

Altivar Process ATV600

ATV Predict for Variable Speed Drive and Rotating Equipment User Manual

NAT10588.01
01/2025



Legal Information

The information provided in this document contains general descriptions, technical characteristics and/or recommendations related to products/solutions.

This document is not intended as a substitute for a detailed study or operational and site-specific development or schematic plan. It is not to be used for determining suitability or reliability of the products/solutions for specific user applications. It is the duty of any such user to perform or have any professional expert of its choice (integrator, specifier or the like) perform the appropriate and comprehensive risk analysis, evaluation and testing of the products/solutions with respect to the relevant specific application or use thereof.

The Schneider Electric brand and any trademarks of Schneider Electric SE and its subsidiaries referred to in this document are the property of Schneider Electric SE or its subsidiaries. All other brands may be trademarks of their respective owner.

This document and its content are protected under applicable copyright laws and provided for informative use only. No part of this document may be reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), for any purpose, without the prior written permission of Schneider Electric.

Schneider Electric does not grant any right or license for commercial use of the document or its content, except for a non-exclusive and personal license to consult it on an "as is" basis.

Schneider Electric reserves the right to make changes or updates with respect to or in the content of this document or the format thereof, at any time without notice.

To the extent permitted by applicable law, no responsibility or liability is assumed by Schneider Electric and its subsidiaries for any errors or omissions in the informational content of this document, as well as any non-intended use or misuse of the content thereof.

Table of Contents

Safety Information.....	5
Product Related Information	6
About the document	7
Document Scope.....	7
Validity Note	7
Related Documents	8
Electronic product data sheet	9
Terminology	10
Contact us	10
Offer Overview	11
Commissioning and Display.....	12
Prerequisites to Configure ATV Predict.....	12
Configuration with the Commissioning Software (Webserver)	12
Dedicated ATV Predict Menu in the Display Terminal.....	22
Operate and Diagnostics	23
Predictive Maintenance.....	23
Glossary	27

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 product.

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 equipment.
- 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.
- Before performing work and/or applying voltage on the equipment, follow the instructions given in the appropriate installation manual.

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

About the document

Document Scope

The purpose of this document is to help you to set up predictive maintenance feature in the drive.

Validity Note

Original instructions and information given in the present document have been written in English (before optional translation).

NOTE: The products listed in the document are not all available at the time of publication of this document online. The data, illustrations and product specifications listed in the guide will be completed and updated as the product availabilities evolve. Updates to the guide will be available for download once products are released on the market.

This documentation is valid for the Altivar Process ATV630 drives except for IGBT stress monitoring for APM and drive system.

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 whole catalog for detailed characteristics and selection guides,
- The CAD files to help design your installation, available in over 20 different file formats,
- All software and firmware to maintain your installation up to date,
- A large quantity of White Papers, Environment documents, Application solutions, Specifications... to gain a better understanding of our electrical systems and equipment or automation,
- And finally all the User Guides related to your drive, listed below:

Title of Documentation	Reference number	
Catalog: Altivar Process ATV600 variable speed drives	DIA2ED2140502EN (English)	DIA2ED2140502FR (French)
ATV600 Getting Started	EAV63253 (English) EAV63254 (French) EAV63255 (German) EAV63256 (Spanish)	EAV63257 (Italian) EAV64298 (Chinese) EAV63253PT (Portuguese) EAV63253TR (Turkish)
ATV600 Getting Started Annex (SCCR)	EAV64300 (English)	
Video: Getting Started with Altivar Process ATV600	FA364431 FAQ (English)	
		
ATV630, ATV650 Installation Manual	EAV64301 (English) EAV64302 (French) EAV64306 (German) EAV64307 (Spanish)	EAV64310 (Italian) EAV64317 (Chinese) EAV64301PT (Portuguese) EAV64301TR (Turkish)
ATV600 Programming Manual	EAV64318 (English) EAV64320 (French) EAV64321 (German) EAV64322 (Spanish)	EAV64323 (Italian) EAV64324 (Chinese) EAV64318PT (Portuguese) EAV64318TR (Turkish)
ATV600 Modbus Serial Link Manual (Embedded)	EAV64325 (English)	
ATV600 Ethernet Manual (Embedded)	EAV64327 (English)	
ATV600 Ethernet IP - Modbus TCP Manual (VW3A3720, 721)	EAV64328 (English)	
ATV600 BACnet MS/TP Manual (VW3A3725)	QGH66984 (English)	
ATV600 PROFIBUS DP manual (VW3A3607)	EAV64329 (English)	
ATV600 DeviceNet manual (VW3A3609)	EAV64330 (English)	
ATV600 PROFINET manual (VW3A3627)	EAV64331 (English)	
ATV600 CANopen Manual (VW3A3608, 618, 628)	EAV64333 (English)	
ATV600 POWERLINK manual (VW3A3619)	PHA99690 (English)	
ATV600 Communication Parameters	EAV64332 (English)	
ATV600 Embedded Safety Function manual	EAV64334 (English)	
ATV660 Handbook	NHA37111 (English)	NHA37110 (German)

