Life Is On | Schneider Electric

Altivar 1260 4,160 Volt Air-Cooled MV Drives

A powerful new range of highly flexible medium voltage drive solutions for demanding industrial applications

schneider-electric.us/drives

ATV1260 Drives Family
Full range of MV solutions

Uncompromising design with advanced features

Simple, high quality design

>10 years experience
>15 year life expectancy
2 main control modules
(via **1** fiber optic link)

Clean, intuitive architecture that combines the latest vector control strategies with the latest semiconductor technologies commanded via fiber optic cables.

Grid and motor friendly

24 or **36** pulse DFE
<2% THDi
< 50V / microsecond
dv/dt at the motor terminals

Designed to minimize harmful harmonics that can get passed onto the power system while providing a smooth wave form that puts less stress on motor bearings and insulation.

Powerful operator interfaces

7.5” local HMI screen
256 parameters monitored
0 special software required
100 user type access levels
>9 communication protocols

Help raise your productivity and uptime and maximize the power of data with local and remote tools to control, monitor and diagnose drive and process conditions.

Lower total cost of ownership

12 IGBT’s (up to 2,400 HP)
> 75,000 hrs MTBF
< 30 mins MTTR
97.7% efficiency *
99.7% availability *

**For converter only.*

Engineered from the inside-out to provide years of operation using high quality components and assemblies that save you money throughout the life cycle.

ATV1260 Drives Family
Full range of MV solutions

A drive that consistently delivers performance and value

Part of a full line of complementary MV equipment all backed by Schneider Electric's global energy management experience and world-class customer support services.

500 HP to 6,500 HP
4.16 KV
3 phase
Air cooled

Altivar 1260 medium voltage drives include:

- Integrated Phase-Shift transformer (Dry Type) (ATV1260C)
- Integrated fused disconnect switch (ATV1260C)
- Two analog inputs (expandable to 4)
- Two analog outputs
- Nine digital inputs
- Nine digital outputs
- Enclosed drive grounding system
- Emergency stop (button in cabinet door)
- Isolation meter -ask Ingeteam
- Operation touch screen (with SCADA)
- Output sine wafe filter (LCR filter)
- Internal precharge and discharge system
- Security interlock system
- Fan heater to help prevent condensation in enclosure
- Varnished boards
- Flying restart function
- Voltage drop functionality
- Integrated UPS
- Integrated PLC
- Local HMI
- Web Application for remote monitoring

ATV1260 Drives Family
Full range of MV solutions

Easily configured to your application needs

The Altivar 1260 is a versatile medium voltage pump, fan and compressor drive serving multiple segments. Its modular design allows a wide range of ratings and the intuitive architecture makes it easy to operate across the full life cycle. This proven design is easily applied across different applications.

Oil & Gas

- Electric submersible pumps
- Reciprocating and centrifugal compressors
- Pipeline, booster and unloading pumps
- Water injection pumps
- Feed pumps

Mining, Minerals & Metals

- Furnace fans
- Hydro-transport pumps
- Conveyors
- Quenching pumps
- Dust collection fans
- Induced draft fans

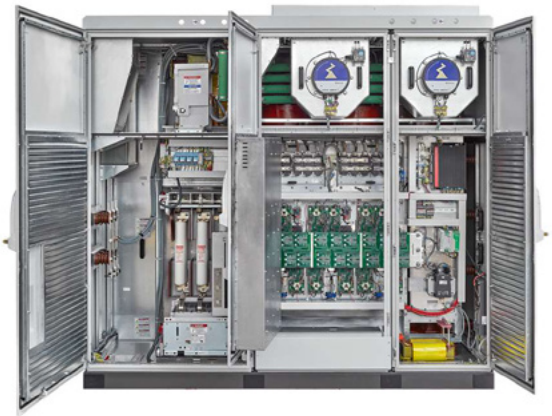
Power

- Induced and forced-draft boiler fans
- Reactor re-circulation pumps
- Feed water, cooling, circulation and condensate pumps
- Dust collection fans

Water & Wastewater

- Influent & effluent pumps
- High-service pumps
- Desalination pumps
- Booster pumps

Altivar 1260C MV Drive
500 HP to 1650 HP



Quality and reliability

High quality enclosure

- Type 1 (IP21) protection
- Front access enables easy maintenance and repair

Integrated disconnect and transformer

Grid friendly 24-pulse rectifier

- Press pack diodes helps reduce losses
- Easy to repair slide out modules
- Provided with ultra fast fuses with blown fuse detection and thermal protection

Low component count inverter

- Medium voltage IGBT's (6,500V)
- Easy to repair slide out modules
- Fiber optic control cables
- Driver card protective functions

