] SPDM

This parameter displays the estimated rotor speed with motor slip.

Value range	Description
[Undefined] UND or -32,767...32,765 rpm	Factory setting: –

[Signed Mech Speed] SPD1

Signed mechanical speed

Value range	Description
[Undefined] UND ...32,767 rpm	Factory setting: –

[Motor Current] LCR

Motor current.

Value range	Description
0.00...65,535 A	The value is according to drive ratings Factory setting: –

[Motor Current Id] IDM

Motor current Id.

Value range	Description
-32,767 A...32,767	The value is according to drive ratings Factory setting: –

[Motor Current Iq] IQM

Motor current Iq.

Value range	Description
-32,767 A...32,767	The value is according to drive ratings Factory setting: –

[Motor voltage] UOP

Motor voltage.

Value range	Description
0...65,535 V	Factory setting: –

[Motor torque] OTR

Output torque value (100% = [Nom Motor torque] TQN).

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Value range	Description
-300.0... 300.0%	Factory setting: –

[Motor Torque (Nm)] OTQN

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Value range	Description
-32,767 Nm...32,767 Nm	The value is according to drive ratings Factory setting: –

[Mot Mech Power in %] OPR

Output power in % (100% = nominal motor power).

Value range	Description
-300...300%	Factory setting: –

[Power Estim Value] OPRW

Motor mechanical power estimation.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz. Factory setting: _

[Acv Elc Out Pwr in %] EPR

Active Electrical output power estimation (100% = nominal motor electrical power).

Value range	Description
–300 ... 300%	The value is displayed in % Factory setting: _

[Acv Elc Out Pwr in kW] EPRW

Active Electrical output power in kW.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz . Factory setting: _

[Nom Motor torque] **TQN**

Computed nominal motor torque in Nm (+/- 2% tolerance).

Setting	Description
0.01...65,535 Nm	The value is according to drive rating. Factory setting: –

[Overload State 1] **TLS1**

Over-load monitoring state 1. Linked to **[Drive overload monit] OBR**– menu.

Value range	Description
0...100 %	Factory setting: -

[Overload State 2] **TLS2**

Over-load monitoring state 2. Linked to **[Drive overload monit] OBR**– menu.

Value range	Description
0...100 %	Factory setting: -

[Rotor Frequency] **RFQ**

This parameter displays the estimated rotor frequency with motor slip.

Value range	Description
[No Freq Applied] NO ...300.0 Hz	Factory setting: –

[Stator Frequency] **SFQ**

Stator frequency.

Value range	Description
[No Freq Applied] NO ...300.0 Hz	Factory setting: –

[Excitation Current Ref] **EXCR**

Excitation current reference.

Value range	Description
0...65535	Factory setting: _

[Motor Thermal Data] Menu

DTM Access

[Display] → [System Dashboard] → [Motor Data] → [Motor Thermal Data]

About This Menu

Read-only parameters cannot be configured.

Following parameters are available if **[Motor PT100 Usage]** **OCT1** is configured.

For the thermal monitoring function up to 16 PT100 are available (4 PT100 for each TM3 module):

- up to 8 PT100 for **thermal motor** function.
- up to 8 PT100 for **thermal sensor** function, page 359.

Possible Configurations for Thermal Motor Monitoring

Description	PT100 Sensors							
PT100 Number	1	2	3	4	5	6	7	8
PLC TM3 PT100 Name	U1	V1	W1	B1 (DE)	U2	V2	W1	B2 (NDE)
Temperature value	THM1	THM2	THM3	THM4	THM5	THM6	THM7	THM8
Usage example	Winding 1			Bearing 1	Winding 2			Bearing 2
Therm. error code	CF19			CF21	CF20			CF22
Therm. warning register	CW17			CW19	CW18			CW20
Therm. warning code								
Therm. error behavior	freewheel			free-wheel	freewheel			free-wheel
Redundant sensor	U2	V2	W2	S9	U1	V1	W1	S10
OC/SC error code	CF23			CF24	CF23			CF24
OC/SC warning code	AW08			AW09	AW08			AW09

[Thermal winding U1] **THM1**

Thermal winding U1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V1] **THM2**

Thermal winding V1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W1] THM3

Thermal winding W1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 1] THM4

Thermal bearing 1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding U2] THM5

Thermal winding U2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding V2] THM6

Thermal winding V2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal winding W2] THM7

Thermal winding W2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal bearing 2] THM8

Thermal bearing 2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Sensor Thermal Data] Menu

DTM Access

[Display] → [System Dashboard] → [Motor Data] → [Sensor Thermal Data]

About This Menu

Read-only parameters cannot be configured.

Following parameters are available if **[Motor PT100 Usage]** **OCT1** is configured.

For the thermal monitoring function up to 16 PT100 are available (4 PT100 for each TM3 module):

- up to 8 PT100 for **thermal motor** function , page 356.
- up to 8 PT100 for **thermal sensor** function.

Possible Configurations for Thermal System Monitoring

Description	PT100 Sensors							
PT100 Number	9	10	11	12	13	14	15	16
PLC TM3 PT100 Name	S9	S10	S11	S12	S13	S14	S15	S16
MAC PT100 Name	PT1	PT2	PT3	PT4	PT5	PT6	-	-
Temperature value**	THM9	THMA	THMB	THMC	THMD	THME	THMF	THMG
Usage example	Bearing 3	Bearing 4	GP (1)					
Therm. error code**	CF31	CF32	CF33	CF34	AF01	AF02	CF26	AF08
Therm. warning code**	CW25	CW26	CW27	CW28	AW06	AW07	AW15	AW16
Redundant sensor	B1 (DE)	B2 (NDE)	n.a.					
OC/SC error code	CF24 (2) / AF03 (3)		AF03					
OC/SC warning code	AW09 (2) / AW10 (3)		AW10					

(1) GP: General-Purpose (gearbox, pump bearing, etc).

(2) If redundant bearing group is configured.

(3) If redundant bearing group is not configured.

** Labels can be customized through **[Custom HMI] → [Labels]** Menu, page 287.

[Thermal Sensor 9] THM9

Thermal sensor 9.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 10] THMA***Thermal sensor 10***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 11] THMB***Thermal sensor 11.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 12] THMC***Thermal sensor 12***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 13] THMD***Thermal sensor 13.***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 14] THME***Thermal sensor 14***

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 15] THMF***Thermal sensor 15.***

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Thermal Sensor 16] THMG***Thermal sensor 16.***

Value range	Code / Value	Description
-200 °C...850 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Encoder Thermal data] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Motor Data] ➔ [Encoder Thermal data]

About This Menu

Read-only parameters cannot be configured.

Following parameters are available if **[Motor PT100 Usage]** **OCT1** is configured.

[Enc Th Value] **THEV**★

Encoder thermal value.

Value range	Description
-15...200 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	The unit depends on the setting of [Temperature unit] SUTP . Factory setting: Read-only parameter.

Bypass PoC Display

[Bypass PoC Display] Menu

DTM Access

[Display] → [System Dashboard] → [Bypass PoC Display]

About This Menu

This menu shows the Bypass PoC display related parameters, the following parameters are in read mode only.

NOTE: This Function is managed during the commissioning, refer to your local Schneider Electric representative.

It is recommended to have a power cell bypass option for critical process, in which case a reduction in capacity is preferable to a complete shutdown.

- When a power cell breaks down, it automatically bypasses the power cells in order to keep the VSD system running according capacity. This helps prevent production downtime or unexpected interruption.
- Replacement of the inoperative power-cell shall be arranged at the next scheduled maintenance. It is a contactless system which is fully integrated into the power cell, and this makes the power cell entirely modular even with a bypass function.

[Bypass PoC Status] BYPS

Bypass PoC Status.

Value range	Code / Value	Description
[PoC Stage Not Bypassed]	NO	No PoC bypassed
[1 PoC Stage Bypassed]	BYP1	1 PoC stage is bypassed
[2 PoC Stage Bypassed]	BYP2	2 PoC stage are bypassed
[3 PoC Stage Bypassed]	BYP3	3 PoC stage are bypassed
[4 PoC Stage Bypassed]	BYP4	4 PoC stage are bypassed
[PoC Stage Bypass Error]	FLT	PoC stage bypass error

[PoC Load Ratio] POCR

Power cell load ratio

Value range	Description
in %	Factory setting: _

[Un-bypass Automatic Counter] **BYP4**

Counter for Un-Bypass tries in the time of **BYP4** (set during commissioning). This counter gets reseted if there are no new UN-Bypass tries in **[Un-bypass Retry Time]** **BYP4**.

Value range	Description
0...65535	Factory setting: _

Elapsed Time customer

Introduction

These information can be accessed using the **Diagnostics** Menu available in ATV6000 DTM launched through the SoMove FDT or ATV6000 HMI Panel.

[Elapsed Time customer] Menu

DTM Access

[Display] → [System Dashboard] → [Elapsed Time customer]

About This Menu

This menu shows the drive, fan, and motor-related counters.

[Motor Run Time] **RTH**

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Value range	Description
0...4,294,967,295 s	Factory setting: _

[Power-on time] **PTH**

Power-on time (resettable) or counter can be set to 0 by using the **[Counter Reset]** **RPR** parameter.

Value range	Description
0...4,294,967,295 s	Factory setting: _

[Nb Of Starts] **NSM**

Number of motor starts (resettable) or counter can be set to 0 by using the **[Counter Reset]** **RPR** parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[Nb of MV Power On] **NSV**

Number of power on (resettable)

Value range	Description
0...4,294,967,295	Factory setting: _

[Fan Operation Time] FT01

As soon as [Fan Operation Time] FT01 reaches the predefined value of 45,000 hours / 162,000,000 seconds, a warning [Fan Counter Warning] FCTA is triggered.

[Fan Operation Time] FT01 counter can be set to 0 by using the [Counter Reset] RPR parameter.

Value range	Description
0...1,800,000,000 s	Factory setting: Read Only

[QF1 Nb Of Starts] QFP0

Number of power on mains circuit breaker (resettable) can be set to 0 by using the [Counter Reset] RPR parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[QF2 Nb Of Starts] QFP2

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the [Counter Reset] RPR parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[QF3 Nb Of Starts] QFP3

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the [Counter Reset] RPR parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[QF91 Nb Of Starts] QFP4

Number of power on inrush circuit breaker (resettable) can be set to 0 by using the [Counter Reset] RPR parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

Mains Voltage Circuit Breaker

[Mains Voltage Circuit Breaker] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Mains Voltage Circuit Breaker]

About This Menu

This menu shows the mains Circuit Breaker display related parameters

[QF1 State] **MVCB**

QF1 state.

Value range	Code / Value	Description
[QF1 Locked]	LOCK	QF1 Locked
[QF1 Closed]	MVCS	QF1 Closed
[QF1 Not Available]	NO	QF1 Not Available
[QF1 Enable To Close]	RDY	QF1 Enable To Close
[QF1 Tripped]	TRIP	QF1 Tripped

[QF1 Command State] **QF0S**

QF1 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

Inrush Circuit Breaker

[Inrush Circuit Breaker] Menu

DTM Access

[Display] ➔ [Dashboard System] ➔ [Inrush Circuit Breaker]

About This Menu

This menu shows the Inrush Circuit Breaker display related parameters

[QF91 Command State] QF4S

QF91 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according to start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according to stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

Fan Cooling

Overview

Fan Cooling Control Type

In the **Standard solution** (without fan cooling control), all fans are commanded according to fan supply type selected during commissioning.

With the **Fan Cooling Control** mode, additionally to the fan supply type, all fans are controlled in “running and stopping” mode through relay/contactors.

Regardless of your Fan cooling Control type, HMI Panel and DTM can monitor: ,
page 369

- Fan command order feedback
- Fan power supply feedback
- Fan cooling feedback
- Fan operating time

Redundant Fan Cooling

To increase the product reliability and fan service life, the drive is built with one additional fan in each transformer cabinet and power-cell cabinet.

If one fan of each cabinet is not working properly, the corresponding redundant fan is switched on by the drive controller. The fan that has been removed is identified, a warning or error is triggered, fan status and cooling cabinet status is monitored through the HMI , page 187 .

	Standard offers	Redundant fan offers
Cabinet transformer 1	Up to 4	N + 1
Cabinet transformer 2	Up to 4	N + 1
Cabinet power-cells	Up to 12	N + 1

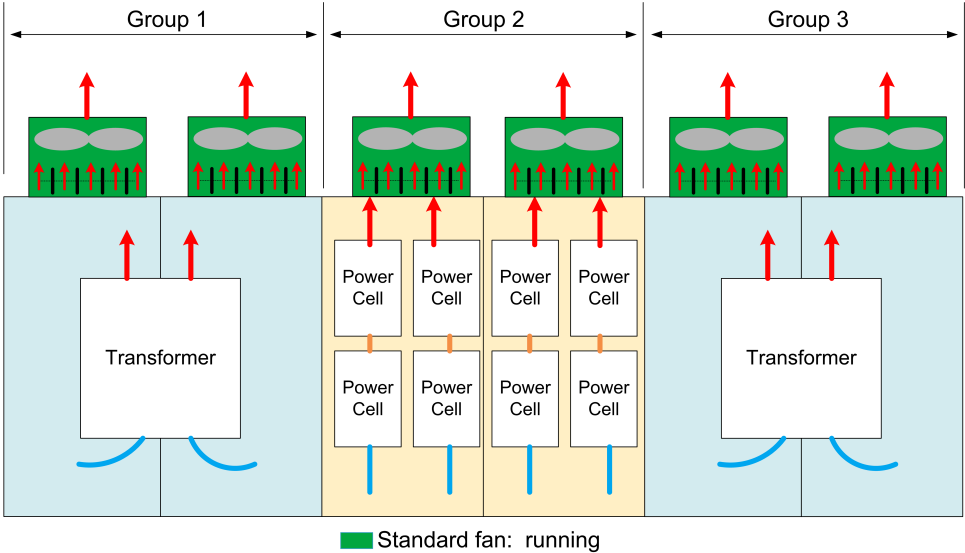
The degraded mode could be used in order to have less operational fan than standard solution. In this case, a service continuity can be reached.

Fan Group Cabinet.

Fan cooling system is split between two groups:

- Transformer Cabinet,
- Power cells Cabinet.

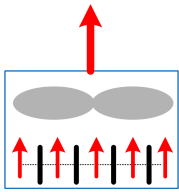
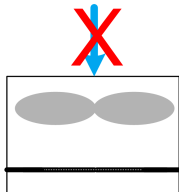
Each group has several Fans related to the power of the drive in order to help to manage correctly the temperature of transformer and Power Cell cabinets.



Fan Shutters

To avoid the incorrect air circulation, a device is added in order to stop airflow of any fans which are not in operation. This device is named "Fan shutter" and consists on a trap to block the air.

Shutters are commanded by HW

	Shutters are opened.
	Shutters are closed when an error is detected. In case of redundant mode, the cooling of the drive remains unchanged and just the airflow is modified. Otherwise the cooling of the drive is in degraded mode.

[Common Display] Menu

DTM Access

[Display] → [Dashboard System] → [Fan cooling] → [Common Display]

About This Menu

This menu shows the status register the fan cooling.

Read-only parameters cannot be configured.

[Cab status 1] BWS2

Cabinet status 1.

- The fan cooling feedback is linked to the register BWS2 bit 4, see following table.
- The fan power supply feedback is linked to the register BWS2 bit 6, see following table.

Bit	Description, Value
4	1: Fan cooling feedback
6	1: Fan Power Supply feedback

[Fan Cooling Control] Menu

DTM Access

[Display] → [Dashboard System] → [Fan cooling] → [Fan Cooling Control]

About This Menu

This menu shows the status, feedback and temperature of the fan cooling.

Read-only parameters cannot be configured.

[Cab status 1] BWS2

Cabinet status 1.

- The fan cooling feedback is linked to the register BWS2 bit 4, see following table.
- The fan power supply feedback is linked to the register BWS2 bit 6, see following table.
- The fan command order feedback is linked to the register BWS2 bit 9, see following table.

Bit	Description, Value
4	1: Fan cooling feedback
6	1: Fan Power Supply feedback
9	1: Fan command order

[Transfo Cab Temp 1] TT1M

Transformer cabinet temperature 1.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Transfo Cab Temp 2] TT2M

Transformer cabinet temperature 2.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Transfo 1 Winding Max Temp] TP1M

Transformer winding maximum temperature 1 (TP1U, TP1V, TP1W)

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Transfo 2 Winding Max Temp] TP2M

Transformer winding maximum temperature 2 (TP2U, TP2V, TP2W)

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	NA	[Sensor Not Available]
-32001	SC	[Sensor Short Circuit]
-32002	OC	[Sensor Open Circuit]
-32003	SE	[Sensor Internal Error], sensor circuit error measurement

[Redundant Fan Control] Menu

[Cooling Status] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Redundant Fan Control] → [Cooling Status]

About This Menu

This menu shows the cooling status of the redundant fan cooling.

Read-only parameters cannot be configured.

[Fan Cooling Status] FRM4

PoC cabinet fan cooling status

Value range	Code / Value	Description
[Not Configured]	NO	Cooling fan not configured
[Stopped]	STP	Cooling fan stop
[With Redundancy]	RED	Cooling fan with redundant capability
[Without Redundancy]	STD	Cooling fan without redundant capability
[Degraded Mode]	DEG	Cooling fan in degraded mode
[Error]	FLT	Cooling fan with error detected

[Fan Cooling Status] FRM5

Transformer 1 cabinet fan cooling status.

Value range	Code / Value	Description
[Not Configured]	NO	Cooling fan not configured
[Stopped]	STP	Cooling fan stop
[With Redundancy]	RED	Cooling fan with redundant capability
[Without Redundancy]	STD	Cooling fan without redundant capability
[Degraded Mode]	DEG	Cooling fan in degraded mode
[Error]	FLT	Cooling fan with error detected

[Fan Cooling Status] FRM6

Transformer 2 cabinet fan cooling status.

Value range	Code / Value	Description
[Not Configured]	NO	Cooling fan not configured
[Stopped]	STP	Cooling fan stop

Value range	Code / Value	Description
[With Redundancy]	RED	Cooling fan with redundant capability
[Without Redundancy]	STD	Cooling fan without redundant capability
[Degraded Mode]	DEG	Cooling fan in degraded mode
[Error]	FLT	Cooling fan with error detected

[Fan Feedback] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Redundant Fan Control] → [Fan Feedback]

About This Menu

This menu shows the feedback of the redundant fan control.

Read-only parameters cannot be configured.

[PoC Cabinet Fan Feedback] FRM0

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet PoC fan cooling feedback Nb_21
1	1 : Cabinet PoC fan cooling feedback Nb_22
2	1 : Cabinet PoC fan cooling feedback Nb_23
3	1 : Cabinet PoC fan cooling feedback Nb_24
4	1 : Cabinet PoC fan cooling feedback Nb_25
5	1 : Cabinet PoC fan cooling feedback Nb_26
6	1 : Cabinet PoC fan cooling feedback Nb_27
7	1 : Cabinet PoC fan cooling feedback Nb_28
8	1 : Cabinet PoC fan cooling feedback Nb_29
9	1 : Cabinet PoC fan cooling feedback Nb_2A
10	1 : Cabinet PoC fan cooling feedback Nb_2B
11	1 : Cabinet PoC fan cooling feedback Nb_2C
12	1 : Cabinet PoC fan cooling feedback Nb_2D
13, 14	Reserved
15	1: Cabinet PoC redundant fan command feedback

[Transformer Cabinet Fan Feedback] FRM1

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet transformer 1 fan cooling feedback Nb_31
1	1 : Cabinet transformer 1 fan cooling feedback Nb_32
2	1 : Cabinet transformer 1 fan cooling feedback Nb_33
3	1 : Cabinet transformer 1 fan cooling feedback Nb_34
4	1 : Cabinet transformer 1 fan cooling feedback Nb_35
5	Reserved
6	Reserved

Bit	Description, Value
7	1 : Cabinet transformer 1 redundant fan command feedback
8	1 : Cabinet transformer 2 fan cooling feedback Nb_41
9	1 : Cabinet transformer 2 fan cooling feedback Nb_42
10	1 : Cabinet transformer 2 fan cooling feedback Nb_43
11	1 : Cabinet transformer 2 fan cooling feedback Nb_44
12	1 : Cabinet transformer 2 fan cooling feedback Nb_45
13	Reserved
14	Reserved
15	1 : Cabinet transformer 2 redundant fan command feedback

[PoC Cabinet Shutter Feedback] FRM2

- Bit to 0 = Shutter is closed
- Bit to 1 = Shutter is open

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13	Reserved
14	Reserved
15	Reserved

[Transformer Cabinet Shutter Feedback] FRM3

Shutter feedback:

- 0: Shutter is close
- 1: Shutter is opened

Bit	Description, Value
0	1 : Cabinet transformer 1 fan shutter feedback Nb_31
1	1 : Cabinet transformer 1 fan shutter feedback Nb_32
2	1 : Cabinet transformer 1 fan shutter feedback Nb_33
3	1 : Cabinet transformer 1 fan shutter feedback Nb_34
4	1 : Cabinet transformer 1 fan shutter feedback Nb_35

Bit	Description, Value
5...7	Reserved
8	1 : Cabinet transformer 2 fan shutter feedback Nb_41
9	1 : Cabinet transformer 2 fan shutter feedback Nb_42
10	1 : Cabinet transformer 2 fan shutter feedback Nb_43
11	1 : Cabinet transformer 2 fan shutter feedback Nb_44
12	1 : Cabinet transformer 2 fan shutter feedback Nb_45
13...15	Reserved

[PoC Cabinet Shutter Warn] FRM7

PoC cabinet shutter warning.

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13...15	Reserved

[Transformer Cabinet Shutter Warn] FRM8

Transformer cabinet shutter warning.

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_31
1	1 : Cabinet PoC fan shutter feedback Nb_32
2	1 : Cabinet PoC fan shutter feedback Nb_33
3	1 : Cabinet PoC fan shutter feedback Nb_34
4	1 : Cabinet PoC fan shutter feedback Nb_35
5...7	Reserved
8	1 : Cabinet PoC fan shutter feedback Nb_41
9	1 : Cabinet PoC fan shutter feedback Nb_42
10	1 : Cabinet PoC fan shutter feedback Nb_43
11	1 : Cabinet PoC fan shutter feedback Nb_44
12	1 : Cabinet PoC fan shutter feedback Nb_45
13...15	Reserved

[Fan Redundant Command] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Redundant Fan Control] → [Fan Redundant Command]

About This Menu

This menu shows the status register of the redundant fan control command .

Read-only parameters cannot be configured.

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2. It is linked to the register BSW4 bit10...12

Bit	Description, Value
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state

[Fan Operating Time] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Redundant Fan Control] → [Fan Operating Time]

About This Menu

This menu shows the fan operation time counter of the redundant fan control.

Read-only parameters cannot be configured.

[Fan Operation Time] FT01

As soon as [Fan Operation Time] FT01 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning [Fan Counter Warning] FCTA is triggered.

[Fan Operation Time] FT01 counter can be set to 0 by using the [Counter Reset] RPR parameter.

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[Fan Remaining Time Before Service] FT00

Fan remaining time before service.

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[PoC Cabinet Redundant Fan Operating Time] FT10*PoC cabinet redundant fan operating time.*

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[Transformer 1 Cabinet Redundant Fan Operating Time] FT11*Transformer 1 cabinet redundant fan operating time.*

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[Transformer 2 Cabinet Redundant Fan Operating Time] FT12*Transformer 2 cabinet redundant fan operating time.*

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[Shutter Fan Monitoring] Menu

[Cooling Status] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Shutter Fan Monitoring] → [Cooling Status]

About This Menu

This menu shows the cooling status of the shutter fan monitoring.

Read-only parameters cannot be configured.

[Fan Cooling Status] FRM4

PoC cabinet fan cooling status.

Value range	Code / Value	Description
[Not Configured]	NO	Cooling fan not configured
[Stopped]	STP	Cooling fan stop
[With Redundancy]	RED	Cooling fan with redundant capability
[Without Redundancy]	STD	Cooling fan without redundant capability
[Degraded Mode]	DEG	Cooling fan in degraded mode
[Error]	FLT	Cooling fan with error detected

[Fan Cooling Status] FRM5

Transformer 1 cabinet fan cooling status.

Value range	Code / Value	Description
[Not Configured]	NO	Cooling fan not configured
[Stopped]	STP	Cooling fan stop
[With Redundancy]	RED	Cooling fan with redundant capability
[Without Redundancy]	STD	Cooling fan without redundant capability
[Degraded Mode]	DEG	Cooling fan in degraded mode
[Error]	FLT	Cooling fan with error detected

[Fan Cooling Status] FRM6

Transformer 2 cabinet fan cooling status.

Value range	Code / Value	Description
[Not Configured]	NO	Cooling fan not configured
[Stopped]	STP	Cooling fan stop

Value range	Code / Value	Description
[With Redundancy]	RED	Cooling fan with redundant capability
[Without Redundancy]	STD	Cooling fan without redundant capability
[Degraded Mode]	DEG	Cooling fan in degraded mode
[Error]	FLT	Cooling fan with error detected

[Fan Feedback Shutter] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Shutter Fan Monitoring] → [Fan Feedback Shutter]

About This Menu

This menu shows the feedback of the shutter fan monitoring.

Read-only parameters cannot be configured.