Title of Documentation	Reference number	
ATV680 Handbook	NHA37113 (English)	NHA37112 (German)
Application Note: ATV600 Multi-Drives Booster Control Optimized	QGH36060 (English)	
Application Note: ATV600 Multi- Masters Booster Control Pressure Feedback with Service Continuity	QGH36061 (English)	
Application Note: ATV600 Multi-Drives Standard Level Control	QGH36059 (English)	
Application Note: ATV600 Multi- Masters with Optimized Level Control	EAV64367 (English)	
ATV600F, ATV900F Installation Instruction sheet	NVE57369 (English)	
ATV600, ATV900 ATEX manual	NVE42416 (English)	
ATV61-71 to ATV600-900 Migration Manual	EAV64336 (English)	
SoMove: FDT	SoMove_FDT (English, French, German, Spanish, Italian, Chinese)	
ATV600: DTM	ATV6xx_DTM_Library_EN (English - to be installed first)	ATV6xx_DTM_Lang_SP (Spanish) ATV6xx_DTM_Lang_IT (Italian) ATV6xx_DTM_Lang_CN (Chinese)
Recommended Cybersecurity Best Practices	CS-Best-Practices-2019-340 (English)	
EcoStruxure Automation Device Maintenance	EcoStruxure Automation Device Maintenance (English)	
EcoStruxure Automation Device Maintenance - Altivar User Manual	JYT50472 (English) JYT50482 (German) JYT50474 (French) JYT50476 (Spanish) JYT50478 (Italian)	JYT50485 (Portuguese) JYT50484 (Turkish) JYT50483 (Chinese)

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

Electronic product data sheet

Scan the QR code in front of the drive to get the product data sheet.



Terminology

The terminology used on the HMI of ATV Predict is defined in ISO 13372:2012 (Condition Monitoring and Diagnostics of Machines — Vocabulary).

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.

Among others, these standards include:

- 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
- IEC 62443: Security for industrial automation and control systems

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

Select your country on www.se.com/contact.

Schneider Electric Industries SAS

Head Office

35, rue Joseph Monier

92500 Rueil-Malmaison

France

Offer Overview

ATV Predict feature allows to present a predictive maintenance for the different applications of the drive.

This feature allows to:

- Provide the stress level of the device.
- Provide the Remaining Useful Life of the device.
- Predict the future {detected faults} and {Detected Risks of Failure}.
- Deliver recommendations to remedy to the {detected faults and failures} of the device.

Commissioning and Display

Prerequisites to Configure ATV Predict

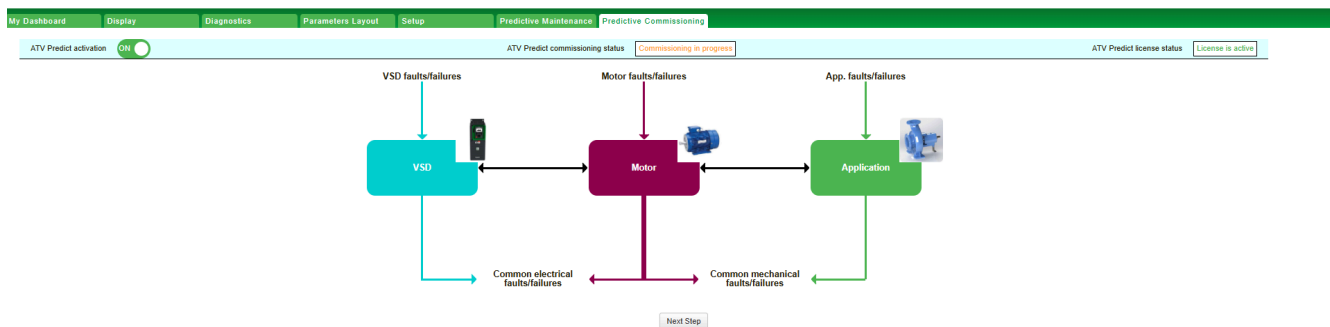
The drive firmware version compatible with ATV Predict is V4.3. This version can be downloaded at [ATV600 Product Firmware](#) and the firmware update can be done through the [Ecostruxure Automation Device Maintenance User Manual](#), page 9.

Before configuring ATV Predict, the license must be activated in the drive. For details, contact your local Schneider Electric Services for the license purchase and activation.

Before starting to configure the ATV Predict application, configure the standard parameters of the drive (motor parameters, pump parameters...) using the [Schneider_Electric_Altivar_Process_ATV6xx_DTM_Library_V4.2](#), page 9 or the display terminal. For more details, refer to [ATV600 programming manual](#), page 8.

Configuration with the Commissioning Software (Webserver)

After installing and activating the ATV Predict license, the drive can be connected to Webserver through the IP address, and the Predictive commissioning tab is available:



The ATV Predict can be activated through ATV Predict activation button or the **[ATVP Activation]** [APM](#) on the display terminal.

NOTE: The **Next Step** button is available when the **[ATVP Activation]** [APM](#) is set to **[Activated]** [YES](#).