Film capacitors

Motor friendly waveform

- Standard sine wave filter limits the effects of voltage derivatives that translate into overvoltage on the load terminals
- Sine wave filter can accommodate cable lengths >250 meters and standard non-converter duty motors

Flexibility and safety

Power management module

- Communications, semiconductor drivers,signal reading, internal I/O

Control converter unit

- Powerful CPU for regulation & control
- Integrated PLC logic
- RS-485 and Ethernet modules compatible with major protocols
- Web Application for remote diagnostics, monitoring and control

Barriered control components

- Accessible door-in-door low voltage compartment
- Circuit breakers and protective relays
- Isolation meter detects ground current at any point in the medium voltage line
- Uninterruptable power supply (UPS) + lithium battery
- Human-Machine-Interface (HMI) on door

1650 HP – 95" wide by 54" deep

ATV1260
1750 HP-6500 HP

A proven, scalable, modular architecture with a configurable, high performance design

Powerful protective, communication and control functionalities

High quality enclosure
- Type 1 (IP21) protection
- Front access enables easy maintenance and repair

Efficient cooling
- Temperature driven multi-speed fan
- Air input filters

Control converter unit
- Powerful CPU for regulation & control
- Integrated PLC logic
- RS-485 and Ethernet modules compatible with major protocols
- Web Application for remote diagnostics, monitoring and control

Other quality control components
- Accessible door-in-door low voltage compartment
- Circuit breakers and protective relays
- Isolation meter detects ground current at any point in the medium voltage line
- Uninterruptable power supply (UPS) + lithium battery
- Human-Machine-Interface (HMI) on door

Incoming cabinet

Power cabinet

Energy management
- Ground switch helps ensure the DC bus is grounded prior to cabinet access
- Key interlock system

Close-coupled transformer (not shown)
- Dry Type 24/36 Pulse Rectifier Transformer - VPI Impregnated
- 4,160 Volt Primary (+/- 10%)
- Rugged UL type 1 Enclosure
- Aluminum Windings
- Forced Air Cooling – 150C Temperature Rise

ATV1260
1750 HP-6500 HP

General technical specifications

Overview

Converter type	Voltage Source Inverter (VSI)
Power range	1750 to 6500 HP
Motor voltage range	4.16 KV
Output topology	3 Level NPC
Line side topology	24 /36 pulse diode front end (DFE)

Technical description

Transformer	Rectifier duty, VPI, AA/FA, 8% impedance, K-factor, 150 degree C rise, AL conductor, 60KV BIL primary, 30KV BIL secondary, 55-71 dB(a) sound level based on rating
Control	Vector, sensorless (in some applications)
Cooling	Forced air with multi-speed fan
Output frequency	0 to 100 HZ
Drive efficiency	DFE 97.7% @ 100% rated operating point (converter only)
Semiconductors	Press pack diodes / MV IGBT's (6,500 V for 4,160V drives)
Drive protections	Overcurrent, Ground Fault, Output Short Circuit, Over / Low Voltage on DC Bus, Semiconductor status, Cooling status, Motor Phases Unbalance; Motor protection: Overload, Overspeed
Max dv/dt	50V / microsecond
Static speed accuracy*	Constant flux < .01%; Field Weakening < .01%*
Static torque accuracy*	Constant Flux < 1%; Field Weakening < 1%*
Shaft torque ripple	Constant Flux < 1%; Field Weakening < 1%
THDi	<2%
Torque response	< 6 ms
Protection	Type 1 (IP21)
Environmental	40 degrees C ambient, < 1000m elevation, < 80 dB(A) @ 1 meter

** Closed Loop*

Options

dv/dt Filter, Redundant Fan Set,
NEMA 2 (IP42), Dynamic Braking Chopper,
Input/Output Isolation Switch, top cable connection,
Multi-motor, Multi-winding, Redundant Encoder,
Profibus DP or CAN Open Communications
Regenerative Active Front End Drives

Included features

Analog Inputs Available: 4
Analog Outputs Available: 4
Digital Inputs Available: 20
Digital Outputs Available: 20
Drive Grounding System
Emergency stop (on cabinet door)
Isolation Meter
Touch Screen (with SCADA)
Output sine wave filter (LCR low pass filter)
Pre-charge and Discharge System
Key Interlock System
Fan Heaters to Avoid Condensation in Enclosures
Conformal Coated Boards
Flying Restart Function
Voltage Drop Functionality
Integrated UPS
Integrated PLC (inside CCU)
Human-Machine-Interface (HMI)
Web Application
Front access quality enclosure
Close-coupled or separate transformer
Integrated input contactor (ATV1260C only)

ATV1260
1750 HP-6500 HP

Motor friendly waveform
- Standard sine wave filter limits the effects of voltage derivatives that translate into overvoltage on the load terminals
- Sine wave filter can accommodate cable lengths >250 meters and standard non-converter duty motors