[PoC Cabinet Fan Feedback] FRM0

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet PoC fan cooling feedback Nb_21
1	1 : Cabinet PoC fan cooling feedback Nb_22
2	1 : Cabinet PoC fan cooling feedback Nb_23
3	1 : Cabinet PoC fan cooling feedback Nb_24
4	1 : Cabinet PoC fan cooling feedback Nb_25
5	1 : Cabinet PoC fan cooling feedback Nb_26
6	1 : Cabinet PoC fan cooling feedback Nb_27
7	1 : Cabinet PoC fan cooling feedback Nb_28
8	1 : Cabinet PoC fan cooling feedback Nb_29
9	1 : Cabinet PoC fan cooling feedback Nb_2A
10	1 : Cabinet PoC fan cooling feedback Nb_2B
11	1 : Cabinet PoC fan cooling feedback Nb_2C
12	1 : Cabinet PoC fan cooling feedback Nb_2D
13, 14	Reserved
15	1: Cabinet PoC redundant fan command feedback

[Transformer Cabinet Fan Feedback] FRM1

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet transformer 1 fan cooling feedback Nb_31
1	1 : Cabinet transformer 1 fan cooling feedback Nb_32
2	1 : Cabinet transformer 1 fan cooling feedback Nb_33
3	1 : Cabinet transformer 1 fan cooling feedback Nb_34
4	1 : Cabinet transformer 1 fan cooling feedback Nb_35
5	Reserved
6	Reserved

Bit	Description, Value
7	1 : Cabinet transformer 1 redundant fan command feedback
8	1 : Cabinet transformer 2 fan cooling feedback Nb_41
9	1 : Cabinet transformer 2 fan cooling feedback Nb_42
10	1 : Cabinet transformer 2 fan cooling feedback Nb_43
11	1 : Cabinet transformer 2 fan cooling feedback Nb_44
12	1 : Cabinet transformer 2 fan cooling feedback Nb_45
13	Reserved
14	Reserved
15	1 : Cabinet transformer 2 redundant fan command feedback

[PoC Cabinet Shutter Feedback] FRM2

- Bit to 0 = Shutter is closed
- Bit to 1 = Shutter is open

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13	Reserved
14	Reserved
15	Reserved

[Transformer Cabinet Shutter Feedback] FRM3

Shutter feedback:

- 0: Shutter is close
- 1: Shutter is opened

Bit	Description, Value
0	1 : Cabinet transformer 1 fan shutter feedback Nb_31
1	1 : Cabinet transformer 1 fan shutter feedback Nb_32
2	1 : Cabinet transformer 1 fan shutter feedback Nb_33
3	1 : Cabinet transformer 1 fan shutter feedback Nb_34
4	1 : Cabinet transformer 1 fan shutter feedback Nb_35

Bit	Description, Value
5...7	Reserved
8	1 : Cabinet transformer 2 fan shutter feedback Nb_41
9	1 : Cabinet transformer 2 fan shutter feedback Nb_42
10	1 : Cabinet transformer 2 fan shutter feedback Nb_43
11	1 : Cabinet transformer 2 fan shutter feedback Nb_44
12	1 : Cabinet transformer 2 fan shutter feedback Nb_45
13...15	Reserved

[PoC Cabinet Shutter Warn] FRM7

PoC cabinet shutter warning.

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13...15	Reserved

[Transformer Cabinet Shutter Warn] FRM8

Transformer cabinet shutter warning.

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_31
1	1 : Cabinet PoC fan shutter feedback Nb_32
2	1 : Cabinet PoC fan shutter feedback Nb_33
3	1 : Cabinet PoC fan shutter feedback Nb_34
4	1 : Cabinet PoC fan shutter feedback Nb_35
5...7	Reserved
8	1 : Cabinet PoC fan shutter feedback Nb_41
9	1 : Cabinet PoC fan shutter feedback Nb_42
10	1 : Cabinet PoC fan shutter feedback Nb_43
11	1 : Cabinet PoC fan shutter feedback Nb_44
12	1 : Cabinet PoC fan shutter feedback Nb_45
13...15	Reserved

[Fan Operating Time] Menu

DTM Access

[Display] → [Dashboard System] → [Fan Cooling] → [Shutter Fan Monitoring] → [Fan Operating Time]

About This Menu

This menu shows the fan operation time counter the shutter fan monitoring
Read-only parameters cannot be configured.

[Fan Operation Time] **FT01**

As soon as **[Fan Operation Time] FT01** reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning] FCTA** is triggered.

[Fan Operation Time] FT01 counter can be set to 0 by using the **[Counter Reset] RPR** parameter.

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[Fan Remaining Time Before Service] **FT00**

Fan remaining time before service.

Value range	Description
0...1,800,000,000 s	Factory setting : Read Only

[MVCB Switch-on Cycling] Menu

DTM Access

[Display] → [System Dashboard] → [MVCB Switch-on Cycling]

About This menu

The MVCB switch-on cycling function helps to prevent too many switching operations of QF1, QF91 and inrush resistors in a dedicated timeframe. All setting are described on Services document and managed during commissioning.

When function is activated, the risks of massive inrush / huge stress to the transformer are minimized. (Activated during commissioning)

Mains Circuit breaker Status is monitored to the HMI Panel, Diagnostic >> Status Synthesis >> QFx Status, page 180.

Main Behaviour

MVCB switch-on cycling function is based on **internal counter**, which counts the number of each MVCB switch on.

- Each time the MVCB is switched-on, this **internal counter** is increased by one *switch time window*.
- This **Internal counter** is decreased by 1 according to *switch time window*.

$$\text{SwitchTimeWindow} = \frac{\text{TimeWindow}}{\text{NbAllowedSwitchs}}$$

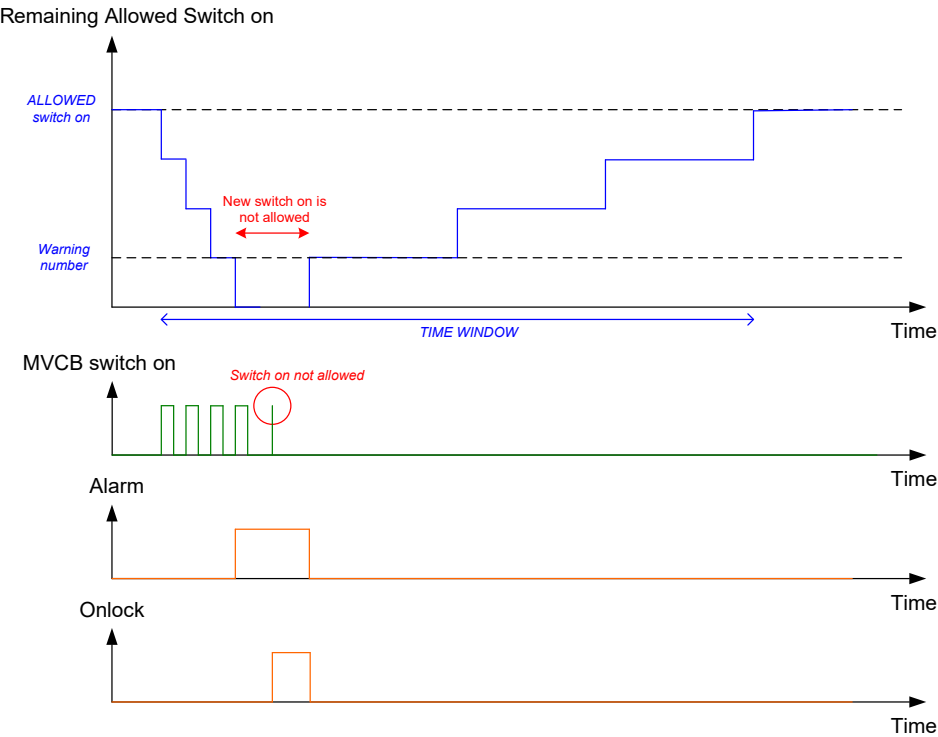
- TimeWindow = [MV Power-ON Cycling Time Window] MSPT
- NbAllowedSwitchs = [MV Power-ON Cycling On Lock Number] MSPN

Warning reaction:

- If this **internal counter** exceeds the [MV Power-ON Cycling Warning Number] MSPW then [MV Power-ON Cycling Warning] CW24 is raised.
 - **Internal counter** is reset as soon as the **internal counter** goes back under [MV Power-ON Cycling Warning Number] MSPW.

OnLock reaction:

- If **internal counter** exceeds the [MV Power-ON Cycling On Lock Number] MSPN then Onlock is raised. (PL01 = bit 14) HMIS = ONLK in order to avoid switch-on MVCB.
 - During “OnLock” states, each command to switch-on MVCB is not considered.
 - **Internal counter** is reset as soon as **internal counter** goes back under [MV Power-ON Cycling On Lock Number] MSPN.
 - When **ONLOCK** state is reset, if a command to close MVCB was present, this request is not considered, a new transition must be applying through close command.
 - Remaining time before next allowed switch-on, is monitored through [MV Power-ON Remaining Time] MSP0.
 - Number of switch-on allowed before on-lock, is monitored through [MV Power-ON Remaining Number] MSP1.



Time counting:

- Remaining time before next allowed switch-on, is monitored through **[MV Power-ON Remaining Time]** MSP0.
- Number of switch-on allowed before on-lock, is monitored through **[MV Power-ON Remaining Number]** MSP1.
- At power-up or after product reset :
 - **internal counter** is reset,
 - **[MV Power-ON Remaining Time]** MSP0 is reset,
 - **[MV Power-ON Remaining Number]** MSP1 is reset.

[MV Power-ON Remaining Time] MSP0

MV power-on remaining time.

Value range	Description
1...65535 min	Factory setting: _

[MV Power-ON Remaining Number] MSP1

MV power-on remaining number.

Value range	Description
0...65535	Factory setting: _

Energy Dashboard

What's in This Chapter

[Energy Monitoring Data] 389

[Energy Monitoring Data]

[Input Electrical energy] Menu

DTM Access

[Display] → [Dashboard Energy] → [Energy Monitoring Data] → [Input Electrical energy]

About This Menu

This menu presents the input electrical energy data.

Read-only parameters cannot be configured.

[Active Input Power] **IPRW**

Instantaneous active input power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Reactive Power] **IQRW**

Input reactive power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Apparent Input Power] **ISRW**

Apparent input power.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Input Power Factor] PWF*Input power factor.*

Value range	Description
According to the drive rating	The value is displayed as a percentage Factory setting: _

[Real Input Energy] IE4 ★*Real input Energy (TWh).*

This parameter can be accessed if [Real Input Energy] IE4 is not set to 0.

Value range	Description
-999...999 TWh	Factory setting: _

[Real Input Energy] IE3 ★*Real input Energy (GWh).*

Value range	Description
-999...999 GWh	Factory setting: _

[Real Input Energy] IE2 ★*Real input Energy (MWh).*

Value range	Description
-999...999 MWh	Factory setting: _

[Real Input Energy] IE1 ★*Real input Energy (kWh).*

Value range	Description
-999...999 kWh	Factory setting: _

[Real Input Energy] IE0 ★*Real input Energy (Wh).*

Value range	Description
-999...999 Wh	Factory setting: _

[Output Mechanical Energy] Menu

DTM Access

[Display] → [Dashboard Energy] → [Energy Monitoring Data] → [Output Mechanical Energy]

About This Menu

This menu presents the output mechanical energy data.

[Power Estim Value] **OPRW**

Motor mechanical power estimation.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Motor Consumption] **ME4** ★

Motor energy consumption (TWh).

This parameter can be accessed if [Motor Consumption] **ME4** is not set to 0.

Value range	Description
0...999 TWh	Factory setting: _

[Motor Consumption] **ME3** ★

Motor energy consumption (GWh).

Setting	Description
0...999 GWh	Factory setting: _

[Motor Consumption] **ME2** ★

Motor energy consumption (MWh).

Value range	Description
0...999 MWh	Factory setting: _

[Motor Consumption] **ME1** ★

Motor energy consumption (kWh).

Value range	Description
0...999 kWh	Factory setting: _

[Motor Consumption] ME0 ★

Motor energy consumption (Wh).

Value range	Description
0...999 Wh	Factory setting: _

[Output Electrical energy] Menu

DTM Access

[Display] → [Dashboard Energy] → [Energy Monitoring Data] → [Output Electrical energy]

About This Menu

This menu presents the output electrical energy data.

[Acv Elc Out Pwr in kW] **EPRW**

Active Electrical output power in kW.

Value range	Description
According to the drive rating	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz Factory setting: _

[Real Consumption] **OE4** ★

Real energy consumption (TWh).

This parameter can be accessed if [Real Consumption] **OE4** is not set to 0.

Value range	Description
-999...999 TWh	Factory setting: _

[Real Consumption] **OE3**

Real energy consumption (GWh).

Value range	Description
-999...999 GWh	Factory setting: _

[Real Consumption] **OE2**

Real energy consumption (MWh).

Value range	Description
-999...999 MWh	Factory setting: _

[Real Consumption] **OE1**

Real energy consumption (kWh).

Value range	Description
-999...999 kWh	Factory setting: _

[Real Consumption] OE0

Real energy consumption (Wh).

Value range	Description
-999...999 Wh	Factory setting: _

[Elc Egy Today] OCT

Electrical energy consumed TODAY by the motor (KWh).

Value range	Description
0...4,294,967,295 kWh	Factory setting: _

[Elc Egy Yesterday] OCY

Electrical energy consumed YESTERDAY by the motor (KWh).

Value range	Description
0...4,294,967,295 kWh	Factory setting: _

[Energy saving] Menu

DTM Access

[Display] → [Dashboard Energy] → [Energy Monitoring Data] → [Energy saving]

About This Menu

This menu presents the comparison in term of cost, energy, CO₂ between solutions with and without drive.

[Over-Consumption Thd] PCAH

Over-consumption threshold.

Value range	Description
[Under-Consumption Thd] PCAL...200.0%	Factory setting: 0.0%

[Under-Consumption Thd] PCAL

Under-consumption threshold.

Maximum value = PCAH if PCAH ≤ 100%.

Value range	Description
0.0...100.0% or [Over-Consumption Thd] PCAH if PCAH ≤ 100%	Factory setting: 0.0%

[Over/Under-Cons Delay] PCAT

Over/Under-consumption time delay.

Value range	Description
0...60 min	Factory setting: 1 min

[Elc Egy Today] OCT

Electrical energy consumed TODAY by the motor (KWh).

Value range	Description
0...4,294,967,295 kWh	Factory setting: _

[Elc Egy Yesterday] OCY

Electrical energy consumed YESTERDAY by the motor (KWh).

Value range	Description
0...4,294,967,295 kWh	Factory setting: _

[Peak Elec Out Power] MOEP*Peak electrical output power.*

Value range	Description
According to the drive rating	Factory setting: _

[Reference Power] PREF*Reference power without drive.*

Value range	Description
0.00...655.35 kW	Unit is in kW if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz . Factory setting: 0.00 kW

[kWh Cost] ECST*kWh Cost.*

Value range	Description
0.00...655.35 \$	Unit is in € if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in \$ if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz . Factory setting: _

[CO2 ratio] ECO2*CO2 ratio.*

Value range	Description
0.000...65.535 kg/kWh	Factory setting: 0.000 kg/kWh

[Energy Saved] ESAV*Energy Saved.*

Value range	Description
0...4,294,967,295 kWh	Factory setting: _

[Money Saved] CASH*Money saved.*

Value range	Description
0.00...42,949,672 \$	Unit is in € if [Motor Standard] BFR is set to [50 Hz]IEC 50Hz or in \$ if [Motor Standard] BFR is set to [60 Hz]NEMA 60Hz . Factory setting: _

[Co2 Saved] co2s**Co2 Saved.**

Value range	Description
0.0...429,496,729.5 t	Factory setting: _

[Power Warning] Menu

DTM Access

[Display] → [Dashboard Energy] → [Energy Monitoring Data] → [Power warning]

About This Menu

This menu presents the power level energy data.

[Over-Consumption Thd] PCA_H

Over-consumption threshold.

Value range	Description
[Under-Consumption Thd] $PCAL$...200.0%	Factory setting: 0.0%

[Under-Consumption Thd] $PCAL$

Under-consumption threshold.

Maximum value = PCA_H if $PCA_H \leq 100\%$.

Value range	Description
0.0...100.0% or [Over-Consumption Thd] PCA_H if $PCA_H \leq 100\%$	Factory setting: 0.0%

[Over/Under-Cons Delay] $PCAT$

Over/Under-consumption time delay.

Value range	Description
0...60 min	Factory setting: 1 min

Pump Dashboard

What's in This Chapter

[Application Parameters] Menu	399
[Pump parameters] Menu.....	401
[Pump Thermal Monitoring] Menu.....	404

[Application Parameters] Menu

DTM Access

[Display] → [Dashboard Pump] → [Application Parameters]

About This Menu

This menu displays information related to the application.

[Application state] APPS

This parameter indicates the drive application state.

Value range	Code / Value	Description
[Running]	RUN	No application function in progress; the drive is running
[Stop]	STOP	No application function in progress; the drive is not running
[Local Mode Active]	LOCAL	Forced local mode activated
[Channel 2 Active]	OVER	Override speed control mode activated
[Manual Mode Active]	MANU	Motor running; manual PID mode is active
[PID Active]	AUTO	Motor running; auto PID mode is active
[Boost In progress]	BOOST	The boost is in progress
[Sleep Active]	SLEEP	The sleep is active
[BL In Progress]	BQS	Backlash sequence is in progress

[Total Quantity] FS1C

Total Quantity.

Value range	Description
0...2,147,483,647	The value is according to [Flow rate unit] SUFR parameter. Factory setting: –

[Highest Flow] FS1K

Highest flow.

Value range	Description
-32,767...32,767	The value is according to [Flow rate unit] SUFR parameter. Factory setting: –

[Lowest Flow] FS1J

LowestFlow.

Value range	Description
-32,767...32,767	The value is according to [Flow rate unit] SUFR parameter. Factory setting: –

[Pump parameters] Menu

DTM Access

[Display] ➡ [Dashboard Pump] ➡ [Pump parameters]

About This Menu

This menu shows the pump-related parameters.

[Motor Run Time] **RTH**

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Value range	Description
0...4,294,967,295 s	Factory setting: _

[Motor Mechanical speed] **SPDM**

This parameter displays the estimated rotor speed with motor slip.

Value range	Description
0...65,535 rpm	Factory setting: _

[Nb Of Starts] **NSM**

Number of motor starts (resettable).

Value range	Description
0...4,294,967,295	Factory setting: _

[Acv Elc Out Pwr in kW] **EPRW**

Active Electrical output power in kW.

Value range	Description
-327.67...327.67 kW	Unit is in kW if [Motor Standard] BFR is set to [50 Hz] IEC 50Hz or in HP if [Motor Standard] BFR is set to [60 Hz] NEMA 60Hz. Factory setting: _

[Est. Pump Flow] **SLFV** ★

This parameter can be accessed if [Flow Estimation Mode] **FEM** is set to [No] NO.

Value range	Description
-32,767...32,767	The value is according to [Flow rate unit] SUFR parameter. Factory setting: –

[Est. Pump Head] SLHV ★

Estimated pump head value.

Value range	Description
-32,767...32,767	The value is according to [P sensor unit] SUPR parameter. Factory setting: –

[Efficiency] EFY

The efficiency is based on mechanical power.

Value range	Description
0.0...100.0 %	Factory setting: _

[Energy Cons. Ind.] ECI

Energy consumption indication is based on the consumption of the electrical power

Value range	Description
0...32,767	Factory setting: –

[Energy Perf. Ind] EPI

Energy performance indicator is based on the electrical power

Value range	Description
0...32,767	Factory setting: –

[Highest Eff.] EFYK

Highest Efficiency.

Value range	Description
0.0...100.0 %	Factory setting: _

[Lowest Eff.] EFYJ

Lowest Efficiency.

Value range	Description
0.0...100.0 %	Factory setting: _

[Pump Thermal Monitoring] Menu

DTM Access

[Display] ➔ [Dashboard Pump] ➔ [Dashboard Pump] ➔ [Pump Thermal Monitoring]

About This Menu

This menu shows the present thermal value measured via analog inputs used.

[AI1 Th Value] TH1V, [AI3 Th Value] TH3V, [AI4 Th Value] TH4V, [AI5 Th Value] TH5V

AI1 thermal value, AI3 thermal value, AI4 thermal value and AI5 thermal value.

NOTE: AI4 and AI5 can only be accessed if the I/O extension option module (VW3A3203) has been inserted.

Value range	Description
-15.0...200.0 °C (step: 0.1 °C)	The unit depends on the setting of [Temperature unit] SUTP). Factory setting: Read-only parameter.
5.0...392.0 °F (step: 0.1 °F)	

Dashboard M/S

What's in This Chapter

[M/S Local Display] Menu	405
[M/S System Display] Menu	407

[M/S Local Display] Menu

DTM Access

[Display] → [Dashboard M/S] → [M/S Local Display]

About This Menu

This menu presents the master slave local display related parameters.

Read-only parameters cannot be configured.

[M/S Status] MSS

M/S function status.

Value range	Code / Value	Description
[None]	NONE	Not configured
[M/S Local Control]	NACT	M/S local control
[M/S Not Ready]	NRDY	M/S not ready
[M/S Ready]	READY	M/S ready
[M/S Running]	RUN	M/S running
[M/S Warning]	ALARM	M/S warning

[M/S Master Speed Ref] MSMS ★

This parameter can be accessed if [M/S Comm Mode] MSCM is not set to [No] NO.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[M/S Master Torque Ref] MSMT ★

This parameter can be accessed if [M/S Comm Mode] MSCM is not set to [No] NO.

Value range	Description
-32,767...32,767 Nm	Factory setting: _

[M/S Local Speed Ref] MSSR ★

This parameter can be accessed if:

- **[M/S Comm Mode]** MSCM is not set to **[No]** NO, and
- **[M/S Device Role]** MSDT is set to **[Slave]** SLAVE.

Value range	Description
-300.0...300 Hz	Factory setting: _

[M/S Local Torque Ref] MSTR ★

This parameter can be accessed if:

- **[M/S Comm Mode]** MSCM is not set to **[No]** NO, and
- **[M/S Device Role]** MSDT is set to **[Slave]** SLAVE.

Value range	Description
-32,767...32,767 Nm	Factory setting: _

[Motor Frequency] RFR

This parameter displays the estimated rotor frequency without motor slip.

Value range	Description
-3,276.7...3,276.7 Hz	Factory setting: 0.0 Hz

[Motor Torque (Nm)] OTQN

Output torque value.

NOTE: The displayed value is always positive in motor and negative in generator mode whatever the direction.

Value range	Description
-32,767...32,767 Nm	The value is according to drive ratings Factory setting: _

[M/S System Display] Menu

DTM Access

[Display] → [Dashboard M/S] → [M/S System Display]

About This Menu

This menu presents the master slave system related parameters.

This menu can be accessed if [M/S Comm Mode] **MSCM** is set to [MultiDrive Link] **MDL**.

Read-only parameters cannot be configured.

[M/S Local Speed Ref] **MSSR** ★

This parameter can be accessed if:

- [M/S Comm Mode] **MSCM** is not set to [No] **NO**, and
- [M/S Device ID] **MSID** is set to [Slave 1] **SLV1**.

Value range	Description
-300.0...300 Hz	Factory setting: _

[M/S Local Torque Ref] **MSTR** ★

This parameter can be accessed if:

- [M/S Comm Mode] **MSCM** is not set to [No] **NO**, and
- [M/S Device ID] **MSID** is set to [Slave 1] **SLV1**.

Value range	Description
-32,767...32,767 Nm	Factory setting: _

[M/S Device Selection] **MSDN**

This parameter allows to select the device parameters to be displayed.

Value range	Code / Value	Description
[Master]	MSTER	Master Factory setting
[Slave 1]	SLV1	Slave 1
[Slave 2]	SLV2	Slave 2
[Slave 3]	SLV3	Slave 3
[Slave 4]	SLV4	Slave 4
[Slave 5]	SLV5	Slave 5
[Slave 6]	SLV6	Slave 6
[Slave 7]	SLV7	Slave 7
[Slave 8]	SLV8	Slave 8

Value range	Code / Value	Description
[Slave 9]	SLV9	Slave 9
[Slave 10]	SLV10	Slave 10

[M/S Device Status] MSDS

Status of the device selected using **[M/S Device Selection]** [MSDN](#).

Value range	Code / Value	Description
[None]	NONE	Not configured
[M/S Local Control]	NACT	Inactive
[M/S Not Ready]	NRDY	M/S not ready
[M/S Ready]	READY	M/S ready
[M/S Running]	RUN	M/S running
[M/S Warning]	ALARM	M/S warning

[M/S Device Speed Ref] MSXS

Displays the local speed reference value of the device selected using **[M/S Device Selection]** [MSDN](#).

Value range	Description
-300...300 Hz	Factory setting: _

[M/S Device Torque Ref] MSXT

Displays the local torque reference value of the device selected using **[M/S Device Selection]** [MSDN](#).

Value range	Description
-32,767...32,767 Nm	Factory setting: _

Bypass Drive

What's in This Chapter

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[Bypass Drive Monitoring] Menu

DTM Access

[Display] → [Bypass drive] → [Bypass Drive Monitoring]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider Electric representative.

With the Bypass Monitor function:

- all Circuit Breakers are handled manually by the user.
- all Circuit Breakers QF11/QF2/QF3 feedback are monitored.

[Drive Bypass Status] BYS0

Drive Bypass Status

Value range	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] BYS1

Bypass circuit breaker status

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYS C	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYS D	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2.

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13	Reserved
14	Reserved
15	Reserved

[Bypass Drive Control DOL] Menu

DTM Access

[Display] ➔ [Bypass drive] ➔ [Bypass Drive Control DOL]

About This Menu

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider representative.

With the Bypass Drive Control DOL function, all Circuit breakers are:

- **Controlled manually** according to user switch command order. (Close and open)
 - Control motor in DRIVE state
 - Control motor in DOL state
- **Controlled automatically** from Drive to DOL according to the error state. (Bypass after error triggering)

Control channel modes for bypass switch:

- Mode Local / Remote for switch command order (closed and open state)

[Drive Bypass Status] BYS0

Drive Bypass Status.

Value range	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] BYS1

Bypass circuit breaker status.

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1

Value range	Code / Value	Description
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYSD	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2.

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13	Reserved
14	Reserved
15	Reserved

[QF11 Command State] QF1S

QF11 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF2 Command State] QF2S

QF2 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF3 Command State] QF3S

QF3 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Bypass Drive CB status] BWS1

Bypass drive circuit breaker status.

Bit	Description, Value
0	Set to 1 : QF11 Closed request instruction (state or pulse)
1	Set to 1 : QF11 Open request instruction (state or pulse)
2	Set to 1 : QF2 Close request instruction (state or pulse)
3	Set to 1 : QF2 Open request instruction (state or pulse)
4	Set to 1 : QF3 Close request instruction (state or pulse)
5	Set to 1 : QF3 Open request instruction (state or pulse)
8	Set to 1 : QF11 Closed command instruction
9	Set to 1 : QF11 Open command instruction
10	Set to 1 : QF2 Close (1) command instruction
11	Set to 1 : QF2 Open (1) command instruction
12	Set to 1 : QF3 Close (1) command instruction
13	Set to 1 : QF3 Open command instruction

[QF11 Command State] QF1S

QF11 Command State.