[ATVP Activation] [APM](#)

ATV Predict activation.

Setting	Code / Value	Description
[Activated]	YES	The ATV Predict feature is activated
[Not Activated]	NO	The ATV Predict feature is not activated

[Commission. Status] [APCS](#)

ATV Predict commissioning status.

Setting	Code / Value	Description
not ACTIVE	none	The commissioning of the feature has not started.
in PRO- GRESS	PROG	The commissioning of the feature is in progress.
done	DONE	The commissioning of the feature has been completed.

[License Status] APLS

ATV Predict license status.

Setting	Code / Value	Description
[Not Active]	NACT	The ATV Predict has not been installed.
[Active]	ACTV	The ATV Predict license has been installed and activated.
[Expiring Soon]	SOON	The ATV Predict license is installed and will soon be expired.
[Expired]	EXPIRE	The ATV Predict license has expired.
[Error]	ERROR	The ATV Predict license is installed but not valid.

The commissioning requires to configure:

- The Variable Speed Drive (VSD)
- Motor
- Application

VSD Configuration

As the standard parameters of the drive have been configured beforehand, the VSD Datasheet displays the drive information, that can also be accessed through the **Drive identification** and the **[Drive parameters] MPI-** menu.

The screenshot shows a software interface for VSD configuration. At the top, there are navigation tabs: My Dashboard, Display, Diagnostics, Parameters Layout, Setup, Predictive Maintenance, and Predictive Commissioning. Below the tabs, there are three status indicators: 'ATV Predict activation' set to 'ON', 'ATV Predict commissioning status' set to 'Commissioning in progress', and 'ATV Predict license status' set to 'License is active'. The main content area is divided into two sections: 'VSD Datasheet' and 'Pre-requisite configuration'. The 'VSD Datasheet' section contains a table with the following data:

VSD Datasheet	
* Reference	ATV330U0504
* Device Version	V4.3E40
* Drive mains voltage	300-500 V three phase
* Drive nominal rating	2.2 kW / 7.5 hp
* Vendor ID	Schneider Electric
* Device Name	

The 'Pre-requisite configuration' section includes a field for 'VSD rated remaining useful life' set to '13' years, with 'Save' and 'Reset' buttons. Below this section are 'Previous Step' and 'Next Step' navigation buttons. To the right of the configuration fields is a small image of the physical VSD drive unit.

In addition, the Remaining Useful Life must be updated in case of a replacement with a new drive by entering the new value and clicking on the **Save** then **Reset** button.

Setup Predictive Maintenance Predictive Commissioning

ATV Predict commissioning status Commissioning in progress

Please ensure to verify and update all values for the VSD configuration.

VSD Datasheet

• Reference	ATV630U55N4
• Device Version	V4.3IE45
• Drive mains voltage	380-500 V three phase
• Drive nominal rating	5.5 kW / 7.5 Hp
• Vendor ID	Schneider Electric
• Device Name	


Pre-requisite configuration

VSD rated remaining useful life 13 yrs Reset

WARNING

Remaining Useful Life can only be reset when the drive is new (was replaced)
Do you want to reset the value?

Confirm Cancel



Motor Configuration

As the motor parameters have been configured beforehand, the Motor pre-requisite configuration displays the motor parameters settings, that can also be accessed through the [Motor parameters] MMO menu on the display terminal.

The parameters displayed are:

[Motor Standard] BFR

[Nominal Motor Power] NPR

[Nom Motor Voltage] UNS

[Nominal Motor Freq] FRS

[Nominal Motor Speed] NSP

[Slip compensation] SLP

[Nom Motor Current] NCR

For more details about these parameters, refer to ATV600 programming manual, page 8.

Setup Predictive Maintenance Predictive Commissioning


ATV Predict commissioning status Commissioning in progress

Please ensure to verify and update all values for the motor configuration.

Motor Pre-requisite configuration

Motor Standard	50Hz motor frequency	
Nominal motor power	5.5	kW
Nominal motor voltage	400	V
Nominal motor frequency	50	Hz
Nominal motor speed	1470	rpm
Nominal motor current	10.8	A
Slip Compensation	0	%
Motor rated remaining useful life	14	yrs

Apply Tuning !



Reset

Previous Step Next Step

If one of the motor parameters is modified or autotuning not done, it is recommended to perform an autotuning to optimize the performances through the parameter **[Autotuning]** TUN or by clicking on the **Apply Tunning** button and confirming the notification popup. If one of these parameters is modified, autotuning must be re-performed.

Setup Predictive Maintenance Predictive Commissioning


ATV Predict commissioning status Commissioning in progress

Please ensure to verify and update all values for the motor configuration.

Motor Pre-requisite configuration

Motor Standard	50Hz motor frequency	
Nominal motor power	5.5	kW
Nominal motor voltage	400	V
Nominal motor frequency	50	Hz
Nominal motor speed	1470	rpm
Nominal motor current	10.8	A
Slip Compensation	0	%
Motor rated remaining useful life	14	yrs

Apply Tuning !



Reset

! DANGER

Fully read and understand the manual before proceeding.