Easily accessible terminations
- Incoming and outgoing cable terminations
- Power ground bus bar
- Control terminals with protective ground bus bar

Flexible cable entry
- Bottom cable entry is standard, top cable entry is optional

Condensation prevention
- Heating resistor

Local user interface
- Easy to navigate HMI

Power management module
- Communications, semiconductor drivers, signal reading, internal I/O

Low component count inverter
- Medium voltage IGBT's (6,500V)
- Easy to repair slide out modules
- Fiber optic control cables
- Driver card protective functions

DC link copper bus
- Film capacitors

Grounding switch

Grid friendly 24/36-pulse rectifier
- Press pack diodes helps reduce losses
- Easy to repair slide out modules
- Provided with ultra fast fuses with blown fuse detection and thermal protection

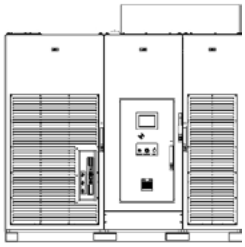
Pre-charge module

ATV1260 Drives Family
Full range of MV solutions

Flexible, modular and scalable architecture

The air cooled Altivar 1260 is composed of a medium voltage IGBT inverter and a 24/36 pulse diode rectifier designed to control both synchronous and induction AC motors

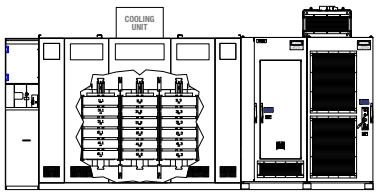
500 to 1,650 HP (420 to 1450 KVA) 24 Pulse Integral Transformer & Switch



	Width* (inches)	Weight (Lbs)
Drive	95	
Transformer	Included	Included
Switch	Included	Included

- **Standard height: 91” (including fan)**
- **Standard depth: 51”**

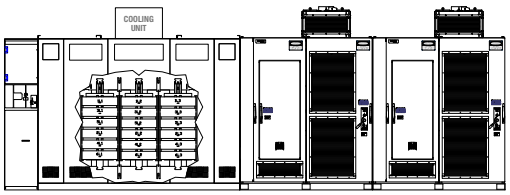
1,750 to 2,400 HP (610 to 2,093 KVA) 24 Pulse DFE



	Width* (inches)	Weight (Lbs)
Drive	79	4,406
Transformer +	67 to 87	6,500 to 11,200
Switch (optional)	20	1,756

- **Standard height: 90” (110” with fans)**
- **Standard depth: 43” (Switch is 37”)**

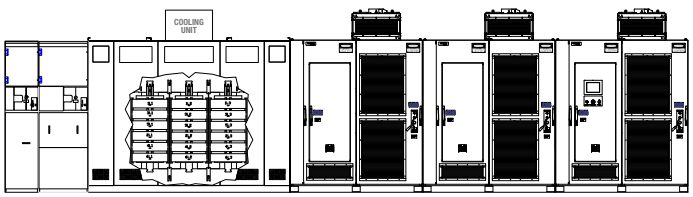
2,500 to 4,800 HP (2,182 to 4,185 KVA) 24 Pulse DFE



	Width* (inches)	Weight (Lbs)
Drive	158	8,375
Transformer +	87 to 120	11,200 to 16,400
Switch (optional)	20	1,756

- **Standard height: 90” (110” with fans)**
- **Standard depth: 43” (Switch is 37”)**
- **For 4000, 4600, & 4800 HP the switch is 49.5” wide and weights 2,423 lbs**

4,900-6,500 HP (4,278 to 5,668 KVA) 36 Pulse DFE



	Width* (inches)	Weight (Lbs)
Drive	236	11,464
Transformer +	120 to 132	16,400 to 19,400
Switch (optional)	49.5	2,423

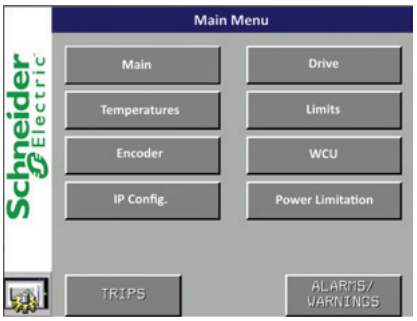
- **Standard height: 90” (110” with fans)**
- **Standard depth: 43” (Switch is 37”)**

+ Depending on KVA rating ** Based on motor pf of .89 and efficiency of .96, With standard sine wave output filter, 4,160V*

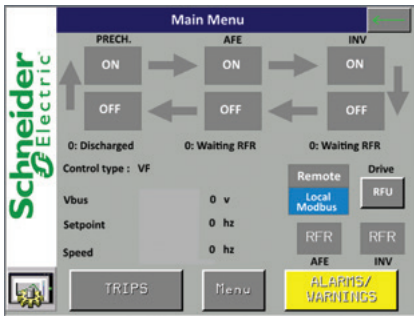
ATV1260 Drives Family
Full range of MV solutions