Value range	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF2 Command State] QF2S

QF2 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF3 Command State] QF3S

QF3 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF5 Command State] QF5S

QF5 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Bypass Drive CB status] BWS1

Bypass drive circuit breaker status.

Bit	Description, Value
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction

[Bypass Drive Control SYNC] Menu

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider Electric representative.

Bypass control SYNC include 3 major functions:

- Command circuit breaker QF_x external > **Command by User manually**
- Synchronization to Mains (Transfer Drive to Mains) > **Drive Embedded function**
- Synchronization to Drive (Transfer Mains to Drive) > **Drive Embedded function**

[Bypass architecture with command QF_x external] Menu

DTM Access

[Display] → [Bypass drive] → [Bypass Drive Control SYNC] → [Bypass architecture with command QF_x external]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider Electric representative.

[Drive Bypass Status] BYS0

Drive Bypass Status.

Value	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] BYS1

Bypass circuit breaker status.

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYSD	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[SM Monitoring] STMM***Synchro to mains monitoring.***

Value	Code / Value	Description
[No Synchroniza- tion]	NO	No synchronization
[Synchro Pending]	PEND	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	STAB	Stabilization to mains frequency
[Synchroniza- tion]	SYNC	Synchronization
[Synchro Stabilization]	SYST	Synchronization stabilization
[Ready To Transfer]	RTT	Ready to transfer
[Synchroniza- tion Error]	STF	Synchronization error
[Transfer In Progress]	TTI	Transfer is in progress
[Transfer Completed]	CPLT	Transfer completed

[SD Monitoring] STDM***Synchro to drive monitoring.***

Value	Code / Value	Description
[No Synchroniza- tion]	NO	No synchronization
[Synchro Pending]	PEND	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	STAB	Stabilization to mains frequency
[Synchroniza- tion]	SYNC	Synchronization
[Synchro Stabilization]	SYST	Synchronization stabilization
[Ready To Transfer]	RTT	Ready to transfer
[Synchroniza- tion Error]	STF	Synchronization error
[Transfer In Progress]	TTI	Transfer is in progress
[Transfer Completed]	CPLT	Transfer completed

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2.

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13	Reserved
14	Reserved
15	Reserved

[QF11 Command State] QF1S

QF11 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF2 Command State] QF2S**QF2 Command State.**

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF3 Command State] QF3S**QF3 Command State.**

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF5 Command State] QF5S**QF5 Command State.**

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Bypass Drive CB status] BWS1**Bypass drive circuit breaker status.**

Bit	Description, Value
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction

[Bypass architecture with command QFx embedded] Menu

DTM Access

[Display] → [Bypass drive] → [Bypass Drive Control SYNC] → [Bypass architecture with command QFx embedded]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider Electric representative.

[Drive Bypass Status] BYS0

Drive Bypass Status.

Value	Code / Value	Description
[Not Configured]	NO	Bypass Drive not configured
[Undefined]	UND	Cabinet bypass control undefined
[Drive]	DRV	Cabinet bypass control Drive
[DOL]	DOL	Cabinet bypass control DOL
[DOL On Error]	DOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	TTMI	Transfer drive to mains in progress
[Transfer To Drive In Progress]	TTDI	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] BYS1

Bypass circuit breaker status.

Value range	Code / Value	Description
[Not configured]	NO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	BYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	BYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	BYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	BYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	BYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	BYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1

Value range	Code / Value	Description
[QF11=0 - QF2=1 - QF3=0]	BYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	BYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	BYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	BYSB	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	BYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	BYSD	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register.

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[SM Monitoring] STMM

Synchro to mains monitoring.

Value	Code / Value	Description
[No Synchronization]	NO	No synchronization
[Synchro Pending]	PEND	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	STAB	Stabilization to mains frequency

Value	Code / Value	Description
[Synchroniza- tion]	SYNC	Synchronization
[Synchro Stabilization]	SYST	Synchronization stabilization
[Ready To Transfer]	RTT	Ready to transfer
[Synchroniza- tion Error]	STF	Synchronization error
[Transfer In Progress]	TTI	Transfer is in progress
[Transfer Completed]	CPLT	Transfer completed

[SD Monitoring] STDM

Synchro to drive monitoring.

Value	Code / Value	Description
[No Synchroniza- tion]	NO	No synchronization
[Synchro Pending]	PEND	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	STAB	Stabilization to mains frequency
[Synchroniza- tion]	SYNC	Synchronization
[Synchro Stabilization]	SYST	Synchronization stabilization
[Ready To Transfer]	RTT	Ready to transfer
[Synchroniza- tion Error]	STF	Synchronization error
[Transfer In Progress]	TTI	Transfer is in progress
[Transfer Completed]	CPLT	Transfer completed

[Bypass Drive CB status 2] BWS4

Bypass drive circuit breaker status 2.

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed

Bit	Description, Value
	Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13	Reserved
14	Reserved
15	Reserved

[Cab status 2] BWS3

Cabinet status 2.

Bit	Description, Value
12	Set to 1 : Synchronous transfer to mains completed
13	Set to 1 : Synchronous transfer to drive completed

[QF11 Command State] QF1S

QF11 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF2 Command State] QF2S

QF2 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF3 Command State] QF3S

QF3 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[QF5 Command State] QF5S

QF5 Command State.

Value	Code / Value	Description
[Not Configured]	NO	Circuit breaker not configured
[In Start Pulse]	CBST	Circuit Breaker in Start pulse state
[Not Closed]	CBNC	Circuit Breaker Not Closed according start pulse
[Closed]	CBCS	Circuit breaker in Closed State
[In Stop Pulse]	CBSP	Circuit breaker in Stop pulse state
[Not Open]	CBNO	Circuit Breaker Not Opened according stop pulse
[Open]	CBOS	Circuit Breaker in Opened State

[Bypass Drive CB status] BWS1

Bypass drive circuit breaker status.

Bit	Description, Value
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction

[Distributed logging] Menu

DTM Access

[Display] → [Distributed logging] → [Distributed logging]

About This Menu

This menu allows you to store and select up to 4 parameters for data logging. The peak value for each parameter is also stored.

The distributed logging function allows to log up to four parameter distributions at the same time. Each parameter storage is synchronized with the same sample time.

The result of this function gives the possibility to extract a bar graph with 10 bars (every 10% of the defined maximum value) to visualize the distribution for each of the four selected parameters.

NOTE: If a log data exceeds the user defined maximum values for log distribution data, this value is not stored in the log distribution.

NOTE: Any modification of the data logging function configuration clears the data previously stored.

This function aims at extracting samples of data to store them. When available, these samples can be uploaded by other tools (SoMove and/or Webserver). Data logging meets the need to record and store data over time.

The drive can store the following data:

Type of [Data logging]	Description	[Data logging] storage: Automatic/ Manual	Access
Drive identification	Drive identification data	Automatic, in [Dashboard] DSH– menu	SoMove Webserver
Even warning logging	Warning logging	Automatic, in [Dashboard] DSH– menu	SoMove Webserver
Even error logging	Error logging	Automatic, in [Dashboard] DSH– menu	SoMove Webserver
Distribution logging	4 Distribution data	Manual	Webserver
Energy logging	1 Energy logging data	Automatic, in [Dashboard] DSH– menu	SoMove Webserver

Activation

To activate the function:

- Select 1 to 4 data to store through [Log Distrib. Data 1] LDD1 to [Log Distrib. Data 4] LDD4
- Set [Log Distrib State] LDEN to [Start] START

The logging starts as soon as the motor is running.

To stop logging, set [Log Distrib State] LDEN to [Stop] STOP.

[Log Distrib State] LDEN

Logging Distribution State.

Value range ()	Code / Value	Description
[Stop]	STOP	Distribution logging disabled Factory setting
[Start]	START	Distribution logs only when the motor is started
[Always]	ALWAYS	Distribution logs all the time
[Reset]	RESET	Distribution logging reset (configuration, data)
[Clear]	CLEAR	Clear distribution data
[Error]	ERROR	An error has been detected during distribution logging

[Log Distrib. Data 1] LDD1 to [Log Distrib. Data 4] LDD4

Log Distribution Data 1 to Log Distribution Data 4.

Value range ()	Code / Value	Description
[Distrib. Log. DISABLE]	NO	Distribution logging disable Factory setting
[Motor Frequency]	RFR	Motor frequency
[Motor Current]	LCR	Motor current
[Motor Speed]	SPD	Motor speed
[Motor Voltage]	UOP	Motor voltage
[Motor Mech. Power]	OPRW	Motor mechanical power
[Input Elec. Power]	IPRW	Input electrical power
[Output Elec. Power]	EPRW	Output electrical power
[Motor Torque]	OTR	Motor torque
[Mains Voltage]	ULN	Mains voltage
[DC BUS Voltage]	VBUS	DC BUS voltage
[PID feedback]	RPF	PID feedback
[AI1 Th Value]	TH1V	Thermal sensor AI1
[AI3 Th Value]	TH3V	Thermal sensor AI3
[AI4 Th Value]	TH4V	Thermal sensor AI4
[AI5 Th Value]	TH5V	Thermal sensor AI5
[Motor Thermal State]	THR	Motor thermal state
[Energy Consum. Ind.]	ECI	Energy consumption indicator
[Pump efficiency]	EFY	Pump efficiency
[Energy Perf. Ind.]	EPI	Energy performance indicator

Value range ()	Code / Value	Description
[Mains Current]	ILN	Main estimated current
[Input Reactive Power]	IQRW	Re-active Electrical input power estimation
[Input Power Factor]	PWF	Main power factor
[DBR Thermal State]	THB	Braking thermal state

[Log Distrib Spl Time] LDST

Logging Distribution Sample time.

Value range ()	Code / Value	Description
[200 ms]	200MS	200 ms
[1 second]	1S	1 s Factory setting
[2 seconds]	2S	2 s
[5 seconds]	5S	5 s

[Dist Max Val 1] LDM1 to [Dist Max Val 4] LDM4

Distribution data max value 1 to Distribution data max value 4.

The defined maximum value corresponds to 100 % of the stored data. Adjust the maximum value to adapt the full range of the logging distribution data.

Value range ()	Description
10...65,535	Factory setting: 65,535 (the setting can be adapted when modifying [Log Distrib. Data 1] LDD1...[Log Distrib. Data 4] LDD4.

IO Status

What's in This Chapter

[Control IO Status] Menu	433
[Cabinet IO Status] Menu	437

[Control IO Status] Menu

DTM Access

[Display] → [I/O Status] → [Control IO Status]

About This Menu

The **Control IO Status** menu shows the related inputs and outputs parameters from terminals and option module.

Note: all these parameters are in read-only and cannot be configured.

[Logic Inputs Physical Image] IL1I

Logic inputs physical image (From terminals and option module).

Bit	Description, Value
0	1 = "LI1" logic inputs physical image
1	1 = "LI2" logic inputs physical image
2	1 = "LI3" logic inputs physical image
3	1 = "LI4" logic inputs physical image
4	1 = "LI5" logic inputs physical image
5	1 = "LI6" logic inputs physical image
6	1 = "LI7" logic inputs physical image
7	1 = "LI8" logic inputs physical image
8	Reserved
9	Reserved
10	1 = "LI11" logic inputs physical image
11	1 = "LI12" logic inputs physical image
12	1 = "LI13" logic inputs physical image
13	1 = "LI14" logic inputs physical image
14	1 = "LI15" logic inputs physical image
15	1 = "LI16" logic inputs physical image

[Logic Inputs States] IL1R

Logic inputs states (From terminals and option module).

Bit	Description, Value
0	1 = "LI1" logic inputs real image
1	1 = "LI2" logic inputs real image
2	1 = "LI3" logic inputs real image
3	1 = "LI4" logic inputs real image
4	1 = "LI5" logic inputs real image
5	1 = "LI6" logic inputs real image
6	1 = "LI7" logic inputs real image
7	1 = "LI8" logic inputs real image
8	Reserved
9	Reserved
10	1 = "LI11" logic inputs real image
11	1 = "LI12" logic inputs real image
12	1 = "LI13" logic inputs real image
13	1 = "LI14" logic inputs real image
14	1 = "LI15" logic inputs real image
15	1 = "LI16" logic inputs real image

[Logical Output Image] OL1I

Logical output image (relays and logic outputs).

Bit	Description, Value
0	1 = "R1" relay physical image
1	1 = "R2" relay physical image
2	1 = "R3" relay physical image
3	1 = "R4" relay physical image
4	1 = "R5" relay physical image
5	1 = "R6" relay physical image
6	Reserved
7	Reserved
8	1 = "DO1" logic outputs physical image
9	1 = "DO2" logic outputs physical image
10	Reserved
11	Reserved
12	1 = "DO11" logic outputs physical image
13	1 = "DO12" logic outputs physical image
14	Reserved
15	Reserved

[Logic Outputs States] OL1R

Logic outputs states (relays and logic outputs).

Bit	Description, Value
0	1 = "R1" relay real image
1	1 = "R2" relay real image
2	1 = "R3" relay real image
3	1 = "R4" relay real image
4	1 = "R5" relay real image
5	1 = "R6" relay real image
6	Reserved
7	Reserved
8	1 = "DO1" logic outputs real image
9	1 = "DO2" logic outputs real image
10	Reserved
11	Reserved
12	1 = "DO11" logic outputs real image
13	1 = "DO12" logic outputs real image
14	Reserved
15	Reserved

[AI1] AI1C...[AI5] AI5C

Physical value AI1 to Physical value AI5.

Value range	Description
-32,767...32,767	Factory setting: –

[AQ1] AO1C...[AQ6] AO6C

AQ1 physical value to 6.

Value range	Description
-32,767...32,767	Factory setting: Read only

[PTO Frequency] PTOC

PTO frequency.

Value range	Description
0.00...655.35 kHz	Factory setting: Read only

[POEx Input State] POEF

Power Output Enable Off Feedback A and B monitoring.

Bit	Description, Value
0	Set to 1: POE_A feedback status
1	Set to 1: POE_B feedback status

[STOx Input State] **STOF**

Safe Torque Off Feedback A and B monitoring.

Bit	Description, Value
0	1 = STO_A feedback status active
1	1 = STO_B feedback status active

[Cabinet IO Status] Menu

DTM Access

[Display] → [I/O Status] → [Cabinet IO Status]

About This Menu

The **Cabinet IO Status** menu shows the related inputs and outputs parameters from Cabinet IO.

Note: all these parameters are in read-only and cannot be configured.

[Cabinet Input physical state] ILCI

Cabinet input physical state (DI50 ...DI64 from Cabinet).

Bit	Description, Value
0	1 = "DI50" logic inputs physical image
1	1 = "DI51" logic inputs physical image
2	1 = "DI52" logic inputs physical image
3	1 = "DI53" logic inputs physical image
4	1 = "DI54" logic inputs physical image
5	1 = "DI55" logic inputs physical image
6	1 = "DI56" logic inputs physical image
7	1 = "DI57" logic inputs physical image
8	1 = "DI58" logic inputs physical image
9	1 = "DI59" logic inputs physical image
10	1 = "DI60" logic inputs physical image
11	1 = "DI61" logic inputs physical image
12	1 = "DI62" logic inputs physical image
13	1 = "DI63" logic inputs physical image
14	1 = "DI64" logic inputs physical image
15	Reserved

[Cabinet IO : Logic inputs real image (bit0 = DI50 ...)] ILCR

Cabinet IO : Logic inputs real image (bit0 = DI50 ...).

Bit	Description, Value
0	1 = "DI50" logic inputs real image
1	1 = "DI51" logic inputs real image
2	1 = "DI52" logic inputs real image
3	1 = "DI53" logic inputs real image
4	1 = "DI54" logic inputs real image
5	1 = "DI55" logic inputs real image

Bit	Description, Value
6	1 = "DI56" logic inputs real image
7	1 = "DI57" logic inputs real image
8	1 = "DI58" logic inputs real image
9	1 = "DI59" logic inputs real image
10	1 = "DI60" logic inputs real image
11	1 = "DI61" logic inputs real image
12	1 = "DI62" logic inputs real image
13	1 = "DI63" logic inputs real image
14	1 = "DI64" logic inputs real image
15	Reserved

[Cab Fix Logic Input] ILC2

Cabinet fixed logic input state (DI70 ...DI78 from cabinet).

Bit	Description, Value
0	1 = "DI70" logic inputs physical image
1	1 = "DI71" logic inputs physical image
2	1 = "DI72" logic inputs physical image
3	1 = "DI73" logic inputs physical image
4	1 = "DI74" logic inputs physical image
5	1 = "DI75" logic inputs physical image
6	1 = "DI76" logic inputs physical image
7	1 = "DI77" logic inputs physical image
8	1 = "DI78" logic inputs physical image
9...15	Reserved

[Logic Input DI80 to DI95] ILC3

Logic Input DI80 to DI95.

Bit	Description, Value
0	1 = "DI80" logic inputs physical image
1	1 = "DI81" logic inputs physical image
2	1 = "DI82" logic inputs physical image
3	1 = "DI83" logic inputs physical image
4	1 = "DI84" logic inputs physical image
5	1 = "DI85" logic inputs physical image
6	1 = "DI86" logic inputs physical image
7	1 = "DI87" logic inputs physical image
8	1 = "DI88" logic inputs physical image
9	1 = "DI89" logic inputs physical image
10	1 = "DI90" logic inputs physical image

Bit	Description, Value
11	1 = "DI91" logic inputs physical image
12	1 = "DI92" logic inputs physical image
13	1 = "DI93" logic inputs physical image
14	1 = "DI94" logic inputs physical image
15	1 = "DI95" logic inputs physical image

[Cabinet Ouput physical state] OLCI

Cabinet Ouput physical state (Relays R60...R67 from cabinet).

Bit	Description, Value
0	1 = "R60" relay physical image
1	1 = "R61" relay physical image
2	1 = "R62" relay physical image
3	1 = "R63" relay physical image
4	1 = "R64" relay physical image
5	1 = "R65" relay physical image
6	1 = "R66" relay physical image
7	1 = "R67" relay physical image
8...15	Reserved

[Cabinet IO : Logic outputs real image (bit0 = R60 ...)] OLCR

Cabinet IO : Logic outputs real image (bit0 = R60 ...) (Relays R60...R67 from cabinet).

Bit	Description, Value
0	1 = "R60" relay real image
1	1 = "R61" relay real image
2	1 = "R62" relay real image
3	1 = "R63" relay real image
4	1 = "R64" relay real image
5	1 = "R65" relay real image
6	1 = "R66" relay real image
7	1 = "R67" relay real image
8...15	Reserved

[Cab Fix Logic Output] OLC2

Cabinet fixed logic output state (Relays R70...R87 from cabinet).

Bit	Description, Value
0	1 = "R70" relay physical image
1	1 = "R71" relay physical image

Bit	Description, Value
2	1 = "R72" relay physical image
3	1 = "R73" relay physical image
4	1 = "R74" relay physical image
5	1 = "R75" relay physical image
6	1 = "R76" relay physical image
7	1 = "R77" relay physical image
8	1 = "R80" relay physical image
9	1 = "R81" relay physical image
10	1 = "R82" relay physical image
11	1 = "R83" relay physical image
12	1 = "R84" relay physical image
13	1 = "R85" relay physical image
14	1 = "R86" relay physical image
15	1 = "R87" relay physical image

[Communication Status]

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[Command Status] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Communication Status] ➔ [Command Status]

About This Menu

Read-only parameters cannot be configured.

[Command Channel] CMDC

Command channel.

Value range	Code / Value	Description
[Terminal]	TER	Terminal block source Factory Setting
[HMI]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	MDB	Command via Modbus
[Ref. Freq-CANopen]	CAN	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	NET	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	ETH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	MDB2	Modbus 2 source
[HMI Panel]	HMIP	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLCI	PLC Inside source

[Cmd Register] CMD

[Control Mode] CHCF is not set to [I/O profile] IO.

Possible values in CiA402 profile, separate, or not separate mode:

Bit	Description, Value
0	Set to 1: "Switch on"/Contactor command
1	Set to 0: "Disable voltage"/Authorization to supply AC power
2	Set to 0: "Quick stop"
3	Set to 1: "Enable operation"/Run command
4 to 6	Reserved (= 0)
7	"Fault reset" acknowledgment active on 0 to 1 rising edge
8	Set to 1: Halt stop according to the [Type of stop] STT parameter without leaving the operation enabled state

Bit	Description, Value
9 and 10	Reserved (= 0)
11 to 15	Can be assigned to commands

Possible values in the I/O profile. On state command **[2-Wire Control] 2C**:

Bit	Description, Value
0	Forward (on state) command: 0: No forward command 1: Forward command NOTE: The assignment of bit 0 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bit 0 CD00 is only active if the channel of this control word is active.
1 to 15	Can be assigned to commands

Possible values in the I/O profile. On edge command **[3-Wire Control] 3C**:

Bit	Description, Value
0	Stop (run authorization): 0: Stop 1: Run is authorized on a forward or reverse command
1	Forward (on 0 to 1 rising edge) command
2 to 15	Can be assigned to commands
NOTE: The assignment of bits 0 and 1 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bits 0 CD00 and 1 CD01 are only active if the channel of this control word is active.	

[Ref Freq Channel] RFCC

Channel for reference frequency.

Identical to **[Command Channel] CMDC**.

[Pre-Ramp Ref Freq] FRH

Reference frequency before ramp.

Value range	Description
-300.0...300.0 Hz	Factory setting: _

[Modbus network diag] Menu

DTM Access

[Display] → [System Dashboard] → [Communication Status] → [Modbus network diag]

About This Menu

Used for the Modbus serial communication port. Refer to the Modbus serial embedded communication manual for a complete description.

[Mdb Frame Nb] M1CT

Mdb frame number: number of processed frames.

Value range	Description
0...65,535	Factory setting: Read only

[Mdb CRC errors] M1EC

Mdb CRC errors Modbus network CRC error countered: number of CRC errors

Value range	Description
0...65,535	Factory setting: Read only

[Modbus Cmd] CMD1

Command word image built with Modbus port source.

Identical to **[Cmd Register] CMD** , page 442.

[Modbus Ref Freq] LFR1

Frequency reference image built with Modbus port source (LFR_MDB).

Value range	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

DTM Access

[Display] → [System Dashboard] → [Communication Status] → [Modbus network diag] → [Com. scanner input map]

[Com Scan In1 val.] NM1

Com scan input 1 value, value of the first input word.

Value range	Description
0...65,535	Factory setting: Read only

[Com Scan In2 val.] NM2

Com scan input 2 value. Value of the second input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Com Scan In3 val.] NM3

Com scan input 3 value. Value of the third input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Com Scan In4 val.] NM4

Com scan input 4 value. Value of the fourth input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Com Scan In5 val.] NM5

Com scan input 5 value. Value of the fifth input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Com Scan In6 val.] NM6

Com scan input 6 value. Value of the sixth input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Com Scan In7 val.] NM7

Com scan input 7 value. Value of the seventh input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Com Scan In8 val.] NM8

Com scan input 8 value. Value of the eighth input word.

Identical to [Com Scan In1 val.] NM1 , page 444.

[Modbus HMI Panel] Menu

DTM Access

[Display] → [System Dashboard] → [Communication Status] → [Modbus HMI Panel]

About This Menu

Used for the Modbus HMI Panel .

[Mdb Net frames] M2CT

Mdb NET frames: number of processed frames.

Value range	Description
0...65,535	Factory setting: Read only

[Mdb Net CRC errors] M2EC

Mdb NET CRC errors: number of CRC errors

Value range	Description
0...65,535	Factory setting: Read only

[Modbus 2 Cmd] CMD6

Command word image built with Modbus 2 port source (CMD_MDB2 or CMD_HMIP).

Identical to **[Cmd Register]** CMD , page 442.

[Modbus 2 Ref Freq] LFR6

Frequency reference image built with Modbus 2port source (LFR_MDB2 or LFR_HMIP).

Value range	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

[Ethernet embedded] Menu

DTM Access

[Display] → [System Dashboard] → [Communication Status] → [Ethernet embedded]

About This Menu

Refer to the Modbus TCP Ethernet-IP communication manual for a complete description.

[ETH emb Rx frames] ERXE

Ethernet embedded Rx frames.

Value range ()	Description
0...4,294,967,295	Factory setting: Read only

[ETH emb Tx frames] ETXE

Ethernet embedded Tx frames.

Value range ()	Description
0...4,294,967,295	Factory setting: Read only

[ETH emb error frames] EERE

Ethernet embedded error frames.

Value range ()	Description
0...4,294,967,295	Factory setting: Read only

[Ethernet Rate Data] ARDE ★

Ethernet rate data.

Value range ()	Code / Value	Description
[Auto]	AUTO	Automatic
[10M. full]	10F	10 Mega bytes full-duplex
[10M. half]	10H	10 Mega bytes half-duplex
[100M. full]	100F	100 Mega bytes full-duplex
[100M. half]	100H	100 Mega bytes half-duplex

[Ethernet Embd cmd.] CMD5

Command word image built with Ethernet embedded source.

Identical to [Cmd Register] CMD , page 442.

[Ethernet Embd Ref Freq] LFR5

Embedded ethernet reference frequency.

Value range	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

[Ethernet Module] Menu

DTM Access

[Display] → [Communication map] → [Ethernet Module]

About This Menu

Following parameters are accessible if Ethernet-IP - Modbus TCP Module has been inserted.

[ETH opt Rx frames] ERXO

Ethernet option Rx frames.

Value range ()	Description
0...4,294,967,295	Factory setting: _

[ETH opt Tx frames] ETXO

Ethernet option Tx frames.

Value range ()	Description
0...4,294,967,295	Factory setting: _

[ETH opt error frames] EERO

Ethernet option error frames.

Value range ()	Description
0...4,294,967,295	Factory setting: _

[Controller Embd Cmd] CMD7

Controller Embedded command register.

Identical to [Cmd Register] [CMD](#) , page 442.

[Actual rate] ARD

Actual rate and duplex.