Confirm Cancel

In addition, the Remaining Useful Life must be updated in case of a replacement with a new motor by entering the new value and clicking on the **Reset** button.


Setup Predictive Maintenance Predictive Commissioning


ATV Predict commissioning status Commissioning in progress

Please ensure to verify and update all values for the motor configuration.

Motor Pre-requisite configuration

Motor Standard	50Hz motor frequency	
Nominal motor power	5.5	kW
Nominal motor voltage	400	V
Nominal motor frequency	50	Hz
Nominal motor speed	1470	rpm
Nominal motor current	10.8	A
Slip Compensation	0	%
Motor rated remaining useful life	14	

Apply Tuning 



WARNING

Remaining Useful Life can only be reset when the motor is new (was replaced)
Do you want to reset the value?

Confirm Cancel


Application Configuration

The following screen allows to select the right application by clicking on the image of the intended application.

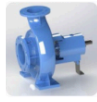
My Dashboard Display Diagnostics Parameters Layout Setup Predictive Maintenance Predictive Commissioning

ATV Predict activation ON ATV Predict commissioning status Commissioning in progress ATV Predict license status License is active


Select the right application




NO APPLICATION



PUMP



COMPRESSOR



FAN

Previous Step Next Step


The commissioning of the pump function allows the configuration of:

- Inlet pressure
- Outlet pressure
- Flow Pressure
- Pump characteristics


My Dashboard Display Diagnostics Parameters Layout Setup Predictive Maintenance Predictive Commissioning

ATV Predict activation ON ATV Predict commissioning status Commissioning in progress ATV Predict license status License is active


Please ensure to verify and update all values for pump and sensors configuration.




Inlet Pressure



Pump



Outlet Pressure



Flow Meter

Previous Step Next Step

Inlet Pressure

Once the configuration icon for the Inlet Pressure is selected, a new window is displayed with the following parameters:

Predictive Maintenance
Predictive Commissioning

ATV Predict commissioning status
Commissioning in progress

Please ensure to verify and update all values.

Inlet Pressure Configuration ✓

Inlet pressure sensor assignment AI1 Analog input

Configuration of AI1 Voltage

Application pressure Unit (used as default) 1 mbar

Sensor Scalling

	Min	Max
Physical value	0 V	10 V
Process value	-1000	3000

Sensor Correction

Inlet pressure corrective offset 0 mbar

Inlet pressure corrective gain 0 %

OK

- **[InletPres Assign]** PS1A
The setting of **[InletPres Assign]** PS1A (see table below)
- **[P sensor unit]** SUPR

For more details about these parameters' settings, refer to the ATV600 programming manual, page 8.

Sensor scalling

		Physical value Min	Physical value max
[AIx Type] AIxT	[Current] 0A	[AIx Min. Value] CRLx	[AIx Max Value] CRHx
	[Voltage] 10U	[AIx Min. Value] UILx	[AIx Max Value] UIHx
Process value		[AIx Lowest Process] AIxJ	[AIx Highest Process] AIxK
[AIVx Type] AVxT	[+/- 8192] INEG	-8192	+8192
	[+/- 100%] PNEG	-100%	+100%
Process value		AIVx Lowest Process AVxJ	AIVx Highest Process AVxK

For more details about these parameters' settings, refer to the ATV600 programming manual, page 8.

Sensor Correction

[In Pres Corr. Offset] PS10

Inlet pressure corrective offset

Setting	Description
-32,767....32,767	Setting range Unit: [P sensor unit] SUPR Factory setting: 0

[Inlet Pres Corr. Gain] PS1G**Inlet pressure corrective gain**

Setting	Description
0...2000	Setting range Unit: [P sensor unit] SUPR Factory setting: 0

NOTE: The Inlet Pressure must be configured only when an Inlet pressure sensor is used.

Outlet Pressure

Once the configuration icon for the Outlet Pressure is selected, a new window is displayed with the following parameters:

Predictive Maintenance
Predictive Commissioning

ATV Predict commissioning status
Commissioning in progress

Please ensure to verify and update all values.

Outlet Pressure Configuration ✓

Outlet pressure sensor assignment AI2 Analog input

Configuration of AI2 Voltage

Application pressure Unit (used as default) 1 mbar

Sensor Scaling

	Min	Max
Physical value	0 V	10 V
Process value	0	6000

Sensor Correction

Outlet pressure corrective offset 0 mbar

Outlet pressure corrective gain 0 %

OK

- **[OutletPres Assign]** PS2A
The setting of **[OutletPres Assign]** PS2A (see Sensor scaling below)
- **[P sensor unit]** SUPR

For more details about these parameters' settings, refer to the ATV600 programming manual, page 8.

Sensor scaling

Identical to the Inlet pressure configuration.

Sensor Correction

[Out Pres Corr. Offset] PS2O

Outlet pressure corrective offset.