Value range ()	Code / Value	Description
[Auto]	AUTO	Automatic
[10M. full]	10F	10 Mega bytes full-duplex

Value range ()	Code / Value	Description
[10M. half]	10H	10 Mega bytes half-duplex
[100M. full]	100F	100 Mega bytes full-duplex
[100M. half]	100H	100 Mega bytes half-duplex

[Ethernet Error Code] ERR

Ethernet error Code.

Value range ()	Description
0...65,535	Factory setting: Read only

[Controller Emdb Ref] LFR7

Frequency reference image built with PLC inside source (LFR_HMIP).

Value range ()	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

[CANopen] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Communication Status] ➔ [CANopen]

About This Menu

CANopen® image. Refer to the CANopen® communication module manual.

[Canopen NMT state] NMTS

Canopen NMT state.

Value range	Code / Value	Description
[Boot]	BOOT	Bootup
[Stopped]	STOP	Stopped
[Operation]	OPE	Operational
[Pre-op]	POPE	Pre-Operational

[Number of TX PDO] NBTp

Number of TX PDO.

Value range ()	Description
0...65,535	Factory setting: Read only

[Number of RX PDO] NBRp

Number of RX PDO.

Value range ()	Description
0...65,535	Factory setting: Read only

[CANopen Error] ERCO

CANopen error.

Value range	Description
0...5	Factory setting: Read only

[RX Error Counter] REC1

RX error counter (not saved at power off).

Value range	Description
0...65,535	Factory setting: Read only

[TX Error Counter] TEC1

TX error counter (not saved at power off).

Value range	Description
0...65,535	Factory setting: Read only

[CANopen Cmd] CMD2

Command word image built with CANopen® port source.

Identical to **[Cmd Register] CMD**, page 442.

[CAN Ref Freq] LFR2

Frequency reference image built with CANopen® port source (LFR_CAN).

Value range	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

DTM Access

[Display] → [Communication Status] → [CANopen map] → [PDO1 image]

[Receive PDO1-1] RP11

Receive PDO1-1, first frame of the receive PDO1.

Value range	Description
0...65,535	Factory setting: Read only

[Receive PDO1-2] RP12

Second frame of the receive PDO1.

Identical settings as in **[Receive PDO1-1] RP11**.

[Receive PDO1-3] RP13

Third frame of the receive PDO1.

Identical settings as in **[Receive PDO1-1] RP11**.

[Receive PDO1-4] RP14

Fourth frame of the receive PDO1.

Identical settings as in **[Receive PDO1-1]** RP11.

[Transmit PDO1-1] TP11

Transmit PDO1-1, first frame of the transmit PDO1.

Value range	Description
0...65,535	Factory setting: Read only

[Transmit PDO1-2] TP12

Second frame of the transmit PDO1.

Identical settings as in **[Transmit PDO1-1]** TP11.

[Transmit PDO1-3] TP13

Third frame of the transmit PDO1.

Identical settings as in **[Transmit PDO1-1]** TP11.

DTM Access

[Display] → [Communication Status] → [CANopen map] → [PDO2 image]

[Receive PDO2-1] RP21

Receive PDO2-1, first frame of the receive PDO2.

Value range	Description
0...65,535	Factory setting: Read only

[Receive PDO2-2] RP22

Second frame of the receive PDO2.

Identical settings as in **[Receive PDO2-1]** RP21.

[Receive PDO2-3] RP23

Third frame of the receive PDO2.

Identical settings as in **[Receive PDO2-1]** RP21.

[Receive PDO2-4] RP24

Fourth frame of the receive PDO2.

Identical settings as in [Receive PDO2-1] RP21.

[Transmit PDO2-1] TP21

First frame of the transmit PDO2.

Value range	Description
0...65,535	Factory setting: Read only

[Transmit PDO2-2] TP22

Second frame of the transmit PDO2.

Identical settings as in [Transmit PDO2-1] TP21.

[Transmit PDO2-3] TP23

Third frame of the transmit PDO2.

Identical settings as in [Transmit PDO2-1] TP21.

[Transmit PDO2-4] TP24

Fourth frame of the transmit PDO2.

Identical settings as in [Transmit PDO2-1] TP21.

DTM Access

[Display] → [Communication Status] → [CANopen map] → [PDO3 image]

[Receive PDO3-1] RP31

Receive PDO3-1, first frame of the receive PDO3.

Value range	Description
0...65,535	Factory setting: Read only

[Receive PDO3-2] RP32

Second frame of the receive PDO3.

Identical settings as in [Receive PDO3-1] RP31.

[Receive PDO3-3] RP33

Third frame of the receive PDO3.

Identical settings as in **[Receive PDO3-1]** RP31.

[Receive PDO3-4] RP34

Fourth frame of the receive PDO3.

Identical settings as in **[Receive PDO3-1]** RP31.

[Transmit PDO3-1] TP31

Transmit PDO3-1, first frame of the transmit PDO3.

Value range	Description
0...65,535	Factory setting: Read only

[Transmit PDO3-2] TP32

Second frame of the transmit PDO3.

Identical settings as in **[Transmit PDO3-1]** TP31.

[Transmit PDO3-3] TP33

Third frame of the transmit PDO3.

Identical settings as in **[Transmit PDO3-1]** TP31.

[Transmit PDO3-4] TP34

Fourth frame of the transmit PDO3.

Identical settings as in **[Transmit PDO3-1]** TP31.

[DeviceNet] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Communication Status] ➔ [DeviceNet]

About This Menu

Following parameters can be accessed if DeviceNet module (VW3A3609) has been inserted.

[Data rate used] BDRU

Data rate used.

Value range	Code / Value	Description
[Automatic]	AUTO	Automatic detection Factory setting
[125 Kbps]	125K	125,000 Bauds
[250 Kbps]	250K	250,000 Bauds
[500 Kbps]	500K	500,000 Bauds

[external error detected by fieldbus info] EPF2

EPF2 (external error detected by fieldbus) info.

Value range	Description
0...1	0: No Error 1: Profile error, verify the settings on [Command and Reference] CRP– menu.

[Fieldbus Com Interrupt] CNF

Fieldbus module Communication interruption. Refer to the related fieldbus manual.

Value range	Description
0...65,535	0: No error 1: Error triggered by network 2: Duplicated MAC ID 3: FIFO Rx error 4: FIFO Tx error 5: CAN overrun 6: Transmission error 7: Bus off 8: IO timeout 9: Acknowledge error 10: DeviceNet network reset 11: IO connection deleted 12: No network power 13: IOC error

[COM. Module cmd.] CMD3

Command word image built with fieldbus module source.

Identical to [Cmd Register] CMD , page 442.

[Com Module Ref Freq] LFR3

Frequency reference image built with fieldbus module source (LFR_COM).

Value range	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

[Profibus] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Communication Status] ➔ [Profibus Diag]

About This Menu

Following parameters can be accessible if Profibus DP module (VW3A3607) has been inserted.

[Data rate used] BDRU

Data rate used.

Value range ()	Code / Value	Description
[Automatic]	AUTO	Automatic detection Factory setting
[9600 bps]	9600	9,600 Bauds
[19200 bps]	19200	19,200 Bauds
[93.75 Kbps]	93750	93,750 Bauds
[187.5 Kbps]	187K5	187,500 Bauds
[500 Kbps]	500K	500,000 Bauds
[1.5 Mbps]	1M5	1.5 MBauds
[3 Mbps]	3M	3 MBauds
[6 Mbps]	6M	6 MBauds
[12 Mbps]	12M	12 MBauds

[PPO profile used] PREFL

PPO profile used.

Value range ()	Code / Value	Description
[Not Configured]	UNCG	Not configured
[1]	1	PROFIdrive
[100]	100	Device specific
[101]	101	Device specific
[102]	102	Device specific
[106]	106	Device specific
[107]	107	Device specific

[DP Master Active] DPMA

DP Master active: 1 or 2.

Value range ()	Code / Value	Description
[Master 1]	1	Master 1 Factory setting
[Master 2]	2	Master 2

[external error detected by fieldbus info] EPF2

EPF2 (external error detected by fieldbus) info.

[Fieldbus Com Interrupt] CNF

Fieldbus module Communication interruption. Refer to the related fieldbus manual.

Value range ()	Description
0...65,535	0: No error 1: Network timeout for received requests 2: Identification error between the module and the master 3: Master in clear mode 4: Master class 2 timeout

[InternCom Error1] ILF1

Internal communication interruption 1. Refer to the related fieldbus manual.

Value range ()	Description
0...65,535	Factory setting: Read only

[COM. Module cmd.] CMD3

Command word image built with fieldbus module source.

Identical to **[Cmd Register] CMD**, page 442.

[Com Module Ref Freq] LFR3

Frequency reference image built with fieldbus module source (LFR_COM).

Value range ()	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

[PROFINET] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Communication Status] ➔ [PROFINET]

About This Menu

Following parameters are accessible if PROFINET® module (VW3A3627) has been inserted.

[PPO profile used] **PRFL**

PPO profile used.

Value range ()	Code / Value	Description
[Not Configured]	UNCG	Not configured
[1]	1	PROFIdrive
[100]	100	Device specific
[101]	101	Device specific
[102]	102	Device specific
[106]	106	Device specific
[107]	107	Device specific

[iPar Status] **IPAE**

iPar service status.

Value range ()	Code / Value	Description
[Idle State]	IDLE	Idle state
[Init]	INIT	Initialization
[Configura- tion]	CONF	Configuration
[Ready]	RDY	Ready
[Operational]	OPE	Operational
[Not Configured]	UCFG	Not configured
[Unrecovera- ble Error]	UREC	Unrecoverable detected error

[iPar Error Code] **IPAD**

iPar detected error code.

Value range ()	Description
0...5	Factory setting: Read only

[DP Master Active] DPMA

DP Master active: 1 or 2.

Value range ()	Code / Value	Description
[Master 1]	1	Master 1 Factory setting
[Master 2]	2	Master 2

[external error detected by fieldbus info] EPF2

EPF2 (external error detected by fieldbus) info.

Value range	Description
0...13	0: No Error 9: Duplicate IP 10: No IP address 12: IPAR unconfigured 13: IPAR file unrecognized

[Fieldbus Com Interrupt] CNF

Fieldbus module Communication interruption.

Value range ()	Description
0...65,535	0: No error 1: Network timeout 2: Network overload 3: Ethernet carrier loss 17: IOC scanner error

[InternCom Error1] ILF1

Internal communication interruption 1.

Value range ()	Description
0...65,535	Factory setting: Read only

[COM. Module cmd.] CMD3

Command word image built with fieldbus module source.

Identical to [Cmd Register] CMD , page 442.

[Com Module Ref Freq] LFR3

Frequency reference image built with fieldbus module source (LFR_COM).

Value range ()	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

[EtherCAT] Menu

DTM Access

[Display] ➔ [System Dashboard] ➔ [Communication Status] ➔ [EtherCAT]

About This Menu

Following parameters can be accessed if EtherCAT module (VW3A3601) has been inserted.

[external error detected by fieldbus info] **EPF2**

EPF2 (external error detected by fieldbus) info.

[Fieldbus Com Interrupt] **CNF**

Fieldbus module Communication interruption.

Value range (°)	Description
0...65,535	Factory setting: _

[InternCom Error1] **ILF1**

Internal communication interruption 1.

Value range (°)	Description
0...65,535	Factory setting: _

[COM. Module cmd.] **CMD3**

Command word image built with fieldbus module source.

Identical to [Cmd Register] **CMD**, page 442.

[Com Module Ref Freq] **LFR3**

Frequency reference image built with fieldbus module source (LFR_COM).

Value range (°)	Description
-32,767...32,767 Hz	Factory setting: 0.0 Hz

Diagnostics Parameters for DTM

What’s in This Part

Warning Groups 465

Introduction

Diagnostics menu presents drive and application data useful when diagnostics is required.

These information can be accessed using the **Diagnostics** Menu available in ATV6000 DTM launched through the SoMove FDT.

Warning Groups

What's in This Chapter

[Warn grp 1 definition] A1C– to [Warn grp 5 definition] A5C–
Menus 465

Introduction

This information can be accessed using the **Diagnostics** Menu available only in ATV6000 DTM launched through the SoMove FDT.

[Warn grp 1 definition] A1C– to [Warn grp 5 definition] A5C– Menus

DTM Access

[Complete settings] → [Error/Warning handling] → [Warning groups config]
[Warn grp 1 definition] to [Warn grp 5 definition]

About This Menu

The following submenus group the warnings into 1 to 5 groups, each of which can be assigned to a relay or a digital output for remote signaling.

When one or a number of warnings selected in a group occur, this warning group is activated.

List of Warnings

The list of warning codes is available in the chapter "Diagnostics and Troubleshooting", page 477.

[Elapsed Time] Menu

DTM Access

[Diagnostics] ➔ [Elapsed Time]

About This Menu

This menu shows the drive, fan, and motor-related counters.

[Motor Run Time] **RTH**

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Value range	Description
0...4,294,967,295 s	Factory setting: _

[Power-on time] **PTH**

Power-on time (resettable) or counter can be set to 0 by using the **[Counter Reset]** **RPR** parameter.

Value range	Description
0...4,294,967,295 s	Factory setting: _

[Fan Operation Time] **FPBT**

As soon as **[Fan Operation Time]** **FPBT** reach the predefined value of 45,000 hours, a warning **[Fan Counter Warning]** **FCTA** is triggered.

[Fan Operation Time] **FPBT** counter can be set to 0 by using the **[Counter Reset]** **RPR** parameter.

Value range	Description
0...500,000 h	Factory setting: Read Only

[Nb Of Starts] **NSM**

Number of motor starts (resettable) or counter can be set to 0 by using the **[Counter Reset]** **RPR** parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[QF1 Nb Of Starts] **QFP0**

Number of power on mains circuit breaker (resettable) can be set to 0 by using the **[Counter Reset]** **RPR** parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[QF3 Nb Of Starts] QFP3

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the **[Counter Reset]** RPR parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[QF91 Nb Of Starts] QFP4

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the **[Counter Reset]** RPR parameter.

Value range	Description
0...4,294,967,295	Factory setting: _

[Nb of MV Power On] NSV

Number of power on (resettable)

Value range	Description
0...4,294,967,295	Factory setting: _

[Counter Reset] RPR

This parameter can reset individually the timer and counter

Value range	Code / Value	Description
[No]	NO	No Factory setting
[Reset Run Time]	RTH	Run time reset
[Reset Tot Run Time]	RTHI	Internal Run Time Reset (Dedicated for services)
[Reset Power On Time]	PTH	Power ON time reset
[Reset Tot Pw On Time]	PTHI	Internal power ON time Reset (Dedicated for services)
[Reset Fan Counter]	FTH	Reset fan counter
[Reset Start Count]	NSM	Clear number of motor starts
[Reset Start Total]	NSMI	Clear number of starts (Dedicated for services)
[Clear LTHI]	LTHI	Clear running time in limitation (current & torque)
[Clear GTHI]	GTHI	Clear running time in generator mode
[Clear QF1]	QFP0	Clear number of Power On Mains Circuit Breaker

Value range	Code / Value	Description
[Clear QF3]	QFP3	Clear number of Power On Bypass Circuit Breaker
[ClearQF91]	QFP4	Clear number of Power On Inrush Circuit Breaker
[Clear NSV]	NSV	Clear number of MV Power On.
[Clear NSVI]	NSVI	Clear number of MV Power On (Dedicated for services)
[Reset All (Service)]	ALL	Reset all

Maintenance

Limitation of Warranty

The warranty does not apply if the product has been opened, except by Schneider Electric services.

Servicing

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the instructions in **Product Related Information** chapter before performing any procedure in this chapter.

Failure to follow these instructions will result in death or serious injury.

The temperature of the products described in this manual may exceed 80 °C (176 °F) during operation.

WARNING

HOT SURFACES

- Ensure that any contact with hot surfaces is avoided.
- Do not allow flammable or heat-sensitive parts in the immediate vicinity of hot surfaces.
- Verify that the product has sufficiently cooled down before handling it.
- Verify that the heat dissipation is sufficient by performing a test run under maximum load conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

INSUFFICIENT MAINTENANCE

Verify that the maintenance activities described below are performed at the specified intervals.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Adherence to the environmental conditions must be ensured during operation of the device. In addition, during maintenance, verify and, if appropriate, correct all factors that may have an impact on the environmental conditions.

Maintenance has to be performed only by qualified and certified Schneider-Electric service personnel.

Always consider all local and national electrical code requirements as well as all other applicable regulations for maintenance intervals and verification.

	Part concerned	Activity	Interval (1)
Overall condition	All parts such as housing, HMI, control block, connections, etc.	Perform a visual inspection	At least every year
Corrosion	Terminals, connectors, screws, EMC plate	Inspect and clean if required	

	Part concerned	Activity	Interval (1)
Dust	Terminals, fans, enclosures air inlets and air outlets, air filters of cabinet	Inspect and clean if required	
	Floor standing drives filter mats	Inspect	At least every year
		Change	At least every 4 years
Cooling	Wall mounting drives fan	Verify the fan operation	At least every year
		Replace the fan, see catalog and the instructions sheets on www.schneider-electric.com .	After 3 to 5 years, depending on the operating conditions
	Floor standing drives fan for power part and enclosure door fan	Replace the fans, see catalog and the instructions sheets on www.schneider-electric.com .	Every 35000 operating hours or every 6 years
Fastening	All screws for electrical and mechanical connections	Verify tightening torques	At least every year
(1): Maximum maintenance intervals from the date of commissioning. Reduce the intervals between maintenance to adapt maintenance to the environmental conditions, the operating conditions of the drive, and to any other factor that may influence the operation and/ or maintenance requirements of the drive.			

Spares and Repairs

Serviceable product. Please contact your Customer Care Center on:

www.se.com/CCC.

Long Time Storage

If the drive was not connected to mains for an extended period of time, the capacitors must be restored to their full performance before the motor is started.

NOTICE
<p>REDUCED CAPACITOR PERFORMANCE</p> <ul style="list-style-type: none"> • Apply mains voltage to the drive for one hour before starting the motor if the drive has not been connected to mains for the specified periods of time.(1) • Verify that no Run command can be applied before the period of one hour has elapsed. • Verify the date of manufacture if the drive is commissioned for the first time and run the specified procedure if the date of manufacture is more than 12 months in the past. <p>Failure to follow these instructions can result in equipment damage.</p>

(1) Period of time:

- 12 months at a maximum storage temperature of +50°C (+122°F)
- 24 months at a maximum storage temperature of +45°C (+113°F)
- 36 months at a maximum storage temperature of +40°C (+104°F)

If the specified procedure cannot be performed without a Run command because of internal mains contactor control, perform this procedure with the power stage enabled, but the motor being at a standstill so that there is no appreciable mains current in the capacitors.

Fan Replacement

It is possible to order a new fan for the drive maintenance, see the catalog numbers on www.se.com.

Customer Care Center

For additional support, you can contact our Customer Care Center on:

www.se.com/CCC.


Diagnostics and Troubleshooting

What's in This Part

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Error Codes	481

Overview

This chapter describes the various types of diagnostics and provides troubleshooting assistance.

 **DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH
Read and understand the instructions in **Product Related Information** chapter before performing any procedure in this chapter.
Failure to follow these instructions will result in death or serious injury.

On Lock

The “On lock” function helps to prevent the drive to start if the system is not ready to switch-on by using the monitoring of drive-related components (such as external auxiliary contacts, control voltages, cubicle fans, door contacts).

PLC collects all Onlock information from each components and provides interlock information to the drive. The drive monitors his status and the detected On-locks errors.

Components	Related Error	Related Warning	On lock register (PLO1)	DI
Door open	[Door interlock] CF05	—	bit 0: Door interlock on lock	X
Fan feedback/ power supply	[Cooling Fan error] CF06	[Cooling Fan Warn] CW02	bit 1 : Cooling fan on lock	X
	[Fan Supply Error] CF09	[Fan Power Supply Warn] CW05	bit 11 : Fan supply on lock	X
Mains Voltage power OFF button	[Mains Off Button] CF04	—	bit 2 : Mains off button on lock	X
QF1	[QF1 Tripped] CF08	[QF1 Trip feedback Warn] CW04	bit 3 : QF1 on lock	O
	[QF1 Grounded Contact Error] CF11	—	bit 4 : QF1 grounded contact on lock	O
	[QF1 isolated Contact Error] CF12	—	bit 5 : QF1 isolated contact on lock	O
	—	[MV Power-ON Cycling Warning] CW24	bit 14 : MV power-on cycling on lock	O
LV surge arrestor	[LV Surge Arrestor Error] CF17	[LV Surge Arrestor Warn] CW07	bit 10 : LV surge arrestor on lock	X
QF2	[QF2 Isolated Contact Error] CF27	—	bit 12 : QF2 grounded contact on lock	O
	[QF2 Grounded Contact Error] CF28	/	bit 13 : QF2 isolated contact on lock	O
Monitor circuit	[MonitorCircuit A Error] IFA	[MonitorCircuit A Warn] IWA	bit 6 = 1: Monitoring circuit A Onlock	O
	[MonitorCircuit B Error] IFB	[MonitorCircuit B Warn] IWB	bit 7 = 1: Monitoring circuit B Onlock	O
O : Configurable X : Fixed				

PL02 is only available if Synchronous Bypass is activated.

Components	Related Error	Related Warning	Drive Bypass On Lock Register (PL02)	DI
Bypass QFx	[Bypass Drive Error Sequence] CF18	—	bit 0 = 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0	O
		—	bit 1 = 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0	O
		—	bit 2 = 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1	O
		—	bit 3 = 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0	O
		—	bit 4 = 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1	O
		—	bit 5 = 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1	O
		—	bit 8 = 1: Bypass breakers ONLock state = QF2=0 QF3=0	O
		—	bit 9 = 1: Bypass breaker ONLock state = QF2=0 QF3=1	O
		—	bit 10 = 1: Bypass breaker state = QF2=1 QF3=1	O
	[QF3 Grounded Contact Error] CF29	—	bit 14 = 1 : QF3 grounded contact on lock	O
	[QF3 Isolated Contact Error] CF30	—	bit 15 = 1 : QF3 isolated contact on lock	O
O : Configurable X : Fixed				

All components which are to be monitored, are connected to the digital inputs assigned to the "ON lock" system regarding which options are used.

- If the drive is not running, and an Onlock event occurs the drive state = **[ON Lock active]** ONLK.
- If the drive is running and an Onlock event occurs the drive state = **[Operating State "Fault"]** FLT.

[On Lock Register] PLO1 and/or **[Drive Bypass On Lock Register]** PLO2 is active until the locking event is resolved (i.e. until all monitored contacts connected to the dedicated digital input allows the drive to be ready).

- If the drive is running and an Onlock event is detected, drive state = **[Operating State "Fault"]** FLT and related error code are displayed to the HMI.

[On Lock Register] PLO1

On lock register (Cabinet)

Bit	Description, Value
0	1 = Door Open
1	1 = Fan feedback not ready
2	1 = Mains OFF Button
3	1 = MVCB Tripped
4	1 = MVCB grounding contact
5	1 = MVCB Isolated
6	1 = Monitoring circuit A Onlock
7	1 = Monitoring circuit B Onlock

Bit	Description, Value
8	Reserved
9	Reserved
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Drive Bypass On Lock Register] PLO2

Drive Bypass On Lock register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Device State] HMIS

Device state.