Identical to **[In Pres Corr. Offset]** PS1O

[Outlet Pres Corr. Gain] PS2G

Outlet pressure corrective gain

Identical to [Inlet Pres Corr. Gain] PS1G

Flow Meter

Once the configuration icon for the Flow Meter is selected, a new window is displayed with the following parameters:

Predictive Maintenance
Predictive Commissioning

ATV Predict commissioning status
Commissioning in progress

Please ensure to verify and update all values.

Flow Configuration ✓

Pump flow sensor assignment

Configuration of AI3

Application flow rate Unit (used as default)

Sensor Scalling

Physical value

Process value

AI3 Analog input

Voltage

0.1 m3/h

Min	Max
0 V	10 V
0	800

OK

- **[Pump Flow Assign.]** FS2A
The setting of **[Pump Flow Assign.]** FS2A (see table below)
- **[P sensor unit]** SUPR

For more details about these parameters' settings, refer to the ATV600 programming manual, page 8.

Sensor scaling

		Physical value Min	Physical value max
[AIx Type] AIxT	[Current] 0A	[AIx Min. Value] CRLx	[AIx Max Value] CRHx
	[Voltage] 10U	[AIx Min. Value] UILx	[AIx Max Value] UIHx
Process value		[AIx Lowest Process] AIxJ	[AIx Highest Process] AIxK
[AIVx Type] AVxT	[+/- 8192] INEG	-8192	+8192
	[+/- 100%] PNEG	-100%	+100%
Process value		AIVx Lowest Process RVXJ	AIVx Highest Process RVXK
[DI5 PulseInput Assignment] PI5... [DI6 PulseInput Assignment] PI6		[DI5 PulseInput Low Freq] PIL5 / [DI6 PulseInput Low Freq] PIL6	[DI5 PulseInput High Freq] PIH5 / [DI6 PulseInput High Freq] PIH6
Process value		[DI5 Min Process] PI5J / [DI6 Min Process] PI6J	[DI5 Max Process] PI5K / [DI6 Max Process] PI6K

Pump Characteristics

After setting the pump application parameters (**[Pump characteristics]** [PCR-](#) Menu) through the DTM, Once the configuration icon for the pump is selected, a new window is displayed with the following parameters:

- **[Mode]** [PCM](#)
- **[Pump Standard ISO]** [PWTL](#)

Pump characteristic Tolerances ISO9906: according to ISO 9906:2012.

Setting	Code / Value	Description
[ISO9906 1B]	ISO1B	<i>Pump wear detection tolerances : ISO9906 1B</i>
[ISO9906 1E]	ISO1E	<i>Pump wear detection tolerances : ISO9906 1E</i>
[ISO9906 1U]	ISO1U	<i>Pump wear detection tolerances : ISO9906 1U</i>
[ISO9906 2B]	ISO2B	<i>Pump wear detection tolerances : ISO9906 2B</i>
[ISO9906 2U]	ISO2U	<i>Pump wear detection tolerances : ISO9906 2U</i>
[ISO9906 3B]	ISO3B	<i>Pump wear detection tolerances : ISO9906 3B</i>

- **[Wheel Stages Nb.]** [PCSN](#)

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

- **[Pump Speed]** [PCSP](#)

Pump Best Efficiency Points

	Flow rate ⁽¹⁾	Head ⁽¹⁾	Power ⁽¹⁾
Unit	[P sensor unit] SUPR ⁽¹⁾	[Flow rate unit] SUPR ⁽¹⁾	[Power 1] PCP1
Value	[Flow at BEP] PCBQ ⁽¹⁾	[Head BEP] PCBH ⁽¹⁾	[Power BEP] PCBF ⁽¹⁾

⁽¹⁾ For more details about these parameters' settings, refer to the ATV600 programming manual, page 8, **[Pump characteristics]** [PCR-](#) Menu.

Pump curves definition points

	Flow rate	Head	Power	Required Positive suction head
1	[Flow 1] PCQ1 ⁽¹⁾	[Head 1] PCH1 ⁽¹⁾	[Power 1] PCP1 ⁽¹⁾	[NPSH Point 1] PCR1
2	[Flow 2] PCQ2 ⁽¹⁾	[Head 2] PCH2 ⁽¹⁾	[Power 2] PCP2 ⁽¹⁾	[NPSH Point 2] PCR2
3	[Flow 3] PCQ3 ⁽¹⁾	[Head 3] PCH3 ⁽¹⁾	[Power 3] PCP3 ⁽¹⁾	[NPSH Point 3] PCR3
4	[Flow 4] PCQ4 ⁽¹⁾	[Head 4] PCH4 ⁽¹⁾	[Power 4] PCP4 ⁽¹⁾	[NPSH Point 4] PCR4
5	[Flow 5] PCQ5 ⁽¹⁾	[Head 5] PCH5 ⁽¹⁾	[Power 5] PCP5 ⁽¹⁾	[NPSH Point 5] PCR5

- **[NPSH Point 1]** [PCR1](#)...**[NPSH Point 5]** [PCR5](#)

These parameters are accessible when **[Mode]** [PCM](#) is set to **[NPHQ]** [NPHQ](#).