Value range	Code / Value	Description
[Autotuning]	TUN	Autotuning, the motor identification is running.
[Ready]	RDY	Drive ready, all conditions to start the drive are ok.
[Freewheel]	NST	Freewheel stop control, One or more Freewheel stop command are active. Check parameter [2/3-Wire Control] TCC and [Local 2/3-wire Control] PL10 for 3 wire control and verify the status of the dedicated inputs.
[Running]	RUN	Motor in steady state or run command present and zero reference
[Accelerating]	ACC	Acceleration
[Decelerating]	DEC	Deceleration

Value range	Code / Value	Description
[Current Limitation]	CLI	In current limitation, the drive has reached the current limitation threshold according to parameter [Current Limitation] CLI.
[Mot. fluxing]	FLU	Fluxing function is activated
[No Mains Voltage]	NLP	Control is powered on but the DC bus is not loaded
[control.stop]	CTL	Control stopping
[Dec. adapt.]	OBR	Adapted deceleration
[Undervoltage Warning]	USA	Undervoltage warning
[TC Mode Active]	TC	TC indus mode activated
[In autotest]	ST	Self test in progress
[Autotest error]	FA	Self test not successful
[Autotest OK]	OK	Self test Ok
[EEprom test]	EP	Self test Eeprom error
[Operating State "Fault"]	FLT	Product has detected an error
[DCP Flashing Mode]	DCP	DCP flashing mode
[STO active]	STO	Safe Torque Off active
[Firmware Update]	FWUP	Firmware update
[Angle test]	ASA	Angle Value range
[Voltage Limitation]	VLI	Motor speed limited by voltage limitation
[ON Lock active]	ONLK	Input MV ON Lock, input MV On Lock active, one or more interlocks are active to inhibit the MV Circuit Breaker closing contact.
[POE active]	POD	Power output disable active, the digital input POEA or POEB is not supplied with 24V.
[Torque Limitation]	TLI	Torque limitation, the drive has reached the torque limitation threshold according to parameter [Motor torque limit] TLIM, [Gen. torque limit] TLIG.
[Power Limitation]	PLI	Power limitation
[Init]	INI	Drive is initializing
[Reset]	RST	Drive is reset
[Synchro. To Mains]	SYTM	Synchronization to Mains
[Rdy Transfer To Mains]	RTTM	Ready to transfer to mains
[Transfer In Progress]	TTMI	Transfer to mains in progress
[Synchro. To Drive]	SYTD	Synchronization to drive
[SD Transfer Ready]	RTTD	Ready to transfer to drive
[Transfer To Drive In Progress]	TTDI	Transfer to drive in progress
[Run Delay In Progress]	RDIP	Run delay in progress

Warning Codes

List of Available Warnings Messages

Label	Code	Description
[Slipping warn]	ANA	Slipping warning
[AI1 4-20 Warning]	AP1	AI1 4-20 mA loss warning
[AI3 4-20 Warning]	AP3	AI3 4-20 mA loss warning
[AI4 4-20 Warning]	AP4	AI4 4-20 mA loss warning
[AI5 4-20 Warning]	AP5	AI5 4-20 mA loss warning
[AI Monitor 1 Warn]	AW01	Analog monitoring 1 warning , page 161 , page 252
[AI Monitor 2 Warn]	AW02	Analog monitoring 2 warning , page 161 , page 252
[AI Monitor 3 Warn]	AW03	Analog monitoring 3 warning , page 161 , page 252
[AI Monitor 4 Warn]	AW04	Analog monitoring 4 warning , page 161 , page 252
[AI Monitor Link Loss Warn]	AW05	Analog monitoring link loss warning , page 252
[Sensor 13 Thermal Warn]	AW06	Sensor 13 thermal warning
[Sensor 14 Thermal Warn]	AW07	Sensor 14 thermal warning
[Probe Winding Warn]	AW08	Probe motor winding OC/SC warning
[Probe Bearing Warn]	AW09	Probe motor bearing OC/SC warning
[Probe Sensor Warn]	AW10	Probe sensor OC/SC warning
[AI Monitor 5 Warn]	AW11	Analog monitoring 5 warning , page 161 , page 252
[AI Monitor 6 Warn]	AW12	Analog monitoring 6 warning , page 161 , page 252
[AI Monitor 7 Warn]	AW13	Analog monitoring 7 warning , page 161 , page 252
[AI Monitor 8 Warn]	AW14	Analog monitoring 8 warning , page 161 , page 252
[Sensor 15 Thermal Warn]	AW15	Sensor 15 thermal warning
[Sensor 16 Thermal Warn]	AW16	Sensor 16 thermal warning
[Brake Cont Warn]	BCA	Brake contact warning
[Load Mvt Warn]	BSA	Brake speed warning
[Backlash Warn]	BSQA	Backlash sequence warning
[Bypass PoC Warning]	BYW1	Bypass Power Cell warning , page 117
[Bypass PoC Degraded Warning]	BYW2	Bypass Power degraded warning , page 117
[Cust Warning 1]	CAS1	Customer warning 1 active
[Cust Warning 2]	CAS2	Customer warning 2 active
[Cust Warning 3]	CAS3	Customer warning 3 active
[Cust Warning 4]	CAS4	Customer warning 4 active
[Cust Warning 5]	CAS5	Customer warning 5 active
[Circuit Breaker Warn]	CBW	Circuit breaker warning
[Cabinet Overheat Warn]	CHA	Cabinet overheat warning
[CMI Jumper Warn]	CMIJ	CMI jumper warning
[Current Thd Reached]	CTA	Motor current high threshold reached
[Low Current Reached]	CTAL	Motor current low threshold reached
[Controller Emb RTC Battery Warn]	CW01	Controller embedded RTC battery warning

Label	Code	Description
[Cooling Fan Warn]	CW02	Cooling fan warning
[Cabinet Overheat Warn]	CW03	Cabinet overheating
[QF1 Trip feedback Warn]	CW04	QF1 Trip feedback warning
[Fan Power Supply Warn]	CW05	Fan power supply warning
[Auxiliary Power Supply Warn]	CW06	Auxiliary power supply warning
[LV Surge Arrestor Warn]	CW07	LV surge arrestor warning
[Fan Degraded Warning]	CW08	Fan Degraded Warning
[Fan Shutter State Warning]	CW09	Fan shutter state warning
[Fan Without Redundancy Warning]	CW10	Redundant Fan Used Warning Note: This warning code can be displayed if the transformer cabinet or the Power Cell Cabinet cooling fan does not operate properly.
[QF2 Feedback Warn]	CW11	QF2 feedback warning
[QF3 Feedback Warn]	CW12	QF3 feedback warning
[QF91 Feedback Warn]	CW13	QF91 feedback warning
[QF11 Feedback Warn]	CW14	QF11 feedback warning
[Bypass Drive Warning]	CW15	Bypass drive sequence warning
[Motor Winding 1 Warn]	CW17	MotorWinding 1 warning
[Motor Winding 2 Warn]	CW18	MotorWinding 2 warning
[Motor Bearing 1 Warn]	CW19	Motor bearing 1 warning
[Motor Bearing 2 Warn]	CW20	Motor bearing 2 warning
[Cabinet/Transformer 1 Th Warn]	CW21	Transformer 1 thermal warning , page 356 Note: This warning code can be displayed if the transformer cabinet or the Power Cell Cabinet cooling fan does not operate properly.
[Cabinet/Transformer 2 Th Warn]	CW22	Transformer 2 thermal warning , page 356 Note: This warning code can be displayed if the transformer cabinet or the Power Cell Cabinet cooling fan does not operate properly.
[Thermal Choke Warn]	CW23	Thermal choke warning
[MV Power-ON Cycling Warning]	CW24	MV Power-ON Cycling Warning
[Sensor 9 Thermal Warn]	CW25	Sensor 9 thermal warning , page 359
[Sensor 10 Thermal Warn]	CW26	Sensor 10 thermal warning , page 359
[Sensor 11 Thermal Warn]	CW27	Sensor 11 thermal warning , page 359
[Sensor 12 Thermal Warn]	CW28	Sensor 12 thermal warning , page 359
[Cabinet Warning 29]	CW29	PLC-control communication warning
[Cabinet Warning 30]	CW30	PLC Cabinet Warning 30 (reserved)
[Cabinet Warning 31]	CW31	PLC Cabinet Warning 31 (reserved)
[Cabinet Warning 32]	CW32	PLC Cabinet Warning 32 (reserved)
[CabinetCircuit A Warn]	CWA	Cabinet circuit A warning
[CabinetCircuit B Warn]	CWB	Cabinet circuit B warning
[CabinetCircuit C Warn]	CWC	Cabinet circuit C warning
[Dry Run Warning]	DRYA	Dry Run Warning
[Ext. Error Warning]	EFA	External error warning
[Forced Run]	ERN	Emergency

Label	Code	Description
[2nd Freq Thd Reached]	F2A	Motor frequency high threshold 2 reached
[Mot Freq Low Thd 2]	F2AL	Motor frequency low threshold 2 reached
[Cabinet Fan Counter Warn]	FCCA	Cabinet fan counter warning
[Fan Counter Warning]	FCTA	Fan counter speed warning
[Cabinet Fan Fdbck Warn]	FFCA	Cabinet fan feedback warning
[Fan Feedback Warning]	FFDA	Fan feedback warning
[High Speed Reached]	FLA	High speed reached warning
[Pulse Warn Thd Reached]	FQLA	Frequency level reached (frequency meter)
[Fallback Frequency]	FRF	Reaction on event: Fallback frequency
[Mot Freq High Thd]	FTA	Motor frequency high threshold 1 reached
[Mot Freq Low Thd]	FTAL	Motor frequency low threshold 1 reached
[Mains Ground Warn]	IGW	Mains ground warning
[Internal Error 22]	INFM	Internal error 22 (Embedded Ethernet)
[Ethernet Internal Warning]	INWM	Ethernet Internal Warning
[MonitorCircuit A Warn]	IWA	Monitoring circuit A warning
[MonitorCircuit B Warn]	IWB	Monitoring circuit B warning
[MonitorCircuit C Warn]	IWC	Monitoring circuit C warning
[MonitorCircuit D Warn]	IWD	Monitoring circuit D warning
[Life Cycle Warn 1]	LCA1	Life cycle warning 1
[Life Cycle Warn 2]	LCA2	Life cycle warning 2
[LowPres Warning]	LPA	Low pressure warning
[Brake Contact Fieldbus Warn]	MBFW	Monitoring Brake Feedback Fieldbus Warning
[Motor Scaling Warn]	MOTW	Motor scaling warning
[QF1 Signals Fieldbus Warn]	MQF1	Monitoring QF1 Feedback Fieldbus Warning
[M/S Device Warn]	MSDA	Master Slave : Device loss
[Over-voltage Warn]	OBW	Over-voltage warning
[Motor Ground Warn]	OGW	Motor ground warning
[Process Overload Warning]	OLA	Overload warning
[PumpCycle warning]	PCPA	Pumpcycle monitoring warning
[PID error Warning]	PEE	PID error warning
[PID Feedback Warn]	PFA	PID feedback warning
[PID High Fdbck Warn]	PFAH	PID feedback high threshold reached
[PID Low Fdbck Warn]	PFAL	PID feedback low threshold reached
[Regulation Warning]	PISH	PID feedback monitoring warning
[Power Cons Warning]	POWD	Power consumption warning
[Power High Threshold]	PTHA	Power high threshold reached
[Power Low Threshold]	PTHL	Power low threshold reached
[Speed Maintained]	RLS	Reaction on event: Speed maintained
[Torque Control Warning]	RTA	Reference frequency high threshold reached
[Ref Freq High Thd reached]	RTAH	Reference frequency high threshold reached
[Ref Freq Low Thd reached]	RTAL	Reference frequency low threshold reached
[Ref Frequency Warning]	SRA	Frequency reference reached

Label	Code	Description
[Torque Limit Reached]	SSA	Timeout on current or torque limitation is reached
[Speed Synchro Warn]	SSPA	Synchro Speed Monitoring Warning
[Type of stop]	STT	Reaction on event: Stop following [Type of stop] STT without triggering an error
[Dev Thermal reached]	TAD	Drive thermal threshold reached
[Device Therm Warn]	THA	Drive overheating warning
[AI1 Th Warning]	TP1A	AI1 Thermal warning
[Therm Junction Warn]	TJA	IGBT thermal state warning
[AI3 Th Warning]	TP3A	AI3 Thermal warning
[AI4 Th Warning]	TP4A	AI4 Thermal warning
[AI5 Th Warning]	TP5A	AI5 Thermal warning
[Encoder Thermal Warn]	TPEA	Temperature Protection Encoder board Alarm
[Temp Sens AI1 Warn]	TS1A	Temperature Sensor AI1 Alarm
[Mot2 Therm Thd reached]	TS2	Motor 2 thermal threshold reached
[Mot3 Therm Thd reached]	TS3	Motor 3 thermal threshold reached
[Mot4 Therm Thd reached]	TS4	Motor 4 thermal threshold reached
[Temp Sens AI3 Warn]	TS3A	Temperature Sensor AI3 Alarm
[Temp Sens AI4 Warn]	TS4A	Temperature Sensor AI4 Alarm
[Temp Sens AI5 Warn]	TS5A	Temperature Sensor AI5 Alarm
[Motor Therm Thd reached]	TSA	Motor thermal threshold reached
[High Torque Warning]	TTHA	High torque threshold reached
[Low Torque Warning]	TTLA	Low torque threshold reached
[MotorWinding A Warn]	TWA	Motor winding A warning
[MotorWinding B Warn]	TWB	Motor winding B warning
[MotorBearing A Warn]	TWC	Motor bearing A warning
[MotorBearing B Warn]	TWD	Motor bearing B warning
[Process Undld Warning]	ULA	Process underload warning
[Preventive UnderV Active]	UPA	Controlled stop threshold is reached
[Preventive UnderV Active]	UPA	Controlled stop threshold is reached
[UPS Internal Error]	UPSF	UPS in bypass due to internal error
[UPS Low Battery]	UPSL	UPS low battery
[UPS Replace Battery]	UPSR	UPS replace battery
[UPS No Communication]	UPSC	UPS no communication
[Undervoltage Warning]	USA	Undervoltage warning

Error Codes

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Overview

Clearing the Detected Error

This table presents the steps to follow if intervention on the drive system is required:

Step	Action
1	Before disconnecting mains voltage, verify that the red LEDs of all power cells are ON by checking the LED state via the openings in the cabinet doors. If one or more of the red LEDs of the power cells are OFF, do not perform any further work, but contact your local Schneider Electric representative.
2	Disconnect all power, including external control power that may be present. Take into account that the circuit breaker or main switch does not de-energize all circuits.
3	Wait 20 minutes to allow the DC bus capacitors of the power cells to discharge. The DC bus LEDs located on each power cell are not an indicator of the absence of DC bus voltage.
4	If one or more of the red LEDs of the power cells remain ON for 20 minutes after the mains voltage has been disconnected, do not perform any further work, but contact your local Schneider Electric representative.
5	Lock all power switches in the open position.
6	Place a "Do Not Turn On" label on all power switches related to the drive system.
7	Follow the instructions given in the chapter "Verifying the Absence of Voltage" in the installation manual of the product.
8	Ground and short-circuit the mains input terminals and the motor output terminals.
9	Find and correct the cause of the detected error.
10	Restore power to the drive to confirm that the detected error has been rectified. Follow power up instruction done by the commissioning instruction.

After the cause has been removed, the detected error can be cleared by:

- Switching off the drive.
- Using the **[Product restart]** **RP** parameter.
- Using the digital input or the control bit assigned to **[Prod Restart Assign]** **RPA**.
- Using the **[Auto Fault Reset]** **ATR**– function.
- A digital input or control bit set to the **[Fault reset]** **RST**– function.
 - For **[Fault Reset Assign]** **RSF** and **[Extended Fault Reset]** **HRFC** refer to **[Fault reset]** **RST**– Menu.
- Pressing the **RESET** button on the HMI panel.

How To Clear the Error Code?




The following table summarizes the possibilities to clear a detected error after the cause has been removed:

How to clear the error code after the cause has been removed	List of the cleared error
Power reset: <ul style="list-style-type: none"> • Switch off the drive. • Use the [Product restart] RP parameter. • Use the digital input or the control bit assigned to [Prod Restart Assign] RPA. 	All detected error.
Transient: <ul style="list-style-type: none"> • As soon as its cause has been removed. 	CFF, CFI, CFI2, CFI3, CFI4, CSF, FWER, HCF, PGLF, PHF, URF, USF

How to clear the error code after the cause has been removed	List of the cleared error
Hard Reset: If [Extended Fault Reset] HRF is set to YES : <ul style="list-style-type: none"> Use the digital input or the control bit assigned to [Fault Reset Assign] RSF, Press the RESET button on the HMI panel. If the parameter [Extended Fault Reset] HRF is set to NO : This detected error requires a power reset.	BYPF, CRF1, INFA, INFC, OCF, PODF, PWF1, PWF2, PWF3, PWF4, PWF5, PWF7, PWF8, SCF1, SCF3, SPFC
Manual reset: <ul style="list-style-type: none"> Use the digital input or the control bit assigned to [Fault Reset Assign] RSF. Pressing the RESET button on the HMI panel 	ANF, ASF, BRF, BSQF, CF01, CF02, CF03, CF04, CF05, CF06, CF07, CF08, CF09, CF10, CF11, CF12, CF13, CF14, CF15, CF16, CF17, CF18, CF27, CF28, CF29, CF30, CF35, CNF3, ECF, ENF, INEV, SDFT, SLF4, SMFT, SOF, SPF, TNF
Automatic restart: <ul style="list-style-type: none"> Use the digital input or the control bit assigned to [Fault Reset Assign] RSF. Pressing the RESET button on the HMI panel Use the [Auto Fault Reset] ATR function. 	CHF, SSPF, OHF
Automatic restart limited duration: <ul style="list-style-type: none"> Same as Automatic restart at intervals of 60 seconds. Maximum time for successful automatic reset set with [Fault Reset Time] TAR. When [Auto Fault Reset] ATR is elapsed, the detected error requires a Manual reset or a Power reset. 	AF01...AF08, AM1F...AM4F, CF19, CF20, CF21, CF22, CF23, CF24, CF25, CF26, CF31, CF32, CF33, CF34, BOF, CFA, CFB, CFC, CNF, COF, DRYF, EEXC, EPF1, EPF2, EPF3, ETHF, FDR1, FDR2, IFA, IFB, IFC, IFD, INF9, INFB, LFF1, LFF3, LFF4, LFF5, MDLF, MSDF, OBF, OHF, OLC, OLF, OSF, PCPF, PFMF, SLF1, SLF2, SLF3, SSF, T1CF, T3CF, T4CF, T5CF, TECF, TFA, TFB, TFC, TFD, TH1F, TH3F, TH4F, TH5F, THEF, TLOF, ULF
Automatic restart limited duration and limited retry: <ul style="list-style-type: none"> Same as Automatic restart limited duration with 255 automatic reset attempts maximum at intervals of 60 seconds. When [Auto Fault Reset] ATR is elapsed or the maximum number of retry is reached, the detected error requires a Manual reset or a Power reset. 	3PF, BLF, LCF, OPF1, OPF2, PHF, SCF4, SCF5, SRF, STFC




[Sensor 13 Thermal Error] AF01

Sensor 13 thermal error

 Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 13 of option PLC module TM3 or adaptation board signal PT5 when setting THM0 = SENS.</p> <ul style="list-style-type: none"> Overheating of the monitored part. The parameter THT9 is set to a low value. Bad terminal wiring
 Remedy	<ul style="list-style-type: none"> Search for a possible cause of overheating. Verify the setting of the monitoring function. Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT5
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Sensor 14 Thermal Error] AF02

Sensor 14 thermal error

 Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 14 of option PLC module TM3 or adaptation board signal PT6 when setting THM0 = SENS.</p> <ul style="list-style-type: none"> Overheating of the monitored part. The parameter THTA is set to a low value. Bad terminal wiring
 Remedy	<ul style="list-style-type: none"> Search for a possible cause of overheating. Verify the setting of the monitoring function. Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT6
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Probe OC/SC Error] AF03

Probe OC/SC error

 Probable Cause	<p>The measurement circuit on the PLC has detected an open circuit or a short circuit on the dedicated temperature probe</p> <ul style="list-style-type: none"> PT100 probe on thermal sensor is not wired or in short-circuit
 Remedy	<ul style="list-style-type: none"> Verify the wiring Replace the temperature probe
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI Monitor 5 Error] AF04

Analog monitoring 5 error

	Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter AM5R is set to a to low value. • The low process level parameter AM5S is set to a to high value. • The scaling parameters AM5X, AM5Y, AM5L, AM5H are not correct. • Bad terminal wiring.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range. • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI Monitor 6 Error] AF05

Analog monitoring 6 error

	Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter AM6R is set to a to low value. • The low process level parameter AM6S is set to a to high value. • The scaling parameters AM6X, AM6Y, AM6L, AM6H are not correct. • Bad terminal wiring.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range. • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI Monitor 7 Error] AF06

Analog monitoring 7 error

	Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter AM7R is set to a to low value. • The low process level parameter AM7S is set to a to high value. • The scaling parameters AM7X, AM7Y, AM7L, AM7H are not correct. • Bad terminal wiring.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range. • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI Monitor 8 Error] AF07

Analog monitoring 8 error

 Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter AM8R is set to a to low value. • The low process level parameter AM8S is set to a to high value. • The scaling parameters AM8X, AM8Y, AM8L, AM8H are not correct. • Bad terminal wiring.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range. • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

[Sensor 16 Thermal Error] AF08

Sensor 16 thermal error

 Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 16 of option PLC module TM3.</p> <ul style="list-style-type: none"> • Overheating of the monitored part. • The parameter THTC is set to a low value. • Bad terminal wiring.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the setting of the monitoring function. • Verify the wiring between monitored device and TM3 option Module.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

[AI Monitor 1 Error] AM1F

Analog monitoring 1 error

	Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter [AI Monitor 1 Error High Level] AM1R is set to a too low value. • The low process level parameter [AI Monitor 1 Error Low level] AM1S is set to a too high value. • The scaling parameters AM1X, AM1Y, AM1L, AM1H are not correct. • Bad terminal wiring.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range. • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] RER or manually with the [Fault Reset Assign] RSF parameter after the cause has been removed.</p>




[AI Monitor 2 Error] AM2F

Analog monitoring 2 error

	Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter [AI Monitor 2 Error High Level] AM2R is set to a too low value. • The low process level parameter [AI Monitor 2 Error Low level] AM2S is set to a too high value. • The scaling parameters AM2X, AM2Y, AM2L, AM2H are not correct. • Bad terminal wiring.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range . • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI Monitor 3 Error] AM3F

Analog monitoring 3 error

 Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter [AI Monitor 3 Error High Level] AM3R is set to a too low value. • The low process level parameter [AI Monitor 3 Error Low level] AM3S is set to a too high value. • The scaling parameters AM3X, AM3Y, AM3L, AM3H are not correct. • Bad terminal wiring.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range . • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI Monitor 4 Error] AM4F

Analog monitoring 4 error

 Probable Cause	<p>The analog monitoring process value are outside the range set by high process level and low process level</p> <ul style="list-style-type: none"> • The high process level parameter [AI Monitor 4 Error High Level] AM4R is set to a too low value. • The low process level parameter [AI Monitor 4 Error Low level] AM4S is set to a too high value. • The scaling parameters AM4X, AM4Y, AM4L, AM4H are not correct. • Bad terminal wiring.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range . • Verify the setting of the analog monitoring function. • Verify the wiring between monitored device and TM3 option Module.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Load slipping] ANF

Load slipping

	Probable Cause	Not following the ramp, the difference between the output frequency and the speed feedback is not correct.
	Remedy	<ul style="list-style-type: none"> • Confirm the device rating according to the application (motor, load, and so on.) • Verify the motor, gain, and stability parameters. • Verify the mechanical coupling and wiring of the encoder. • If the torque control function is used and if the encoder is assigned to speed feedback: <ul style="list-style-type: none"> ◦ Set [Load slip detection] <i>SDD</i>= [No] <i>NO</i>. ◦ Set both [Positive deadband] <i>DBP</i> and [Negative deadband] <i>DBN</i> to a value less than 10% of the nominal motor frequency.
	Clearing the Error Code	This detected error can be cleared manually with the [Fault Reset Assign] <i>RSF</i> parameter after its cause has been removed.




[Angle error] ASF

Angle error

	Probable Cause	<p>This error is triggered for synchronous motors control law, during the phase-shift angle measurement.</p> <ul style="list-style-type: none"> • The motor phase is disconnected. • The motor inductance is too high. • Wrong setting of the speed loop when the reference goes through 0.
	Remedy	<ul style="list-style-type: none"> • Verify the motor phases. • Verify the maximum current allowed by the device. • Verify the speed loop parameters.
	Clearing the Error Code	This detected error can be cleared manually with the [Fault Reset Assign] <i>RSF</i> parameter after its cause has been removed.




[Brake Control] BLF

Brake control

 Probable Cause	<ul style="list-style-type: none">• Brake release current not reached.• Brake engages frequency threshold [Brake engage freq] BEN only regulated when brake logic control is assigned.
 Remedy	<ul style="list-style-type: none">• Verify the drive/motor connection.• Verify the motor windings.• Verify the [Brk Release Current] IBR and [Brake release I Rev] IRD settings.
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>




[Brake Feedback] BRF

Brake feedback

	Probable Cause	The status of the brake feedback contact or the status of the brake relay feedback is incorrect compared to the brake logic control.
	Remedy	<ul style="list-style-type: none"> • Verify the brake feedback circuit. • Verify the brake logic control circuit. • Verify the brake behavior. • Verify the setting of [Brake assignment] BLC and [Brake Contact] BCI. • Verify that the setting of [Brake Release time] BRT and [Brake engage time] BET takes into account the brake response time, [Brake Fdbk Filter] FBCI and [Brake Rly Fdbk Filter] FBRI.
	Clearing the Error Code	This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Bypass PoC Error] BYPF

Bypass PoC error

	Probable Cause	<p>For drive using power stage with bypass circuit, when an error is detected by one Power Cell then this Power Cell and the two others at the same level are bypassed.</p> <p>Bypass sequence can be triggered by the following Power Cell errors : OBF Over-voltage, OHF Over-heat and RCF: Short-circuit.</p> <p>The bypass Power Cell error can occur when the number of bypass Power Cell sequences is greater than the maximal bypass number BYP1 configured.</p> <p>HMI diagnostic screen "Power Cell Status" can be used to identify bypassed Power cell(s) and the type of error.</p> <p>The error can be linked to one or more Power Cell(s) :</p> <ul style="list-style-type: none"> • permanently damaged in short-circuit, in overheating or in overvoltage, or • occasionally triggering an overheating error according to the thermal state evolution of the application or environment, or • occasionally triggering an overvoltage error according to the load profile evolution. <p>The error will occur when the functional safety (STO) requirement of min. 3 active Power Cells per phase is violated.</p>
	Remedy	<ul style="list-style-type: none"> • Distinction between continuous and occasional power cell error. • If the error still occurs after fault reset, unbypass sequence and new run command: the Power Cell is permanently damaged and must be replaced. • For bypass error linked to occasional OHF or OBF, see dedicated troubleshooting. • Contact your local Schneider Electric representative to check commissioning state of the function.
	Clearing the Error Code	<ul style="list-style-type: none"> • If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset. • If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Cabinet/Transformer 1 Overheating] CF01

Cabinet/Transformer 1 Overheating

 Probable Cause	<p>The winding temperature of transformer 1 or cabinet transformer 1 has reached the threshold level.</p> <ul style="list-style-type: none"> • Cooling fans not working. • Door filter mats blocked. • High environmental temperature in the electrical room. • Cooling fans rotates in the wrong direction. • The transformer is overloaded. • The threshold level set in the PLC is wrong. • The PLC has detected a wrong measurement. • Fiber box not working.
 Remedy	<ul style="list-style-type: none"> • Verify that the transformer temperature threshold (TP1U / TP1V / TP1W) does not exceed the error threshold: Three threshold: <ul style="list-style-type: none"> ◦ 1. Absolute temperature of transformer winding monitored by fibers exceeds 155°C; ◦ 2. Temperature rise (Absolute temperature of transformer winding monitored by fibers - cabinet temperature monitored by PT100) exceeds 115°C; ◦ 3. Cabinet temperature by PT100 is over than 60°C • Verify all cooling fans are working properly and rotate in the right direction. • Verify door filter mats are free of dust and the required airflow is insured. • Verify that the external cooling circuit (AC) in the electrical room is working properly. • Verify compliance to the environmental conditions in the electrical room according to the specification. • Verify that the measurement circuit is working properly (PT100 sensor on the transformer cabinet door/ fiber sensors on transformer windings / PLC / Wiring connections / fiber box) • Check the log file to verify if the ATV6000 was already in "Overload" condition before the CF01 error triggering. • Verify in the PLC program the temperature of the transformer and check directly the input on the PLC extension card. • Verify actual measurement (TP1U / TP1V / TP1W / TT1M / TS1U / TS1V / TS1W) exceeds threshold (155°C).
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Cabinet/Transformer 2 Overheating] CF02

Cabinet/Transformer 2 Overheating

	Probable Cause	<p>The winding temperature of transformer 2 or cabinet transformer 2 has reached the threshold level.</p> <ul style="list-style-type: none"> • Cooling fans not working. • Door filter mats blocked. • High environmental temperature in the electrical room. • Cooling fans rotate in the wrong direction. • The transformer is overloaded. • The threshold level set in the PLC is wrong. • The PLC has detected a wrong measurement. • Fiber box not working.
	Remedy	<ul style="list-style-type: none"> • Verify that the transformer temperature threshold (TP2U / TP2V / TP2W) does not exceed the error threshold: Three threshold: <ul style="list-style-type: none"> ◦ 1. Absolute temperature of transformer winding monitored by fibers exceeds 155°C; ◦ 2. Temperature rise (Absolute temperature of transformer winding monitored by fibers - cabinet temperature monitored by PT100) exceeds 115°C; ◦ 3. Cabinet temperature by PT100 is over than 60°C. • Verify all cooling fans are working properly and rotate in the right direction. • Verify door filter mats are free of dust and the required airflow is insured. • Verify that the external cooling circuit (AC) in the electrical room is working properly. • Verify compliance to the environmental conditions in the electrical room according to the specification. • Verify that the measurement circuit is working properly (PT100 sensor on the transformer cabinet door/ fiber sensors on transformer windings / PLC / Wiring connections / fiber box) • Check the log file to verify if the ATV6000 was already in "Overload" condition before the CF02 error triggering. • Verify actual measurement (TP2U / TP2V / TP2W / TT2M / TS2U / TS2V / TS2W) exceeds threshold (155°C).
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[PLC Internal Error] CF03

PLC internal error

 Probable Cause	<p>The PLC has detected an internal error.</p> <ul style="list-style-type: none"> • Wrong PLC software loaded. • PLC software incompatible with the control block firmware. • Internal error on the PLC. • Internal communication error with TM3 module. • Internal communication error with Fiber box.
 Remedy	<ul style="list-style-type: none"> • Verify the software version on the PLC and Control block. (Check compatibility). • Upload the correct PLC software to the PLC and make sure the PLC is in RUN mode. • Change the PLC. • Verify mechanical TM3 module connection. • Verify Fiber box bus serial line connection. • Replace the fiber box.
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>

[Mains Off Button] CF04

Mains Off Button

 Probable Cause	<p>The "Mains voltage off" button on the control cabinet has been activated.</p> <ul style="list-style-type: none"> • The "Mains Voltage OFF" button in front of control Cabinet has been pressed. • The wiring on the "Mains Voltage Off" button is not connected properly.
 Remedy	<ul style="list-style-type: none"> • Release the "Mains Voltage Off" button on the control cabinet. • Check the wiring on the "Mains voltage Off" button and the dedicated input on the PLC.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Door interlock] CF05

Door interlock

	Probable Cause	<p>The electrical "Door interlock" function has detected an opened cabinet door.</p> <ul style="list-style-type: none"> • At least one cabinet door is not closed. • The cabinet door is not closed properly and therefore door limit switch is not activated. • The door limit switch is not working properly. • Wire disconnection of the door limit switch or on the dedicated PLC input. • If the option "TOP entry" is available, the additional door limit switch is not wired (Need to be done on site).
	Remedy	<ul style="list-style-type: none"> • Make sure all cabinet doors are closed properly and fixed with the dedicated screws. • Verify each door limit switch is working properly. • Check the overall wiring on the door limit switch and PLC. • If the option "TOP entry" cabinet is available verify that the wiring of the additional door limit switch was done properly.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Cooling Fan error] CF06

Cooling fan error

 Probable Cause	<ul style="list-style-type: none"> • The circuit breaker of the cooling fan has tripped due to an overload • The motor circuit breaker is switched off • The external cooling fan supply is switched off
 Remedy	<ul style="list-style-type: none"> • Switch on the dedicated circuit breakers for the cooling fans • Make sure the external power supply for the fans is present (If supplied external)
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Cabinet Overheat] CF07

Cabinet overheat

 Probable Cause	<p>The cabinet temperature monitoring has detected an overheating</p> <ul style="list-style-type: none"> • The cooling fans are not working. • The cooling fans rotates in the wrong direction. • The filter mats are blocked and full of dust. • The environmental temperature in the electrical room is too high. • The air condition system in the electrical room is not working. • The internal temperature measurement is not working. • Measurement circuit detects wrong temperature (PT100 & Adaption board).
 Remedy	<ul style="list-style-type: none"> • Check the environmental room temperature. • Verify the cooling fans are working properly and rotates in the correct direction. • Make sure filter mats are free of dust and replace them if necessary. • Check the temperature limits and the measurement circuit is working properly. • Verify the PT100 sensor works properly. • Replace the adaption board or measurement circuit.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF1 Tripped] CF08

QF1 tripped

	Probable Cause	<ul style="list-style-type: none"> • The MV Circuit breaker has been switched off during operation of the ATV6000. • An external event such as overvoltage, overcurrent, internal MV Circuit breaker error has triggered the QF1. • QF1 feedback signal loss during operation of the ATV6000 (If available).
	Remedy	<ul style="list-style-type: none"> • Verify the root cause for the QF1 trip (External). • Verify the QF1 feedback wire is properly connected to the PLC and the PLC input is working (If available).
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Fan Supply Error] CF09

Power supply for cooling fans not ready

 Probable Cause	<ul style="list-style-type: none"> • The circuit breaker of the cooling fan has tripped due to an overload. • The circuit breaker has been switched off. • The external cooling fan supply is switched off.
 Remedy	<ul style="list-style-type: none"> • Switch on the dedicated circuit breakers for the cooling fans. • Make sure the external power supply for the fans is present (If supplied external).
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Auxiliary Supply Error] CF10

Auxiliary supply error

 Probable Cause	<p>The 230 V auxiliary power supply is interrupted.</p> <ul style="list-style-type: none"> • The external 230 V auxiliary power supply is switch off. • The internal circuit breaker for the 230 V is opened. • Wrong wiring on the dedicated relay K1A and the dedicated PLC input (DI23).
 Remedy	<ul style="list-style-type: none"> • Verify that the external 230V is available (Measure with the multimeter). • Verify the wiring on the dedicated relay K1A and the PLC input (DI23). • Verify if the internal circuit breaker for the 230 V is switched on.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF1 Grounded Contact Error] CF11

QF1 grounded contact error

 Probable Cause	<p>The circuit breaker / contactor QF1 is grounded.</p> <ul style="list-style-type: none"> • The circuit breaker / contactor is grounded. • Feedback signal missing.
 Remedy	<ul style="list-style-type: none"> • Verify if the circuit breaker / contactor is not grounded. • Verify the wiring and connections on the dedicated terminals and digital inputs.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF1 isolated Contact Error] CF12

QF1 isolated contact error

	Probable Cause	<p>The circuit breaker / contactor QF1 sends the feedback isolated contact</p> <ul style="list-style-type: none"> • The circuit breaker / contactor is isolated. • Feedback signal missing.
	Remedy	<ul style="list-style-type: none"> • Verify if the circuit breaker / contactor is not isolated. • Verify the wiring and connections on the dedicated terminals and digital inputs.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] <i>RSF</i> parameter after its cause has been removed.</p>




[QF2 Feedback Error] CF13

QF2 feedback error

	Probable Cause	<p>The QF2 feedback signal command to dedicated digital input on the PLC is not conform to circuit breaker state (open or closed).</p> <ul style="list-style-type: none"> • Feedback signal missing. • Feedback signal of QF2 not wired or loss contact. • Feedback signal not active or stable within the PLC timeout.
	Remedy	<ul style="list-style-type: none"> • Verify the wiring and connections on the dedicated terminals and digital inputs. • Check the feedback signal in the PLC program. • Verify the wiring on the QF2 circuit breaker "auxiliary contact" • Verify that the correct PLC software was loaded.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] <i>RSF</i> parameter after its cause has been removed.</p>




[QF3 Feedback Error] CF14

QF3 feedback error

 Probable Cause	<p>The QF3 feedback signal command to dedicated digital input on the PLC is not conform to circuit breaker state (open or closed)</p> <ul style="list-style-type: none"> • Feedback signal missing. • Feedback signal of QF3 not wired or loss contact. • Feedback signal not active or stable within the PLC timeout.
 Remedy	<ul style="list-style-type: none"> • Verify the wiring and connections on the dedicated terminals and digital inputs. • Check the feedback signal in the PLC program. • Verify the wiring on the QF3 circuit breaker "auxiliary contact". • Verify that the correct PLC software was loaded.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

[QF91 Feedback Error] CF15

QF91 feedback error

 Probable Cause	<p>The feedback signal "QF91 is closed" has not been detected on the dedicated digital input on the PLC</p> <ul style="list-style-type: none"> • Feedback signal missing. • Feedback signal of QF91 not wired or loss contact. • Feedback signal not active or stable within the PLC timeout.
 Remedy	<ul style="list-style-type: none"> • Verify the wiring and connections on the dedicated terminals and digital inputs. • Check the feedback signal in the PLC program. • Verify the wiring on the QF91 circuit breaker "auxiliary contact". • Verify that the correct PLC software was loaded.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

[QF11 Feedback Error] CF16

QF11 feedback error

	Probable Cause	<p>The QF11 feedback signal command to dedicated digital input on the PLC is not conform to circuit breaker state (open or closed).</p> <ul style="list-style-type: none"> • Feedback signal missing. • Feedback signal of QF11 not wired or loss contact. • Feedback signal not active or stable within the PLC timeout.
	Remedy	<ul style="list-style-type: none"> • Verify the wiring and connections on the dedicated terminals and digital inputs. • Check the feedback signal in the PLC program. • Verify the wiring on the QF11 circuit breaker "auxiliary contact". • Verify that the correct PLC software was loaded.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[LV Surge Arrestor Error] CF17

LV surge arrestor error

	Probable Cause	<p>The LV surge arrestor has been triggered, the digital input 19 on the PLC is activated</p>
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Bypass Drive Error Sequence] CF18

Bypass drive error sequence

<div> Probable Cause</div>	<p>The feedback of circuit breaker QF11 QF2 QF3 used in the function bypass drive control DOL is wrong.</p> <p>The error occurs when the mains is present and with following bypass circuit breaker state BYS1:</p> <ul style="list-style-type: none">• QF11=Open / QF2=Closed / QF3=Closed• QF11=Closed / QF2=Open / QF3=Closed• QF11=Closed / QF2=Closed / QF3=Closed• Wrong physical state of circuit breaker QF11, QF2, and QF3.• Circuit breaker feedback QF11, QF2, QF3 signal missing or not wired or lost contact or NO / NC feedback switched.
<div> Remedy</div>	<ul style="list-style-type: none">• Verify the consistency between circuit breaker feedback and bypass circuit breaker status (BYS1) on the HMI.• Verify the physical state of circuit breakers QF11, QF2, and QF3.• Verify the wiring and connections on the dedicated terminals and digital inputs.
<div> Clearing the Error Code</div>	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Motor Winding 1 Error] CF19

Motor winding 1 error

	Probable Cause	<p>The winding temperature of motor 1 has reached the threshold level TH1.</p> <ul style="list-style-type: none"> • Motor cooling fans not working or motor liquid cooling switched off. • Motor is overloaded. • Environmental temperature too high. • External motor cooling fan not working or rotating the wrong direction. • The parameter setting of the temperature threshold level TH1 is wrong. • The measurement is wrong. • The motor is self cooled and operates on low speed. • Motor surface full of dust.
	Remedy	<ul style="list-style-type: none"> • Verify that the cooling fans of the motor is working properly and rotate in the correct direction. • Verify that the external cooling circuit is working. • Verify compliance to the environmental conditions according to the motor specification • Verify that the measurement circuit is working properly (PT100 sensors/Wiring connections on the PLC). • Check that the motor was in "Overload" condition before triggering the error. • Make sure the motor surface is free of dust. • Verify that the threshold level is set properly according to the motor specification.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Motor Winding 2 Error] CF20

Motor winding 2 error

	Probable Cause	<p>The winding temperature of motor 2 has reached the threshold level TH2.</p> <ul style="list-style-type: none"> • Motor cooling fans not working or motor liquid cooling switched off. • Motor is overloaded. • Environmental temperature too high. • External motor cooling fan not working or rotating the wrong direction. • The parameter setting of the temperature threshold level TH2 is wrong. • The measurement is wrong. • The motor is self cooled and operates on low speed. • Motor surface full of dust.
	Remedy	<ul style="list-style-type: none"> • Verify that the cooling fans of the motor is working properly and rotate in the correct direction. • Verify that the external cooling circuit is working. • Verify compliance to the environmental conditions according to the motor specification • Verify that the measurement circuit is working properly (PT100 sensors/Wiring connections on the PLC) • Check that the motor was in "Overload" condition before triggering the error. • Make sure the motor surface is free of dust • Verify that the threshold level is set properly according to the motor specification.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Motor Bearing 1 Error] CF21

Motor bearing 1 error

 Probable Cause	<p>The bearing temperature of motor 1 has reached the threshold level THT3.</p> <ul style="list-style-type: none"> • Motor cooling fans not working or motor liquid cooling switched off. • Motor is overloaded. • Environmental temperature too high. • External motor cooling fan not working or rotating the wrong direction. • The parameter setting of the temperature threshold level THT3 is wrong. • The measurement is wrong. • The motor is self cooled and operates on low speed. • Motor surface full of dust.
 Remedy	<ul style="list-style-type: none"> • Verify that the cooling fans of the motor is working properly and rotate in the correct direction. • Verify that the external cooling circuit is working. • Verify compliance to the environmental conditions according to the motor specification. • Verify that the measurement circuit is working properly (PT100 sensors/Wiring connections on the PLC). • Check that the motor was in "Overload" condition before triggering the error. • Make sure the motor surface is free of dust. • Verify that the threshold level is set properly according to the motor specification.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Motor Bearing 2 Error] CF22

Motor bearing 2 error

 Probable Cause	<p>The bearing temperature of motor 2 has reached the threshold level THT4.</p> <ul style="list-style-type: none"> • Motor cooling fans not working or motor liquid cooling switched off. • Motor is overloaded. • Environmental temperature too high. • External motor cooling fan not working or rotating the wrong direction. • The parameter setting of the temperature threshold level THT4 is wrong. • The measurement is wrong. • The motor is self cooled and operates on low speed. • Motor surface full of dust.
 Remedy	<ul style="list-style-type: none"> • Verify that the cooling fans of the motor is working properly and rotate in the correct direction. • Verify that the external cooling circuit is working. • Verify compliance to the environmental conditions according to the motor specification. • Verify that the measurement circuit is working properly (PT100 sensors/Wiring connections on the PLC). • Check that the motor was in "Overload" condition before triggering the error. • Make sure the motor surface is free of dust. • Verify that the threshold level is set properly according to the motor specification.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[PT100 Winding OC/SC Error] CF23

PT100 winding OC/SC error

	Probable Cause	<p>The measurement circuit on the PLC has detected an open circuit or a short circuit on the dedicated temperature sensor</p> <ul style="list-style-type: none"> • Temperature probe on motor winding is not wired or in short-circuit
	Remedy	<ul style="list-style-type: none"> • Verify the wiring • Replace the temperature probe
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[PT100 Bearing OC/SC Error] CF24

PT100 bearing OC/SC error

	Probable Cause	<p>The measurement circuit on the PLC has detected an open circuit or a short circuit on the dedicated temperature sensor</p> <ul style="list-style-type: none"> • Temperature probe on motor bearing is not wired or in short-circuit
	Remedy	<ul style="list-style-type: none"> • Verify the wiring • Replace the temperature probe
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Thermal Choke Error] CF25

Thermal choke error

 Probable Cause	<p>The digital cabinet I/O DI50 and DI64 are configured for cabinet choke temperature monitoring. If the cabinet choke thermo-switch is at high level, in case of over temperature, the CF25 error occurs.</p> <ul style="list-style-type: none"> • Temperature in the cabinet choke is too high. • Wrong setting of the thermo switch. • The fan on the choke cabinet is not supplied. • The fan is spinning in the wrong direction. • The air inlet filters are clogged.
 Remedy	<ul style="list-style-type: none"> • Verify the setting of the internal thermo switch. • Verify the wiring from the thermo switch to the cabinet I/O - DI50 and DI64 on the power board. • Verify the cooling of cabinet choke. • Verify if the fan is spinning in the right direction. • Clean the air inlet filters.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Sensor 15 Thermal Error] CF26

Sensor 15 thermal error

 Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 15 of option PLC module TM3.</p> <ul style="list-style-type: none"> • Overheating of the monitored part. • The parameter THTB is set to a low value. • Bad terminal wiring.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the setting of the monitoring function. • Verify the wiring between monitored device and TM3 option Module.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF2 Isolated Contact Error] CF27

QF2 Isolated contact Error

	Probable Cause	<p>The circuit breaker / contactor QF2 detects an isolated contact.</p> <ul style="list-style-type: none"> • The circuit breaker / contactor is isolated. • Feedback signal missing.
	Remedy	<ul style="list-style-type: none"> • Verify if the circuit breaker / contactor is not isolated. • Verify the wiring and connections on the dedicated terminals and digital inputs.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF2 Grounded Contact Error] CF28

QF3 grounded contact Error

	Probable Cause	<p>The circuit breaker / contactor QF2 is grounded.</p> <ul style="list-style-type: none"> • The circuit breaker / contactor is grounded. • Feedback signal missing.
	Remedy	<ul style="list-style-type: none"> • Verify if the circuit breaker / contactor is not grounded. • Verify the wiring and connections on the dedicated terminals and digital inputs
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF3 Grounded Contact Error] CF29

QF3 grounded contact error

	Probable Cause	<p>The circuit breaker / contactor QF3 is grounded.</p> <ul style="list-style-type: none"> • The circuit breaker / contactor is grounded. • Feedback signal missing.
	Remedy	<ul style="list-style-type: none"> • Verify if the circuit breaker / contactor is not grounded. • Verify the wiring and connections on the dedicated terminals and digital inputs.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[QF3 Isolated Contact Error] CF30

QF3 isolated contact error

 Probable Cause	<p>The circuit breaker / contactor QF3 detects an isolated contact.</p> <ul style="list-style-type: none"> • The circuit breaker is isolated. • Feedback signal missing.
 Remedy	<ul style="list-style-type: none"> • Verify if the circuit breaker / contactor is not isolated. • Verify the wiring and connections on the dedicated terminals and digital inputs
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Sensor 9 Thermal Error] CF31

Sensor 9 thermal error

 Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 9 of option PLC module TM3 or adaptation board signal PT1 when setting THM0 = SENS.</p> <ul style="list-style-type: none"> • Overheating of the monitored part. • The parameter THT5 is set to a low value. • Bad terminal connection.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the setting of the monitoring function. • Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT1.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Sensor 10 Thermal Error] CF32

Sensor 10 thermal error

	Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 10 of option PLC module TM3 or adaptation board signal PT2 when setting <code>THM0 = SENS</code>.</p> <ul style="list-style-type: none"> Overheating of the monitored part. The parameter <code>THT6</code> is set to a low value. Bad terminal connection.
	Remedy	<ul style="list-style-type: none"> Search for a possible cause of overheating. Verify the setting of the monitoring function. Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT2.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] <code>ATR</code> or manually with the [Fault Reset Assign] <code>RSE</code> parameter after its cause has been removed.</p>




[Sensor 11 Thermal Error] CF33

Sensor 11 thermal error

	Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 11 of option PLC module TM3 or adaptation board signal PT3 when setting <code>THM0 = SENS</code>.</p> <ul style="list-style-type: none"> Overheating of the monitored part. The parameter <code>THT7</code> is set to a low value. Bad terminal connection
	Remedy	<ul style="list-style-type: none"> Search for a possible cause of overheating. Verify the setting of the monitoring function. Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT3
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] <code>ATR</code> or manually with the [Fault Reset Assign] <code>RSE</code> parameter after its cause has been removed.</p>




[Sensor 12 Thermal Error] CF34

Sensor 12 thermal error

 Probable Cause	<p>The thermal sensor monitoring function has detected a high temperature on PT100 sensor 12 of option PLC module TM3 or adaptation board signal PT4 when setting THM0 = SENS.</p> <ul style="list-style-type: none"> Overheating of the monitored part. The parameter THT8 is set to a low value. Bad terminal connection
 Remedy	<ul style="list-style-type: none"> Search for a possible cause of overheating. Verify the setting of the monitoring function. Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT4
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Fan Command Feedback Error] CF35

Fan command feedback error

 Probable Cause	<p>The fan feedback signal and fan contactor state (open or closed) are inconsistent</p> <ul style="list-style-type: none"> Fan feedback signal or command signal missing on the dedicated terminal. Fan feedback signal or command signal not wired or lost contact on fan contactor. Fan feedback signal not active or not stable within the PLC timeout (1 second) Option not included in the drive.
 Remedy	<ul style="list-style-type: none"> Verify the wiring and connections on the dedicated terminals and digital inputs (feedback) and digital outputs (command). Verify the wiring of the fan contactor. Verify that the correct PLC software was loaded. Verify that the option is installed in the drive
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[CabinetCircuit A Error] CFA

Cabinet circuit A error

 Probable Cause	The monitoring function has detected an error. The digital input assigned to [CabinetCircuit A Assign] CF_{AA} is active when the detected error duration is longer than [CabinetCircuit A Delay] CF_{DA} .
 Remedy	<ul style="list-style-type: none"> Identify the cause of detection. Verify the connected device (door switch, thermal switch,...) and its wiring. Verify the [CabinetCircuit A Assign] CF_{AA} parameter (high/low assignment of the cabinet IO).
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] AT_R or manually with the [Fault Reset Assign] RS_F parameter after its cause has been removed.




[CabinetCircuit B Error] CFB

Cabinet circuit B error

 Probable Cause	The monitoring function has detected an error. The digital input assigned to [CabinetCircuit B Assign] CF_{AB} is active when the detected error duration is longer than [CabinetCircuit B Delay] CF_{DB} .
 Remedy	<ul style="list-style-type: none"> Identify the cause of detection. Verify the connected device (door switch, thermal switch,...) and its wiring. Verify the [CabinetCircuit B Assign] CF_{AB} parameter (high/low assignment of the cabinet IO).
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] AT_R or manually with the [Fault Reset Assign] RS_F parameter after its cause has been removed.




[CabinetCircuit C Error] CFC

Cabinet circuit C error

 Probable Cause	The monitoring function has detected an error. The digital input assigned to [CabinetCircuit C Assign] CF_{AC} is active when the detected error duration is longer than [CabinetCircuit C Delay] CF_{DC} .
 Remedy	<ul style="list-style-type: none"> Identify the cause of detection. Verify the connected device (door switch, thermal switch,...) and its wiring. Verify the [CabinetCircuit C Assign] CF_{AC} parameter (high/low assignment of the cabinet IO).
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] AT_R or manually with the [Fault Reset Assign] RS_F parameter after its cause has been removed.




[Incorrect Config] CFF

Incorrect configuration

 Probable Cause	<p>At power on, the device proceeds to a self-test and checks its configuration. If the configuration is not correct, the error [Incorrect Config] CFF is triggered.</p> <ul style="list-style-type: none"> Option module changed or removed.
 Remedy	<ul style="list-style-type: none"> Verify that all option modules are inserted correctly into the option module slot. Verify that there is no detected error on the option module. Return to factory settings or retrieve the backup configuration if it is valid.
 Clearing the Error Code	<p>This detected error is cleared as soon as its cause has been removed.</p>




[Invalid Configuration] CFI

Invalid configuration

 Probable Cause	<p>Invalid configuration. The configuration loaded in the device via the commissioning tool or fieldbus is inconsistent.</p> <ul style="list-style-type: none"> Invalid parameter value.
 Remedy	<ul style="list-style-type: none"> Verify the loaded configuration. Load a valid configuration.
 Clearing the Error Code	<p>This detected error is cleared as soon as its cause has been removed.</p>




[Conf Transfer Error] CFI2

Configuration transfer error

 Probable Cause	<ul style="list-style-type: none"> The configuration transfer to the drive was not successful or interrupted. The configuration loaded is not compatible with the drive.
 Remedy	<ul style="list-style-type: none"> Verify the loaded configuration. Load a valid configuration. Perform a factory setting
 Clearing the Error Code	This detected error is cleared as soon as its cause has been removed.




[Pre-settings Transfer Error] CFI3

Pre-settings transfer error

 Probable Cause	The configuration transfer to the device was not successful or interrupted.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error is cleared as soon as its cause has been removed.




[Empty Configuration] CFI4

Empty configuration

 Probable Cause	<p>The device may contain up to 4 configurations, which can be saved using the [Save Configuration] SCSI parameter.</p> <p>Each of these configurations can be activated remotely, enabling adaptation to:</p> <ul style="list-style-type: none"> 2 to 4 different motors or mechanisms (multi-motors mode). 2 to 4 different configurations for a single motor (multi-configurations mode).
 Remedy	<ul style="list-style-type: none"> Verify the configurations saved. Switch to a compatible configuration.
 Clearing the Error Code	This detected error is cleared as soon as its cause has been removed.