Setting	Description
0...32767	Setting range Factory setting: 0

Setup
Predictive Maintenance
Predictive Commissioning

ATV Predict commissioning status Commissioning in progress

Pump characteristics Configuration !

Select which curve data are managed and will be entered on NPSH, P, H, Q data are activated

Pump characteristic Tolerances ISO9906

Pump wheel stages number 1

Pump speed for which curves are entered 1470 rpm

Application asset rated remaining useful life 14 yrs Reset

Pump Best Efficiency Points

	BEP flow rate	BEP Head	BEP Power
Unit	0.1 m ³ /h	1 mbar	0.01 kW
Value	22.2 m ³ /h	3197 mbar	4.71 kW

Pump curves definition points

	Flow rate	Head	Power	Required Positive Suction Head
#1	2 m ³ /h	3837 mbar	2.61 kW	83 mbar
#2	9 m ³ /h	3806 mbar	3.34 kW	93 mbar
#3	16 m ³ /h	3598 mbar	4.07 kW	122 mbar
#4	23 m ³ /h	3130 mbar	4.79 kW	152 mbar
#5	30 m ³ /h	2336 mbar	5.4 kW	202 mbar

Pump Curve Validation

OK

Select the **Pump Curve Validation** button or set **[Pump Curve Activate] PCA** to **[Yes] YES**.

Setup
Predictive Maintenance
Predictive Commissioning

ATV Predict commissioning status Commissioning in progress

Pump characteristics Configuration ✓

Select which curve data are managed and will be entered on NPSH, P, H, Q data are activated

Pump characteristic Tolerances ISO9906

Pump wheel stages number 1

Pump speed for which curves are entered 1470 rpm

Application asset rated remaining useful life 14 yrs Reset

Pump Best Efficiency Points

	BEP flow rate	BEP Head	BEP Power
Unit	0.1 m ³ /h	1 mbar	0.01 kW
Value	22.2 m ³ /h	3197 mbar	4.71 kW

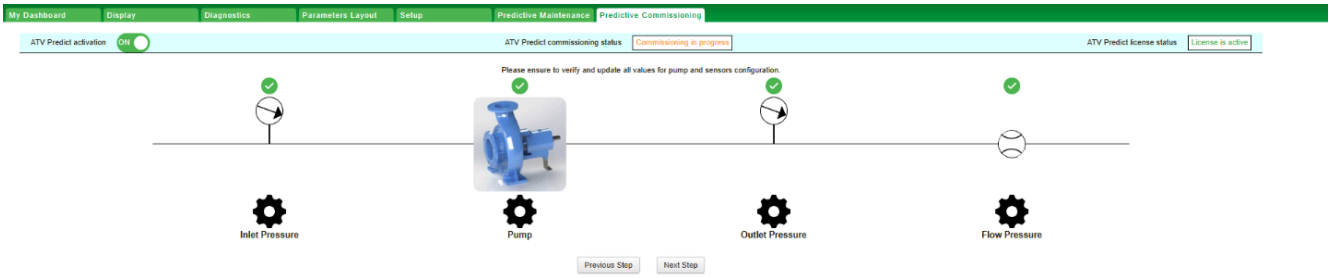
Pump curves definition points

	Flow rate	Head	Power	Required Positive Suction Head
#1	2 m ³ /h	3837 mbar	2.61 kW	83 mbar
#2	9 m ³ /h	3806 mbar	3.34 kW	93 mbar
#3	16 m ³ /h	3598 mbar	4.07 kW	122 mbar
#4	23 m ³ /h	3130 mbar	4.79 kW	152 mbar
#5	30 m ³ /h	2336 mbar	5.4 kW	202 mbar

Pump Curve Validation

OK

By clicking on the **OK** button, the pump application along with the Inlet, Outlet and Flow pressure have been configured.



Dedicated ATV Predict Menu in the Display Terminal

Overview

The menu access is **[Complete settings] → [Maintenance] → [Predict Maintenance]**

This menu allows to visualize:

- The status of the ATV Predict function activation,
- The status of ATV Predict license.

[ATVP Activation] APM

Refer to **[ATVP Activation] APM**, page 12.

[Commission. Status] APCS

Refer to **[Commission. Status] APCS**, page 12.

Warning Codes

List of Available Warnings Messages

Setting	Code	Description
[Config Not Finished]	ACNF	ATV Predict commissioning not finished
[License Expired]	ALES	ATV Predict license expires soon
[License Not Valid]	ALEX	ATV Predict license expired
[Prog Execution Error]	ALNV	ATV Predict License not valid
[Prog Execution Error]	APLE	ATV Predict Program Execution Error