[Cabinet Overheat Error] CHF

Cabinet overheat error

 Probable Cause	<p>The cabinet thermal switch is at active state, the cabinet fan(s) has been switched on but there is no fan feedback.</p> <p>The digital inputs DI50 and DI51 of devices equipped with Cabinet IO are configured as cabinet temperature monitoring. If the enclosure thermo switch opens in case of over temperature, the [Cabinet Overheat Error] CHF is triggered.</p> <p>This error can be triggered only in RUN state. On other state, the [Cabinet Overheat Warn] CHA is active.</p>
 Remedy	<ul style="list-style-type: none"> • Verify cabinet fan(s) and its wiring. • Verify the temperature in the enclosure is not too high. • Verify the setting of the thermoswitch (must be 60 °C (140 °F)).
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Fieldbus Com Interrupt] CNF

Fieldbus communication interruption

 Probable Cause	<p>Communication interruption on fieldbus module.</p> <p>This error is triggered when the communication between the fieldbus module and the master (PLC) is interrupted.</p>
 Remedy	<ul style="list-style-type: none"> • Verify the communication settings on the devices (Drive, PLC, switches, repeater...). • Check for duplicate communication addresses. • Verify the environment (electromagnetic compatibility). • Verify the fieldbus wiring (continuity, cable type, grounding, and shielding). • Verify the terminating resistor. • Verify the timeout setting. • Refer to the fieldbus user manual. • Replace the option module. • Contact your local Schneider Electric representative.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Opt 3 Comm Interrupt] CNF3

3rd option module communication interruption

	Probable Cause	<p>The 3rd option card has detected a communication error.</p> <ul style="list-style-type: none"> Ethernet cable between control block and PLC not connected properly. IP address not configured on the control block or on the PLC. PLC not in "RUN" mode. In case of error, when QF1 feedback (PLIC PLI1 PLI2 PLI3) or [Brake Contact] BCI is configured to a command word bit, an untimely warning [QF1 Signals Fieldbus Warn] MQF1 or [Brake Contact Fieldbus Warn] MBFW is displayed on HMI. Solve this error first before working on the other ones.
	Remedy	<ul style="list-style-type: none"> Check Ethernet connection on the control block and PLC. Configure the correct IP address in the control block and PLC. Make sure the PLC is in RUN mode. Update the Ethernet option card or change the Ethernet option card. Change Control Block or PLC.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[CANopen Com Interrupt] COF

CANopen communication interruption

	Probable Cause	<p>Communication interruption on the CANopen® fieldbus.</p>
	Remedy	<ul style="list-style-type: none"> Verify the communication settings on the devices (Drive, PLC, switches, repeater...). Check for duplicate communication addresses. Verify the environment (electromagnetic compatibility). Verify the fieldbus wiring (continuity, grounding, and shielding). Verify the terminating resistor (presence on each ends and value). Verify the timeout setting. Refer to the CANopen® user manual. Replace the option module. Contact your local Schneider Electric representative.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Channel Switch Error] CSF

Channel switching detected error

 Probable Cause	<p>An invalid channel has been selected.</p> <p>This error may be triggered if the device has been switched to a configuration which implies an invalid channel.</p>
 Remedy	<p>Verify the function parameters.</p>
 Clearing the Error Code	<p>This detected error is cleared as soon as its cause has been removed.</p>




[Precharge Capacitor] CRF1

Precharge capacitor

 Probable Cause	<p>After switching on the mains, the DC Bus is charged by the power cells. If all DC bus voltage of power cells are not stabilized within 1s, the error CRF1 is triggered.</p> <ul style="list-style-type: none"> • Unstable mains voltage. • DC bus capacitors service life exceeded. • Power cells DC bus capacitors service life exceeded.
 Remedy	<ul style="list-style-type: none"> • Turn off the drive and then turn on again. • Check and analyze the mains input voltage. • Check DC bus voltage on power cells
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>




[Dry Run Error] DRYF

Dry run detected error

 Probable Cause	<p>The dry run monitoring function has detected an error.</p> <p>NOTE: After the error has been triggered, even if the detected error has been cleared, it is not possible to restart the pump before the end of the [DryRun Restart Delay] DRYR.</p>
 Remedy	<ul style="list-style-type: none"> • Verify that the pump is well primed. • Verify that there is no air leak in the suction line. • Verify the settings of the monitoring function.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Encoder Coupling] ECF

Encoder coupling

 Probable Cause	<p>The monitoring is active when [Encoder Coupling Monit] ECC parameter is set to [Yes] YES. The error is triggered when the speed feedback is 0 and the device is in torque or current limitation.</p> <ul style="list-style-type: none"> • The mechanical coupling of the encoder is broken.
 Remedy	<ul style="list-style-type: none"> • Verify the mechanical coupling of the encoder. • Verify the setting of [Encoder check time] ECT parameter. • Disable temporarily the [Encoder Coupling Monit] ECC function for encoder signal test purpose.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Control Memory Error] EEF1

Control memory error

 Probable Cause	An error of the internal memory of the control electronics has been detected.
 Remedy	<ul style="list-style-type: none"> • Verify the environment (electromagnetic compatibility). • Turn off the device and then turn on again. • Return to factory settings. • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Power Memory Error] EEF2

Power memory error

 Probable Cause	An error of the internal memory of the power board has been detected.
 Remedy	<ul style="list-style-type: none"> • Verify the environment (electromagnetic compatibility). • Turn off the device and then turn on again. • Return to factory settings. • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Encoder] ENF

Encoder

 Probable Cause	<p>Encoder feedback error.</p> <p>The difference between the measured and estimated speed is greater than 4% of [Nominal Motor Freq] <small>FRS</small> or [Sync Nominal Freq] <small>FRSS</small>.</p> <ul style="list-style-type: none"> • The encoder feedback (measured speed) in case of AABB or AB hardware signals must be the same as the calculated speed. • The motor frequency must be 10% of [Nominal Motor Freq] <small>FRS</small> and stable during 3 s. • Setting of the encoder type and supply voltage not correct.
 Remedy	<ul style="list-style-type: none"> • Verify the configuration parameters for the encoder used. • Verify the mechanical and electrical operation of the encoder. • Verify the consistency between the encoder signals and the direction of rotation of the motor. • If necessary, reverse the direction of rotation of the motor ([Output Ph Rotation] <small>PHR</small> parameter) • Verify the parameter [Encoder supply volt.] <small>UECV</small>.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] <small>RSF</small> parameter after its cause has been removed.</p>




[External Error] EPF1

External detected error

 Probable Cause	<p>The error message is displayed if a digital input that has been configured as [Ext Error assign] ETF is at active state.</p> <ul style="list-style-type: none"> An external error has been triggered by an external device, depending on user. An external error has been triggered via Embedded Ethernet.
 Remedy	<ul style="list-style-type: none"> Remove the cause of the external error. Verify the setting of [Ext Error assign] ETF parameter. Perform a factory setting of the Ethernet configuration.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Fieldbus Error] EPF2

External error detected by Fieldbus

 Probable Cause	<p>External detected error from fieldbus module.</p> <ul style="list-style-type: none"> Event triggered by an external device, depending on user. The error is caused by the fieldbus or an application program.
 Remedy	<ul style="list-style-type: none"> Remove the cause of the external error. Verify the external circuit in the system which has triggered the error message. Verify the PLC program which has caused the error message. Verify the communication parameters. Monitor with the commissioning software [Fieldbus Error] EPF2 parameter.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Opt 3 External Error] EPF3

3rd option module external error

 Probable Cause	<ul style="list-style-type: none"> A communication interruption on the 3rd option card has been detected Ethernet configuration file is corrupted.
 Remedy	<ul style="list-style-type: none"> Check the configuration of the IP address on the PLC and on the control block. Make sure the PLC software has been uploaded successfully and is compatible with the control block firmware. Perform a factory setting of the Ethernet configuration or modify the IP Mode
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Embd Eth Com Interrupt] ETHE

Embedded Ethernet communication interruption

	Probable Cause	Communication interruption on the Modbus TCP/Ethernet IP bus.
	Remedy	<ul style="list-style-type: none"> • Verify the communication settings on the devices. • Check for duplicate communication addresses. • Verify the environment (electromagnetic compatibility). • Verify the fieldbus wiring (continuity, cable type, grounding, and shielding) • Verify the time out. • Verify the Ethernet Client state. • Verify the Ethernet network load. • Refer to the Ethernet user manual. • Contact your local Schneider Electric representative. <p>NOTE: it is possible to check the status of ETHE through the communication with his register (ADL: 7136).</p>
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSE parameter after its cause has been removed.




[Exc Sequence Error] EEXC

Excitation sequence error

<div> Probable Cause</div>	<ul style="list-style-type: none">• The error indicates a missing or unexpected running feedback signal in the external excitation management sequence.• During excitation starting phase: expected running feedback not received before [Exc Starting Timeout] EXT1.• During excitation stopping phase: expected running feedback not received before [Exc Stopping Timeout] EXT3.
<div> Remedy</div>	<ul style="list-style-type: none">• Check the parameter configuration for the excitation cabinet interface.• Check the state of the external excitation cabinet.• Check the wiring.
<div> Clearing the Error Code</div>	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[FDR 1 Error] FDR1

FDR Eth embedded error

	Probable Cause	<ul style="list-style-type: none"> • Embedded Ethernet FDR error. • Communication interruption between the device and the PLC. • Configuration file incompatible, empty or invalid. • Device rating not consistent with the configuration file.
	Remedy	<ul style="list-style-type: none"> • Verify the device and PLC connection. • Verify the communication workload. • Restart the transfer of configuration file from device to PLC.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[FDR 2 Error] FDR2

FDR Eth module error

	Probable Cause	<ul style="list-style-type: none"> • Ethernet fieldbus module FDR error. • Communication interruption between the device and the PLC. • Configuration file incompatible, empty or corrupted. • Device rating not consistent with the configuration file.
	Remedy	<ul style="list-style-type: none"> • Verify the device and PLC connection. • Verify the communication workload. • Restart the transfer of configuration file from device to PLC.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Firmware Update Error] FWER

Firmware Update error

 Probable Cause	Firmware update function has detected an error.
 Remedy	<ul style="list-style-type: none"> • Verify the compatibility of the firmware. • Verify the flat ribbon cable between the control block and the power board. • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error is cleared as soon as its cause has been removed.




[Boards Compatibility] HCF

Boards compatibility

 Probable Cause	<p>Hardware configuration error.</p> <p>The [Pairing password] PPI parameter has been enabled and an option module has been changed.</p>
 Remedy	<ul style="list-style-type: none"> • Refit the original option module. • Confirm the configuration by entering the [Pairing password] PPI if the module was changed deliberately.
 Clearing the Error Code	This detected error is cleared as soon as its cause has been removed.




[MonitorCircuit A Error] IFA

Monitoring circuit A error

	Probable Cause	<p>The error can only be triggered if a cabinet input has been configured as Monitoring Circuit A error or monitoring interlock or onlock process. The stop type when the error is triggered is configurable.</p> <ul style="list-style-type: none"> The digital input assigned to [MonitorCircuit A Assign] IFAA is active for longer than [MonitorCircuit A Delay] IFDA.
	Remedy	<ul style="list-style-type: none"> When function is assigned to [MonitorCircuit A Assign] IFAA: Verify the connected device (door switch, thermal switch, ...) and its wiring. When function is assigned to Monitoring Interlock or Onlock process: Verify the connected device (interlock digital input, onlock digital input...) and its wiring. Verify the parameter [MonitorCircuit A Assign] IFAA (high/low assignment of the cabinet IO).
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[MonitorCircuit B Error] IFB

Monitoring circuit B error

	Probable Cause	<p>The error can only be triggered if a cabinet input has been configured as Monitoring Circuit B error or monitoring interlock or onlock process. The stop type when the error is triggered is configurable.</p> <ul style="list-style-type: none"> The digital input assigned to [MonitorCircuit B Assign] IFAB is active for longer than [MonitorCircuit B Delay] IFDB.
	Remedy	<ul style="list-style-type: none"> When function is assigned to [MonitorCircuit B Assign] IFAB: Verify the connected device (door switch, thermal switch, ...) and its wiring. When function is assigned to Monitoring Interlock or Onlock process: Verify the connected device (interlock digital input, onlock digital input...) and its wiring. Verify the parameter [MonitorCircuit B Assign] IFAB (high/low assignment of the cabinet IO).
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[MonitorCircuit C Error] IFC

Monitoring circuit C error

 Probable Cause	<p>The error can only be triggered if a cabinet input has been configured as Monitoring Circuit C error or monitoring interlock or onlock process. The stop type when the error is triggered is configurable.</p> <ul style="list-style-type: none"> The digital input assigned to [MonitorCircuit C Assign] IFAC is active for longer than [MonitorCircuit C Delay] IFDC.
 Remedy	<ul style="list-style-type: none"> When function is assigned to [MonitorCircuit C Assign] IFAC: Verify the connected device (door switch, thermal switch, ...) and its wiring. When function is assigned to Monitoring Interlock or Onlock process: Verify the connected device (interlock digital input, onlock digital input...) and its wiring. Verify the parameter [MonitorCircuit C Assign] IFAC (high/low assignment of the cabinet IO).
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

[MonitorCircuit D Error] IFD

Monitoring circuit D error

 Probable Cause	<p>The error can only be triggered if a cabinet input has been configured as Monitoring Circuit D error or monitoring interlock or onlock process. The stop type when the error is triggered is configurable.</p> <ul style="list-style-type: none"> The digital input assigned to [MonitorCircuit D Assign] IFAD is active for longer than [MonitorCircuit D Delay] IFDD.
 Remedy	<ul style="list-style-type: none"> When function is assigned to [MonitorCircuit D Assign] IFAD: Verify the connected device (door switch, thermal switch, ...) and its wiring. When function is assigned to Monitoring Interlock or Onlock process: Verify the connected device (interlock digital input, onlock digital input...) and its wiring. Verify the parameter [MonitorCircuit D Assign] IFAD (high/low assignment of the cabinet IO).
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

[Internal Link Error] ILF

Internal communication interruption with option module

	Probable Cause	Communication interruption between option module and the device.
	Remedy	<ul style="list-style-type: none"> • Verify the environment (electromagnetic compatibility). • Verify the connections. • Replace the option module. • Contact your local Schneider Electric representative.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Opt 3 Intern Link Error] ILF3

3rd option module internal link error

	Probable Cause	<p>The 3rd option card has detected an internal error on the Ethernet option module.</p> <ul style="list-style-type: none"> • Wrong connection between Ethernet option module slot C and control board.
	Remedy	<ul style="list-style-type: none"> • Contact your local Schneider Electric representative. • Replace the Ethernet option module in the 3rd option slot.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: CPU] INF0

Internal Error: CPU

 Probable Cause	<ul style="list-style-type: none"> • Communication interruption between microprocessors of the control board. • The power board rating is not valid.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Invalid Rating] INF1

Internal Error: invalid rating

 Probable Cause	The power board rating is not valid.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Board Incompatibility] INF2

Internal Error: board incompatibility

 Probable Cause	The power board is incompatible with the control block software.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Comm With Power CPU] INF3

Internal Error: comm with power CPU

 Probable Cause	Internal communication detected error.
 Remedy	<ul style="list-style-type: none"> • Verify the wiring on drive control terminals (internal 10V supply for analog inputs overloaded). • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Indus Zone Inconsistent] INF4

Internal Error: indus zone inconsistent

 Probable Cause	Internal data inconsistent.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Module Not Recognized] INF6

Internal Error: module not recognized

 Probable Cause	<ul style="list-style-type: none"> • The option module installed in the drive is not recognized. • The removable control terminal modules (if existing) are not present or not recognized. • The embedded Ethernet adapter is not recognized.
 Remedy	<ul style="list-style-type: none"> • Verify the catalog number and compatibility of the option module. • Plug the removable control terminal modules after the drive has been switched off. • Contact your local Schneider Electric representative.
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>




[Internal Error: Comm With CPLD] INF7

Internal Error: comm with CPLD

 Probable Cause	<p>Communication interruption with CPLD component of Control board.</p>
 Remedy	<p>Contact your local Schneider Electric representative.</p>
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>




[Internal Error: Power Board Supply] INF8

Internal Error: power board supply

 Probable Cause	The internal power switching supply is not correct.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Motor Current Measurement] INF9

Internal Error: motor current measurement

 Probable Cause	An error on the current circuit measurement has been detected.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Internal Error: External 24V Supply] **INFA**

Internal Error: external 24V supply

 Probable Cause	The input stage is not operating correctly.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Thermal Sensor OC/SC] **INFB**

Internal Error: drive thermal sensor OC/SC

 Probable Cause	The internal drive thermal sensor is not operating correctly.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Internal Error: Current Sensor Supply] INFC

Internal Error: current sensor supply

 Probable Cause	Internal current supply error.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: CPU Overload] INFE

Internal Error: CPU overload

 Probable Cause	Internal microprocessor detected error.
 Remedy	<ul style="list-style-type: none"> • Verify that the error code can be cleared. • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Flash Memory Format] INF F

Internal Error: flash memory format

 Probable Cause	Serial memory flash format error.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: I/O relay Module] INF G

Internal Error: I/O relay module

 Probable Cause	Communication interruption or internal error of output relays option module
 Remedy	<ul style="list-style-type: none"> • Verify that the option module is correctly connected to the slot • Replace the option module. • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: I/O Standard Module] INFH

Internal Error: I/O standard module

	Probable Cause	Communication interruption with the Extension module of digital & analog I/O or internal error of the Extension module of digital & analog I/O.
	Remedy	<ul style="list-style-type: none"> • Verify that the option module is correctly connected to the slot • Replace the option module. • Contact your local Schneider Electric representative.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Encoder Module] INFJ

Internal Error: encoder module

	Probable Cause	An error on the encoder module has been detected.
	Remedy	<ul style="list-style-type: none"> • Verify if the encoder option module is connected correctly to the slot. • Verify the compatibility of the encoder. • Contact your local Schneider Electric representative.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Option Interface Board] INFK

Internal Error: option interface board

 Probable Cause	Option module interface board error.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Real Time Clock] INFL

Internal Error: real time clock

 Probable Cause	Internal Real Time Clock error. It could be a communication error between the keypad and the drive or a clock oscillator start error.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Embedded Ethernet] INFN

Internal Error: embedded ethernet

 Probable Cause	An error on the embedded Ethernet adapter has been detected.
 Remedy	Verify the connection to the Ethernet port. Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: PLC or HMI Identification] INFO

Internal Error: PLC or HMI identification

	Probable Cause	During initialization, compatibilities between Control and PLC or Control and HMI are checked. Internal incompatibility detected between Control and PLC or Control and HMI.
	Remedy	<ul style="list-style-type: none"> • Monitor INFO parameter to identify compatibility error between device. • Verify INFO parameter to identify compatibility error between device. • Restart the drive (switch the drive OFF / ON). • Verify compatibility between control Option Ethernet and PLC and HMI (Check with the compatibility table). • Verify compatibility between control block and Ethernet option module. • Change the control block, update HMI FW and PLC FW.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: FW & CB Incompatibility] INFO

Internal Error: FW & CB incompatibility

	Probable Cause	Incompatibility between Control Board hardware version and firmware version.
	Remedy	<ul style="list-style-type: none"> • Update the firmware package. • Contact your local Schneider Electric representative.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: Sigma-Delta Measurement] INF8

Internal Error: sigma-delta measurement

 Probable Cause	Diagnostics in CPLD have detected an error.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Internal Error: PoC Identification] INFV

Internal Error: PoC identification

 Probable Cause	Invalid identification of power-cell according to the configuration (Parameter: <code>POCN</code>).
 Remedy	<ul style="list-style-type: none"> • Replace the dedicated power cell • Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error can be cleared manually with the [Fault Reset Assign] <code>RSF</code> parameter after its cause has been removed.




[QF1 Control W/O Mains] LCF

QF1 control without mains

	Probable Cause	<ul style="list-style-type: none"> • The line contactor/breaker is closed and Mains supply is not detected before [Mains V. time out] LCF timeout. • The line contactor/breaker is open and Mains supply is still present after [Mains V. time out] LCF timeout.
	Remedy	<ul style="list-style-type: none"> • Verify the supply wiring between Mains, contactor/breaker and drive. • Verify that the Mains supply is present upstream of the contactor/breaker. • Verify the input contactor or breaker wiring. • Verify the [Mains V. time out] LCF timeout setting. • Verify the input contactor/breaker configuration.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[AI1 4-20 mA loss] LFF1

AI1 4-20 mA loss

	Probable Cause	<p>Loss of the 4-20 mA on analog input AI1.</p> <p>This error is triggered when the analog input current is below the minimum threshold value.</p>
	Remedy	<ul style="list-style-type: none"> • Verify the connection on the analog inputs. • Verify the setting of [AI1 4-20mA loss] LFL1 parameter.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[AI3 4-20mA loss] LFF3

AI3 4-20mA loss

 Probable Cause	<p>Loss of the 4-20 mA on analog input AI3.</p> <p>This error is triggered when the analog input current is below the minimum threshold value.</p>
 Remedy	<ul style="list-style-type: none"> • Verify the connection on the analog inputs. • Verify the setting of [AI3 4-20mA loss] LFL3 parameter.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI4 4-20mA loss] LFF4

AI4 4-20mA loss

 Probable Cause	<p>Loss of the 4-20 mA on analog input AI4.</p> <p>This error is triggered when the analog input current is below the minimum threshold value.</p>
 Remedy	<ul style="list-style-type: none"> • Verify the connection on the analog inputs. • Verify the setting of [AI4 4-20mA loss] LFL4 parameter.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI5 4-20 mA loss] LFF5

AI5 4-20 mA loss

	Probable Cause	<p>Loss of the 4-20 mA on analog input AI5.</p> <p>This error is triggered when the analog input current is below the minimum threshold value.</p>
	Remedy	<ul style="list-style-type: none"> • Verify the connection on the analog inputs. • Verify the setting of [AI5 4-20mA loss] LFL5 parameter.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[MultiDrive Link Error] MDLF

MultiDrive Link error

	Probable Cause	<ul style="list-style-type: none"> • The multi-drive link communication has been interrupted while running. • The function has detected an inconsistency in the system configuration. (example: duplicate IP address, multiple multi-drive links in the same sub-net, ...)
	Remedy	<ul style="list-style-type: none"> • Verify the communication network. • Verify the configuration of the Multidrive Link function.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[M/S Device Error] MSDF

M/S device error

 Probable Cause	<p>The monitoring of the Multidrive Link communication and state has detected an error.</p> <ul style="list-style-type: none"> For a master, one or more slaves are not present or not ready. For a slave, the master is not present.
 Remedy	<ul style="list-style-type: none"> Verify the devices status. Verify the connection between the master and the slaves. Verify the settings of the master/slave architecture.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[DC Bus Overvoltage] OBF

DC bus overvoltage

 Probable Cause	<p>The DC bus voltage is too high.</p> <ul style="list-style-type: none"> Deceleration time too short or driving load too high. Mains voltage too high. Braking unit option cannot convert the "braking energy" into heat.
 Remedy	<ul style="list-style-type: none"> Increase the deceleration time. Configure the [Dec.Ramp Adapt] BRA function if it is compatible with the application. Verify the Mains voltage. Verify the braking circuit capability if present.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Overcurrent] OCF

Overcurrent

	Probable Cause	<ul style="list-style-type: none"> • Incorrect motor parameters. • Inertia or load too high. • Mechanical locking.
	Remedy	<ul style="list-style-type: none"> • Verify the motor parameters. • Verify the size of the motor/drive/load. • Verify the state of the mechanism. • Decrease [Current Limitation] CLL.
	Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Device Overheating] OHF

Device overheating

	Probable Cause	<p>Device temperature too high.</p> <ul style="list-style-type: none"> • Ambient temperature too high. • Reduced air flow due to blocked air at the inlet or outlet. • One of the fans does not work properly.
	Remedy	<ul style="list-style-type: none"> • Verify the device ventilation and the ambient temperature. • Clean the heat sink. • Clean the inlet filter. • Verify the air flow. • Verify the fans. • Verify the motor load according to the environmental conditions. • Verify the external 48V power supply function (if applicable). <p>Wait for the device to cool down before restarting.</p>
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Process Overload] OLC

Process overload

 Probable Cause	Process overload. <ul style="list-style-type: none"> • Mechanical root cause in the application. • Changed load cycle situation of the application.
 Remedy	<ul style="list-style-type: none"> • Verify and remove the cause of the overload. • Verify the parameters of the [Process overload] OLC– function.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Motor Overload] OLF

Motor overload

 Probable Cause	This error is triggered when an excessive motor current has been detected. The [Motor Overload] OLF threshold is set to 118 % of the [Motor Therm State] THR.
 Remedy	<ul style="list-style-type: none"> • Verify the setting of the motor thermal monitoring. • Verify the motor load. Wait for the motor to cool down before restarting. • Verify the setting of the following parameters: <ul style="list-style-type: none"> ◦ [Motor Th Current] ITH ◦ [Motor Thermal Mode] THT ◦ [Motor Therm Thd] TTD ◦ [MotorTemp ErrorResp] OLL • Verify the parameter [OutPhaseLoss Delay] ODT value.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Single output phase loss] OPF1

Single output phase loss

 Probable Cause	Loss of one phase at device output.
 Remedy	Verify the wiring from the device to the motor.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Output Phase Loss] OPF2

Output phase loss

 Probable Cause	<p>Loss of three phases at device output.</p> <ul style="list-style-type: none"> • Motor not connected or motor power too low. • Output contactor opened. • Instantaneous instability in the motor current.
 Remedy	<ul style="list-style-type: none"> • Verify the wiring from the device to the motor, including the tightening of the connections (refer to the related installation manual). • If an output contactor is being used, set [OutPhaseLoss Assign] OPL to [No Error Triggered] OAC. • If the device is connected to a low-power motor or not connected to a motor: In factory settings mode, motor phase loss detection is active [OutPhaseLoss Assign] OPL = [OPF Error Triggered] YES. Deactivate motor phase loss detection [OutPhaseLoss Assign] OPL = [Function Inactive] NO. • Verify and optimize the following parameters: [IR compensation] UFR, [Nom Motor Voltage] UNS and [Nom Motor Current] NCR and perform [Autotuning] TUN.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Supply Mains Overvoltage] OSF

Supply mains overvoltage

 Probable Cause	This error is triggered when the device is not running, and the DC bus voltage exceeds the maximum value allowed by the device. <ul style="list-style-type: none"> Supply Mains voltage too high.
 Remedy	Verify the Mains voltage.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[PumpCycle start Error] PCPF

Pump cycle start error

 Probable Cause	The Pumpcycle monitoring function has exceeded the maximum number of start sequences allowed in the time window.
 Remedy	<ul style="list-style-type: none"> Search for a possible cause of repetitive start of system. Verify the hydraulic system the pump is allocated. Verify the settings of the monitoring function ([Pumpcycle monitoring] CSP– Menu).
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[PID Feedback Error] PFME

PID feedback detected error

 Probable Cause	The PID feedback error was out of the allowed range around the set point during the time window.
 Remedy	<ul style="list-style-type: none"> Check for mechanical breakdown of pipes. Check for water leakage. Check for open discharge valve. Check for fire hydrant opened. Verify the settings of the monitoring function.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Program Loading Error] PGLF

Program loading detected error

 Probable Cause	Verify that the error code can be cleared with a power reset.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error is cleared as soon as its cause has been removed.




[Program Running Error] PGRF

Program running detected error

 Probable Cause	Verify that the error code can be cleared with a power reset.
 Remedy	Contact your local Schneider Electric representative.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Input Phase Loss] PHF

Input phase loss

 Probable Cause	<ul style="list-style-type: none"> • Device incorrectly supplied or a tripped fused. • One mains input or more phases are unavailable. • 3-phase device used on a single-phase Supply Mains. • Unbalanced load.
 Remedy	<ul style="list-style-type: none"> • Verify the wiring from the mains to the device, including the tightening of the connections (refer to the related installation manual). • Verify the fuses and the power connection. • Use a 3-phase Supply Mains.
 Clearing the Error Code	<p>This detected error is cleared as soon as its cause has been removed.</p>




[POE Error] PODF

Power output error

 Probable Cause	<p>Power output enable function allows to disable command to the motor.</p> <p>The trip message takes place as soon as an internal electronics error (Internal circuit monitoring) occurs.</p> <ul style="list-style-type: none"> • Debounce time exceeded: POEA and POEB have a different status (High / Low) for more than 1 second • Internal hardware error
 Remedy	<ul style="list-style-type: none"> • Verify the wiring of the digital inputs POE_A and POE_B. • Contact your local Schneider Electric representative. • Replace adaptation board
 Clearing the Error Code	<ul style="list-style-type: none"> • If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset. • If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Mains Overcurrent] PWF1

Mains overcurrent

	Probable Cause	<p>The input current sensors has detected an overcurrent at the input side which is ignored during charging phase (Threshold: I_{max} depending on input CT sensor).</p> <ul style="list-style-type: none"> • Inrush current after mains voltage dip without USF detection • Current sensor not working or not connected properly • Adaptation board or Control Block not working properly
	Remedy	<ul style="list-style-type: none"> • Verify the connection of the input current sensors • Verify the connections on the adaptation board • Make sure all power supplies are switched on and the adaptation board is proper supplied • Replace input current sensors • Replace adaptation board • Replace Control Block
	Clearing the Error Code	<ul style="list-style-type: none"> • If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset. • If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Mains Ground Error] PWF2

Mains ground error

	Probable Cause	<p>The monitoring is based on absolute voltage value of the sum of the three Voltages to ground which exceeded a definite trip threshold. Parameter: [Input Grnd Flt Level] GIVL / [Input Grnd Flt Timeout] GIVT / [Input Grnd Flt Resp] GIVB</p> <ul style="list-style-type: none"> • Ground short circuit on the input of the drive
	Remedy	<ul style="list-style-type: none"> • Verify all mains cable connections and perform an insulation test on the input cables • Measure the mains voltage with a properly rated, electrically insulated tools. (SEPAM Digital Relay / Appropriate probes and Oscilloscope). • Verify the input voltage measurement connection on the adaptation board on terminal X11.
	Clearing the Error Code	<ul style="list-style-type: none"> • If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset. • If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Motor Ground Error] PWF3

Motor ground error

 Probable Cause	<p>The protection is based on absolute voltage value of the sum of the three Voltages to ground which exceeded a definite trip threshold. Parameter: [Output Grnd Flt Level] GOVL / [Output Grnd Flt Timeout] GOVT / [Output Grnd Flt Resp] GOVB</p> <ul style="list-style-type: none"> Ground short circuit on the output of the drive
 Remedy	<ul style="list-style-type: none"> Verify all motor cable connections and perform an insulation test on the motor cables and motor Verify the output voltage measurement connection on the adaptation board on terminal X12
 Clearing the Error Code	<ul style="list-style-type: none"> If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset. If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[PoC Fiber Error] PWF4

Power Cells Fiber communication error

 Probable Cause	<p>The adaption board has detected a fiber optic communication UOF error between the adaption board and power cell.</p> <p>Wrong communication detected by adaption board monitoring Rx fiber signal sent by PoC Tx</p> <ul style="list-style-type: none"> Fiber optic cable on the adaption board or power cell not connected. Fiber optic cables are not connected properly Fiber optic cable bended or damaged. Adaption board / Control Block not working properly. Power cell not working properly (Control Board on power cell not working properly).
 Remedy	<ul style="list-style-type: none"> Verify the connection of all fiber optic cables. Clean the fiber connections Replace the adaption board or the fiber board. Replace the dedicated power cell. Replace the fiber optic cables.
 Clearing the Error Code	<ul style="list-style-type: none"> If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset. If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[PoC Supply Error] PWF5

Power Cells supply error

 Probable Cause	<p>The purpose of this protection is to detect an abnormal mains supply of the power-cell.</p> <ul style="list-style-type: none">• Power-cell fuse open.• Power cell rectifier not working properly.
 Remedy	<p>Replace dedicated power cell</p>
 Clearing the Error Code	<ul style="list-style-type: none">• If the parameter [Extended Fault Reset] HRFC is set to [No] NO : This detected error requires a power reset.• If the parameter [Extended Fault Reset] HRFC is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[FPGA Internal Error] PWF6

FPGA internal error

 Probable Cause	<p>The adaptation board has detected an internal error on the FPGA.</p> <p>Adaption board not working properly.</p>
 Remedy	<ul style="list-style-type: none"> • Reflash the FPGA with an external programmer (If available). • Replace the adaption board. • Contact your local Schneider Electric representative.
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>

[PoC Gate Driver Error] PWF7

PoC gate driver error

 Probable Cause	<ul style="list-style-type: none"> • Power cell damaged - IGBT broken • Power cell damaged - Gate Drive board damage • Power cell damaged - Control board power supply is not working properly. • High current
 Remedy	<ul style="list-style-type: none"> • Measure the current on the output and verify that it is normal • Replace the dedicated power cell if the detected error is permanent on the same power cell
 Clearing the Error Code	<ul style="list-style-type: none"> • If the parameter [Extended Fault Reset] <i>HRFC</i> is set to [No] <i>NO</i> : This detected error requires a power reset. • If the parameter [Extended Fault Reset] <i>HRFC</i> is set to [Yes] <i>YES</i> : This detected error can be cleared manually with the [Fault Reset Assign] <i>RSF</i> parameter after its cause has been removed.

[PoC Fiber DOF Error] PWF8

Power Cells Fiber DOF communication error

	Probable Cause	<p>The adaptation board has detected a fiber optic communication DOF error between the adaptation board and power cell.</p> <p>Wrong communication detected by power cell control board Rx fiber signal which is sent by Tx on Adaptation board.</p> <ul style="list-style-type: none"> Fiber optic cable on the adaptation board or power cell is not connected properly. Fiber optic cable bended or damaged. Adaptation board / Control Block defective Inoperative Power cell defective.
	Remedy	<ul style="list-style-type: none"> Verify that all fiber optic cables are in good condition and the connections are done properly. Clean the fiber connections. Replace the adaptation board or the fiber optic extension card. Replace the dedicated power cell. Replace the fiber optic cable.
	Clearing the Error Code	<ul style="list-style-type: none"> If the parameter [Extended Fault Reset] HRF is set to [No] NO : This detected error requires a power reset. If the parameter [Extended Fault Reset] HRF is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.

[Safety Function Error] SAF

Safety function detected error

	Probable Cause	<ul style="list-style-type: none"> Debounce time (signal stabilization) exceeded. Internal hardware error. STOA and STOB have a different status (high/low) for more than 1 second.
	Remedy	<ul style="list-style-type: none"> Verify the wiring of the digital inputs STOA and STOB, and the +24 Vdc output (continuity, cable type, grounding, and shielding). For more details on the maximum cable length, refer to the related installation manual. Verify the environment (electromagnetic compatibility). Contact your local Schneider Electric representative.
	Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>




[Motor short circuit] SCF1

Motor short circuit

	Probable Cause	<ul style="list-style-type: none"> Short-circuit or grounding at the drive output. Short circuit or grounding of the motor or of the motor cables.
	Remedy	<p>Check the cables connecting the drive to the motor, and the motor insulation.</p>
	Clearing the Error Code	<ul style="list-style-type: none"> If the parameter [Extended Fault Reset] HRF is set to [No] NO : This detected error requires a power reset. If the parameter [Extended Fault Reset] HRF is set to [Yes] YES : This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Ground Short Circuit] SCF3

Ground short circuit

 Probable Cause	<ul style="list-style-type: none"> Significant ground leakage current at the device output. Short circuit or grounding at the inverter output. Short circuit on a motor with long cable. Insulation error in the motor or in the cable. High resistance at the motor connection.
 Remedy	<ul style="list-style-type: none"> Verify the cables connecting the device to the motor, and the motor insulation. Adjust the switching frequency. Connect chokes in series with the motor. In case of long motor cables, verify the setting of [Ground Fault Activation] GRFL. Contact your local Schneider Electric representative.
 Clearing the Error Code	<p>This detected error requires a power reset of the device after its cause has been removed.</p>




[SD Error] SDFT

Synchro to drive error

 Probable Cause	<p>The drive could not synchronize its output voltage to the Mains in the allowed time.</p> <ul style="list-style-type: none"> High perturbation level on Mains voltage. Setting error on Mains to Drive bypass function.
 Remedy	<ul style="list-style-type: none"> Verify mains stability voltage and frequency. Contact your local Schneider Electric representative to check commissioning state of the function. <p>If the mains is unstable adjust the following parameters</p> <ul style="list-style-type: none"> SDAD SDMV SDAB SDAP SDAT SDMB SDST SDMT SDFT SDMO SDMD
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Modbus Com Interruption] SLF1

Modbus communication interruption

	Probable Cause	Communication interruption on the Modbus port if the command and/or reference value is given by Modbus.
	Remedy	<ul style="list-style-type: none"> • Verify the Modbus communication wiring. • Verify the Modbus communication parameter settings. • Verify the timeout. • Refer to the Modbus user manual.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[PC Com Interruption] SLF2

PC communication interruption

	Probable Cause	<p>Communication interruption with the commissioning software.</p> <p>This error is triggered when the command or reference value are given using the commissioning software.</p>
	Remedy	<ul style="list-style-type: none"> • Verify the commissioning software connecting cable. • Verify the timeout.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[HMI Com Interruption] SLF3

HMI communication interruption

 Probable Cause	<p>Communication interruption with the Graphic display terminal.</p> <p>This error is triggered when the command or reference value are given using the Graphic Display Terminal and if the communication is interrupted during more than 2 seconds.</p>
 Remedy	<ul style="list-style-type: none"> • Verify the Graphic display terminal connection. • Verify that the cable length does not exceed 10 m.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[HMI Comm Interrupt] SLF4

HMI communication interruption

 Probable Cause	<p>Communication error between HMI & Control block. The communication has not been established before timeout occurred timeout. ([Modbus 2 Timeout] TTO2 : 10 s)</p> <ul style="list-style-type: none"> • Modbus cable between HMI and Control Block not connected. • [Modbus 2 Timeout] TTO2 parameter setting too short. • Modbus port on Control Block or HMI not working properly. • Control block not working properly. • HMI not working properly (Program not loaded before timeout occurred). • In case of error, when QF1 feedback (PLIC PLI1 PLI2 PLI3) or [Brake Contact] BCI is configured to a command word bit, an untimely warning [QF1 Signals Fieldbus Warn] MQF1 or [Brake Contact Fieldbus Warn] MBFW is displayed on HMI. Solve this error first before working on the other ones.
 Remedy	<ul style="list-style-type: none"> • Verify the Modbus connection on the Control Block and HMI • Make sure all Modbus parameter settings are correct • Replace the Control Block / HMI • Reload the HMI program • Reload the Control Block firmware
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[SM Error] SMFT

Synchro to mains error

	Probable Cause	<p>The drive could not synchronize its output voltage to the Mains in the allowed time.</p> <ul style="list-style-type: none"> • High perturbation level on Mains voltage. • Setting error on Drive to Mains bypass function.
	Remedy	<ul style="list-style-type: none"> • Verify mains stability voltage and frequency. • Contact your local Schneider Electric representative to check commissioning state of the function. <p>If the mains is unstable adjust the following parameters</p> <ul style="list-style-type: none"> • SMAD • SMAS • SMMD • SMAB • SMAP • SMMB • SMMT • SMMO • SMFT • SMST • SMMV • SMAT
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Motor Overspeed] SOF

Motor overspeed

 Probable Cause	<p>A too high-speed has been detected, based on the speed feedback or on the estimated speed, depending on the settings.</p> <ul style="list-style-type: none"> • Instability or driving load too high. • If a downstream contactor is used, the contacts between the motor and the drive have not been closed before applying a Run command. • The overspeed threshold (corresponding to 110 % of [Max Frequency] TFR) has been reached.
 Remedy	<ul style="list-style-type: none"> • Verify the motor parameter settings. • Verify the size of the motor/drive/load. • Add a braking resistor if necessary. • Verify and close the contacts between the motor and the drive before applying a RUN command. • Verify the consistency between [Max Frequency] TFR and [High Speed] HSP. It is recommended to have at least [Max Frequency] TFR $\geq 110\% \times$ [High Speed] HSP.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Encoder Feedback Loss] SPF

Encoder feedback loss

 Probable Cause	<p>This error is triggered if the feedback encoder is lost or inconsistent.</p> <ul style="list-style-type: none"> • Missing of at least one wire at the encoder connection. • No input signal or no top Z signal after two rotations has been done. • No signal on the pulse input, if the input is used for speed measurement. • Noise on the encoder feedback signal due to EMC perturbations. • Power supply missing or encoder consumption exceeds power supply maximum current.
 Remedy	<ul style="list-style-type: none"> • Verify the error code value [Encoder Fdbck Error] ENCE. • Verify the wiring between the encoder and the drive. • Verify the encoder. • Verify the encoder settings. • Verify the wiring of the pulse input and the sensor used. • Use a shielded cable and ground both ends. • Verify the encoder power supply. Reduce [Encoder supply volt.] UECV value. Refer to installation manual.
 Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Security Files Corrupt] SPFC

Security files corrupt

 Probable Cause	Security files corrupted or missing.
 Remedy	Switch off the product. Upon next switch-on, the security file will be created again, and the information related to cybersecurity (such as channel policy and password) are set back to the default value.
 Clearing the Error Code	This detected error requires a power reset of the device after its cause has been removed.




[Torque timeout] SRF

Torque timeout

 Probable Cause	The torque control function is not able to regulate the torque within the configured dead band. The drive has switched to speed control for longer than [Torque ctrl time out] <i>RTO</i> .
 Remedy	<ul style="list-style-type: none"> • Verify the settings of the [Torque control] <i>TOR</i>– function. • Verify that there are no mechanical constraints.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] <i>ATR</i> or manually with the [Fault Reset Assign] <i>RSF</i> parameter after its cause has been removed.




[Torque Limitation Error] SSF

Torque limitation error

 Probable Cause	The device was in torque limitation or current limitation state during [Trq/l Limit Timeout] STO and [Trq/l limit. stop] SSB is not set to [Ignore] NO .
 Remedy	<ul style="list-style-type: none"> • Verify the settings of the [Torque limitation] TOL function. • Verify that there are no mechanical constraints. • Contact your Schneider Electric representative.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Speed Synchro Error] SSPF

Speed synchronization error

 Probable Cause	<ul style="list-style-type: none"> • Expected time between speed reference (LFR/LFRD) communication write request and speed synchronization command (configured with [Speed Synchronization] SSPS) is not respected. • Speed synchronization command not set after speed reference (LFR/LFRD) update within the sum of timeouts [Speed Synchro Warn Timeout] SSPA + [Speed Synchro Error Timeout] SSPF.
 Remedy	<ul style="list-style-type: none"> • Speed synchronization command must be set before timeout [Speed Synchro Warn Timeout] SSPA to avoid the [Speed Synchro Warn] SSPA. • Speed synchronization command must be set before the sum of timeouts [Speed Synchro Warn Timeout] SSPA + [Speed Synchro Error Timeout] SSPF to avoid [Speed Synchro Error] SSPF. • Set the timeout [Speed Synchro Warn Timeout] SSPA and [Speed Synchro Error Timeout] SSPF according to the communication cycle times of the application.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Motor Stall Error] STF

Motor stall detected error

	Probable Cause	<p>The stall monitoring function has detected an error.</p> <p>The [Motor Stall Error] STF is triggered on the following conditions:</p> <ul style="list-style-type: none"> • The output frequency is smaller than the stalling frequency [Stall Frequency] STP3, • The output current is higher than the stalling current [Stall Current] STP2, • For a duration longer than the stalling time [Stall Max Time] STP1.
	Remedy	<ul style="list-style-type: none"> • Search for a mechanical blocking of the motor. • Search for a possible cause of motor overload. • Verify the settings of the monitoring function.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI1 Thermal Sensor Error] T1CF

Thermal sensor error on AI1

	Probable Cause	<p>The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI1:</p> <ul style="list-style-type: none"> • Open circuit, or • Short circuit.
	Remedy	<ul style="list-style-type: none"> • Verify the sensor and its wiring. • Replace the sensor. • Verify the setting of [AI1 Type] AI1T parameter.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI3 Thermal Sensor Error] T3CF

Thermal sensor error on AI3

 Probable Cause	<p>The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI3:</p> <ul style="list-style-type: none"> • Open circuit, or • Short circuit.
 Remedy	<ul style="list-style-type: none"> • Verify the sensor and its wiring. • Replace the sensor. • Verify the setting of [AI3 Type] AI3T parameter.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI4 Thermal Sensor Error] T4CF

Thermal sensor error on AI4

 Probable Cause	<p>The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI4:</p> <ul style="list-style-type: none"> • Open circuit, or • Short circuit.
 Remedy	<ul style="list-style-type: none"> • Verify the sensor and its wiring. • Replace the sensor. • Verify the setting of [AI4 Type] AI4T parameter.
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[AI5 Thermal Sensor Error] T5CF

Thermal sensor error on AI5

	Probable Cause	<p>The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI5:</p> <ul style="list-style-type: none"> • Open circuit, or • Short circuit.
	Remedy	<ul style="list-style-type: none"> • Verify the sensor and its wiring. • Replace the sensor. • Verify the setting of [AI5 Type] AI5T parameter.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Encoder Th Sensor Error] TECF

Thermal sensor error on encoder module

	Probable Cause	<p>The thermal sensor monitoring function has detected a thermal sensor on the encoder module analog input:</p> <ul style="list-style-type: none"> • Open circuit, or • Short circuit. • Incorrect sensor type setting.
	Remedy	<ul style="list-style-type: none"> • Verify the sensor and its wiring. • Replace the sensor. • Verify the setting of [Enc Therm Sensor Type] THET parameter.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[MotorWinding A Error] TFA

Motor winding A error

 Probable Cause	The digital input assigned to [MotorWinding A Assign] TFAA is active for longer than [MotorWinding A Delay] TFDA.
 Remedy	<ul style="list-style-type: none"> • Verify the connected device (motor winding thermal switch) and its wiring. • Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting. • Verify that the parameter [MotorWinding A Assign] TFAA is assigned to the correct control type of the cabinet IO digital input (high/low assignment).
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[MotorWinding B Error] TFB

Motor winding B error

 Probable Cause	The digital input assigned to [MotorWinding B Assign] TFAB is active for longer than [MotorWinding B Delay] TFDB.
 Remedy	<ul style="list-style-type: none"> • Verify the connected device (motor winding thermal switch) and its wiring. • Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting. • Verify that the parameter [MotorWinding B Assign] TFAB is assigned to the correct control type of the cabinet IO digital input (high/low assignment).
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[MotorBearing A Error] TFC

Motor bearing A error

	Probable Cause	The digital input assigned to [MotorBearing A Assign] TFC is active for longer than [MotorBearing A Delay] TFDC.
	Remedy	<ul style="list-style-type: none"> • Verify the connected device (motor bearing thermal switch) and its wiring. • Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting. • Verify that the parameter [MotorBearing A Assign] TFC is assigned to the correct control type of the cabinet IO digital input (high/low assignment).
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[MotorBearing B Error] TFD

Motor bearing B error

	Probable Cause	The digital input assigned to [MotorBearing B Assign] TFD is active for longer than [MotorBearing B Delay] TFDD.
	Remedy	<ul style="list-style-type: none"> • Verify the connected device (motor winding thermal switch) and its wiring. • Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting. • Verify that the parameter [MotorBearing B Assign] TFD is assigned to the correct control type of the cabinet IO digital input (high/low assignment).
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[AI1 Th Level Error] TH1F

AI1 thermal level error

 Probable Cause	The thermal sensor monitoring function has detected a high temperature on analog input AI1.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the settings of the monitoring function.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[AI3 Th Level Error] TH3F

AI3 thermal level error

 Probable Cause	The thermal sensor monitoring function has detected a high temperature on analog input AI3.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the settings of the monitoring function.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[AI4 Th Level Error] TH4F

AI4 thermal level error

	Probable Cause	The thermal sensor monitoring function has detected a high temperature on analog input AI4.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the settings of the monitoring function.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[AI5 Th Level Error] TH5F

AI5 thermal level error

	Probable Cause	The thermal sensor monitoring function has detected a high temperature on analog input AI5.
	Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the settings of the monitoring function.
	Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Encoder Th Level Error] **THEF**

Encoder module thermal level error

 Probable Cause	The thermal sensor monitoring function has detected a high temperature on encoder module analog input.
 Remedy	<ul style="list-style-type: none"> • Search for a possible cause of overheating. • Verify the settings of the monitoring function.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Drive Overload] **TLOF**

Drive overload

 Probable Cause	<p>The [Drive overload monit] OBR– function has detected an error.</p> <p>The error is triggered when the [Drive Therm State] THD reach $\geq 118\%$, and is cleared when the [Drive Therm State] THD $\leq 90\%$.</p>
 Remedy	<ul style="list-style-type: none"> • Verify the size of the load/motor/device according to environment conditions. • Verify the device ventilation and the ambient temperature. • Verify the settings of the [Drive Overload Monit] TLOL parameter. • Verify the external 48V power supply function (if applicable). • Verify the Supply Mains stability.
 Clearing the Error Code	This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.




[Autotuning Error] **TNF**

Autotuning detected error

	Probable Cause	<p>An error has been triggered during a motor autotune.</p> <ul style="list-style-type: none"> • Special motor or motor whose power is not suitable for the drive. • Motor not connected to the drive. • Motor not stopped. • For a tune in rotation, the motor has been stopped prematurely. • The configuration of the drive (including the configuration of the tune in rotation) does not fit the use of tune in rotation with your application. • The motor cannot operate correctly during a tune in rotation. • Autotuning with long motor cables.
	Remedy	<ul style="list-style-type: none"> • Verify that the motor/device are compatible. • Verify that the motor is connected to the device during autotuning. • If an output contactor is being used, verify that it is closed during autotuning. • Verify that the motor is present and stopped during autotuning. • In case of reluctance motor, reduce [PSI Align Curr Max] MCR. • In case of error detected during a tune in rotation: <ul style="list-style-type: none"> ◦ Verify the run order remain active all along the tune in rotation. ◦ Increase [Acceleration] ACC and [Deceleration] DEC. They must not be set to value close to 0 s. ◦ If [Nb Of Repetitions] TNBR is different from 1, decrease [2nd Id max current] IDH2. ◦ If [Nb Of Repetitions] TNBR is different from 1, increase [2nd Id min current] IDL2. ◦ If possible, remove the load of the motor. ◦ Set back [Rotation Tune Freq] TLFR to [Nominal Motor Freq] FRS. • If the error continues to be triggered, decrease [Rotation Tune Freq] TLFR. • If possible, decrease [Nb Of Repetitions] TNBR.
	Clearing the Error Code	<p>This detected error can be cleared manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Process Underload] **ULF**

Process underload

	Probable Cause	<p>Process underload.</p> <ul style="list-style-type: none"> • Mechanical root cause in the application. • Changed load cycle situation of the application.
	Remedy	<ul style="list-style-type: none"> • Verify and remove the cause of the underload. • Verify the parameters of the [Process underload] ULD— function.
	Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>




[Supply Mains UnderV] **USF**

Supply mains undervoltage

 Probable Cause	<p>The measured DC bus voltage is lower than the rated voltage of the Supply Mains [Mains voltage] URES configured :</p> <ul style="list-style-type: none"> Supply Mains power too weak.
 Remedy	<p>Verify the RMS input voltage and the parameters of [Undervoltage Resp] USB.</p>
 Clearing the Error Code	<p>This detected error is cleared as soon as its cause has been removed.</p>

[Mains Voltage Dip Error] **3PF**

Mains Voltage dip error

 Probable Cause	<p>Detection based on mains voltage measurement, takes place when 3 input phases are lost.</p> <p>This error is used with mains voltage dip function.</p>
 Remedy	<p>Contact your local Schneider Electric representative.</p> <p>Update setting [Mains Dip Recovery Time] MVD2</p>
 Clearing the Error Code	<p>This detected error can be cleared with the [Auto Fault Reset] ATR or manually with the [Fault Reset Assign] RSF parameter after its cause has been removed.</p>

Glossary

C

CPLD :

Complex Programmable Logic Device.

E

Error :

Discrepancy between a detected (computed, measured, or signaled) value or condition and the specified or theoretically correct value or condition.

F

Factory setting:

Factory settings when the product is shipped.

Fault Reset:

A function used to restore the drive to an operational state after a detected error is cleared by removing the cause of the error so that the error is no longer active.

Fault:

Fault is an operating state. If the monitoring functions detect an error, a transition to this operating state is triggered, depending on the error class. A "Fault reset" is required to exit this operating state after the cause of the detected error has been removed. Further information can be found in the pertinent standards such as IEC 61800-7, ODVA Common Industrial Protocol (CIP).

FPGA:

Field-Programmable Gate Array.

M

Monitoring function:

Monitoring functions acquire a value continuously or cyclically (for example, by measuring) in order to check whether it is within permissible limits. Monitoring functions are used for error detection.

MV:

Medium Voltage

P

Parameter:

Device data and values that can be read and set (to a certain extent) by the user.

PELV:

Protective Extra Low Voltage, low voltage with isolation. For more information: IEC 60364-4-41.

PLC:

Programmable logic controller.

PoC:

Power Cell.

POE:

Power Output Enable.

Power stage:

The power stage controls the motor. The power stage generates current for controlling the motor.

PWM:

Pulse Width Modulation.

W

Warning:

If the term is used outside the context of safety instructions, a warning alerts to a potential error that was detected by a monitoring function. A warning does not cause a transition of the operating state.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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