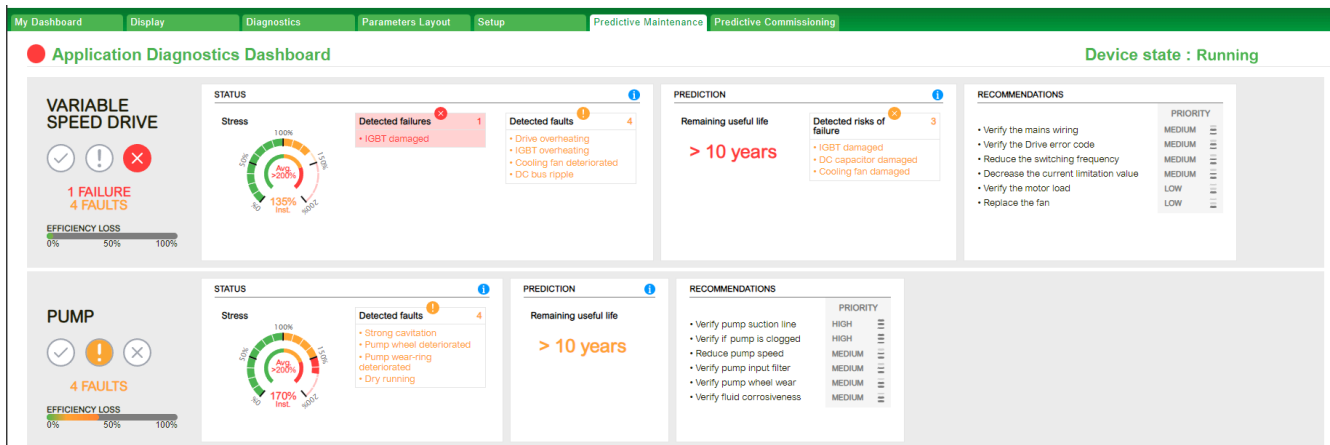
Operate and Diagnostics

Predictive Maintenance

After commissioning the ATV Predict feature, the Predictive Maintenance tab (the application Diagnostics Dashboard) represents for both VSD and Pump:

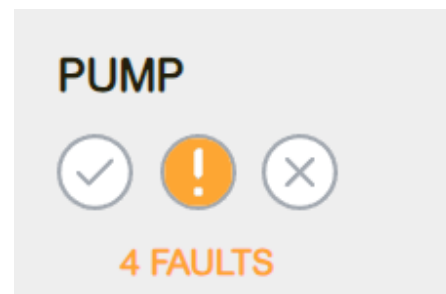
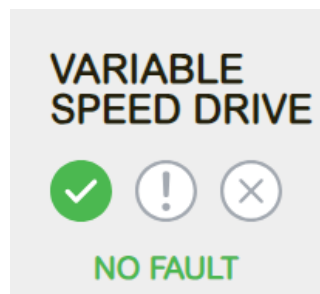
- Health indicator
- Stress indicator
- Remaining Useful Life indicator
- {detected faults}
- {detected failures}
- Recommendations
- Efficiency loss indicator

These key performance indicators of ATV Predict are only available when no error is triggered on the drive side, if an error has occurred, all indicators except for the remaining useful life indicator are set to 0. To remedy that, the error must be cleared. More details on the errors in the ATV600 programming manual, page 8.






Health Indicator

The health indicator is displayed on the dashboard using the following icons:

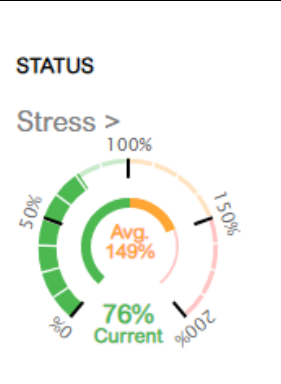
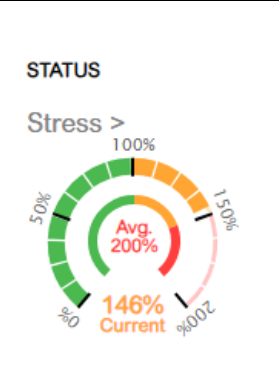
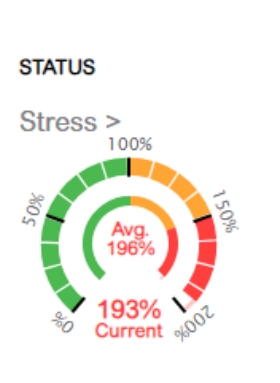


The health indicator changes values according to the {detected faults and failures} of each device (VSD and pump), and takes three values based on a color code:

Green 	The device health is normal and not {detected faults or failures}.
Orange 	The device health {detected faults} needing analysis.
Red 	The device health {detected failures} requiring immediate attention.

Stress Indicator

The stress indicator is displayed on the dashboard using the following icons:

Instantaneous Stress Level ≤ 100%	Instantaneous Stress Level > 100% & ≤ 150%	Instantaneous Stress Level > 150%
 <p>STATUS Stress > 100%</p> <p>76% Current Avg. 149%</p>	 <p>STATUS Stress > 100%</p> <p>146% Current Avg. 200%</p>	 <p>STATUS Stress > 100%</p> <p>193% Current Avg. 196%</p>

The stress indicator allows to represent the stress level of the device based on the operating point and the {detected faults or failures}.

Remaining Useful Life Indicator

The Remaining Useful Life (RUL) is an estimation of the remaining time before the next {detected failure} of the device, when it can no longer fulfill its nominal function.

The initial Remaining Useful Life can be configured based on the manufacturer information and then updated according to the operating conditions of the device.

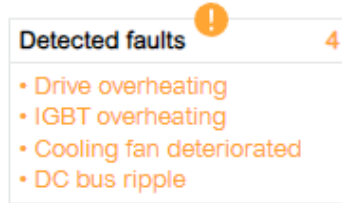
The Remaining Useful Life is provided in Years and the precision range is:

- When the RUL of the device is over 5 years, the precision can differ by more than 40% from its actual remaining useful life.
- When the RUL of the device is between 2 to 5 years, the precision can differ by more than 30% from its actual remaining useful life.
- When the RUL of the device is less than 2 years, the precision can differ by more than 20% from its actual remaining useful life.

NOTE: The Remaining Useful Life must be updated each time a device has been replaced (VSD, Motor or Pump)

{Detected Faults}

The {detected faults} are displayed on the dashboard using the following icons

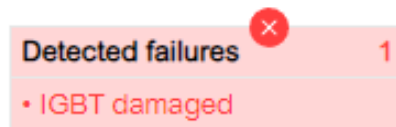


According to ISO13372:2012, a {detected fault} condition in a machine occurs when one of its components or assemblies degrades or exhibits abnormal behavior, which may lead to the {detected failure} of the machine.

According to ISO-13372-2012, Fault detection identifies abnormal structural behavior and names the {detected fault} as it occurs, in real-time. Ageing {detected faults} develop over time and should be linked to a threshold based on measurable symptoms that reflect the severity of the {detected fault}. This threshold should be adjustable, allowing for customization by the user (especially in advanced settings), provided the symptom is clear and easily understood, to handle specific or unusual cases.

{Detected Failure}

The {detected failures} are displayed on the dashboard using the following icons:



According to ISO13372:2012, a {detected failure} is a termination of the ability of an item to perform a required function. It is an event, distinguished from a {detected fault}, which is a state.

According to ISO13372:2012, a {detected failure} refers to any malfunction within the system (VSD, pump) that leads to a noticeable degradation in functionality or performance. The {detected failures} are typically identified when the system's operation is directly impacted, such as through a critical drop in hydraulic performance or loss of efficiency. These detected failures can arise from both structural issues (e.g., cavitation) and operational anomalies (e.g., electrical, or mechanical {detected faults}). The {detected failures} are categorized based on their functional consequences, and they are displayed accordingly in the ATV Predict dashboard. They include any {detected faults} that cause disruptions in normal system operation. The detected errors triggered by the drive that directly impact functionality (e.g., exceeding operational limits like current, voltage, speed) are also considered {detected failures}.

Recommendations

The recommendations are displayed on the dashboard using the following icon:

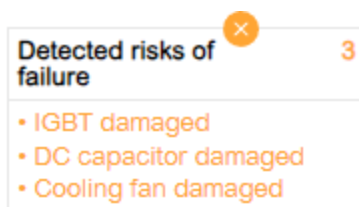
RECOMMENDATIONS	
	PRIORITY
• Verify pump suction line	HIGH
• Verify if pump is clogged	HIGH
• Reduce pump speed	MEDIUM
• Verify pump input filter	MEDIUM
• Verify pump wheel wear	MEDIUM
• Verify fluid corrosiveness	MEDIUM

The recommendations aim at reducing the observed Stress Indicator, which in turn helps to increase the Remaining Useful Life (RUL) of the device. These recommendations focus specifically on reducing the additional stress caused by {detected faults and failures}, not on changes to operational processes or conditions. The recommendations are based on the root causes of {detected faults and failures} identified. The primary goal is to address the most important causes first. For example, in a wastewater system, if cavitation occurs within the normal operational range, a recommendation might be to verify for clogged input filters, as this cause would not be explained by general asset wear. Each maintenance action is assigned a priority level from 1 (low priority) to 5 (high priority), based on two main factors:

- The potential impact on reducing stress.
- The ease of implementation (e.g., a higher priority will be given to actions that are easier to deploy and require less disruption, while more complex tasks that need a full shutdown and asset dismantling will have a lower priority).

{Detected Risks of Failure}

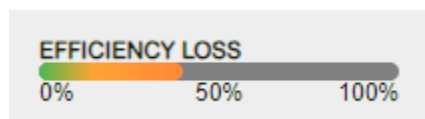
The {detected risks of failures} are displayed on the dashboard using the following icons:



The {detected risks of failure} help identify potential future {detected failures} by analyzing the current operating conditions of the system (such as the drive or pump) along with any {detected faults}. If a risk is identified, the system will show the potential future {detected failure}.

Efficiency Loss

The Efficiency loss is displayed on the dashboard using the following icons:



This indicator provides a status into how stress levels, {detected fault} presence, and system (drive or pump) wear contribute to efficiency loss and helping to prioritize maintenance through the recommended actions.

Glossary

V

VSD:

Variable Speed Drive

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison
France

+ 33 (0) 1 41 29 70 00

www.se.com

As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

© 2025 – Schneider Electric. All rights reserved.

NAT10588.01