Easy to use human-machine-interface (HMI), Broad communications and web application

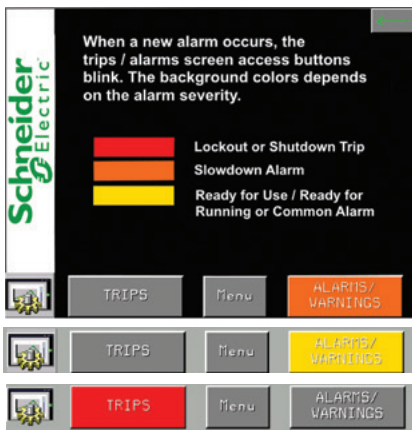
Top level menu
(Level 1 panels)



Main
(Local converter control)



When a new alarm occurs, the trips/alarms screen access buttons blink. The background color depends on the alarm severity.



The HMI operator panels communicate with the converter CCU (Converter Control Unit) through the Modbus™ RTU communications or Modbus TCP communications protocol. A series of panels are used to monitor and control the most common features of the converter. The most common panels, such as those that display the trips and alarms of the converter, are accessible from any level of the application.

HMI capabilities

- Control the converter: start/stop status and sequencing, view ready-for-use / ready-to-run status
- Access drive measurements: DC bus voltage, output voltage, output current, output active power, speed, torque
- Identify the source of power and torque limitations
- Adjust converter IP configuration
- View sensor temperatures, alarms and trips
- Evaluate conditions necessary to run
- Access and set software limits and conditions
- Work on encoders in manual or automatic mode
- Export data for further analysis
- Establish multiple access levels per user type

Color code

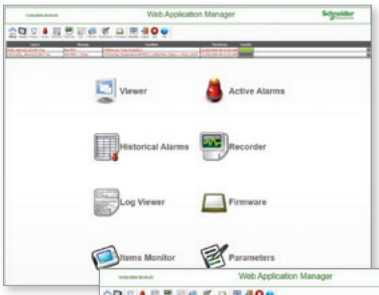
To make relevant information more visible, some buttons and tags will take different colors according to the following code:

- Inactive signal / conditions not fulfilled
- Conditions fulfilled
- Active signal
- Lockout or Shutdown Trip

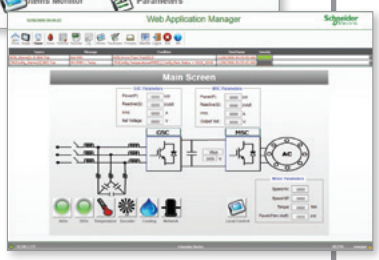
Web application is an easy to use software tool

Web application

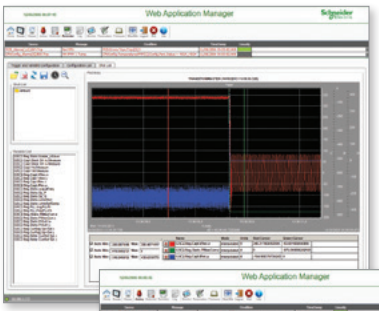
Main menu



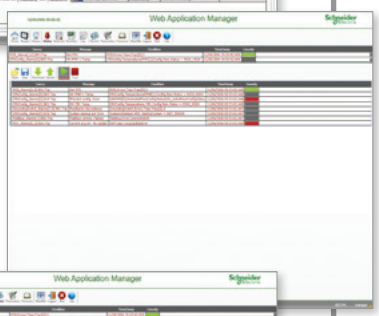
Panel design tool

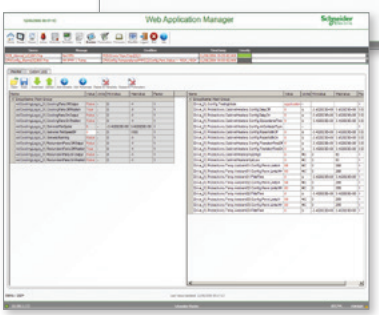


Data recorder



Alarm history





Monitor & set parameters

Web application is an easy to use software tool designed to support the drive's full life cycle including: start-up, monitoring, backup, configuration, diagnostics, data recording & commissioning- either locally or remotely without any need for special software.

Key capabilities

- Monitor signals graphically
- Save and compare parameters
- View and set parameters
- Edit your engineering panels
- Variable recorder configures triggers
- Event & historical alarm modules
- Different access levels
- Custom monitor viewer
- Share data via FTP
- Floating panels
- Multiple CPU panel
- Easily update firmware
- Log viewer shows all user operations, system status, application events

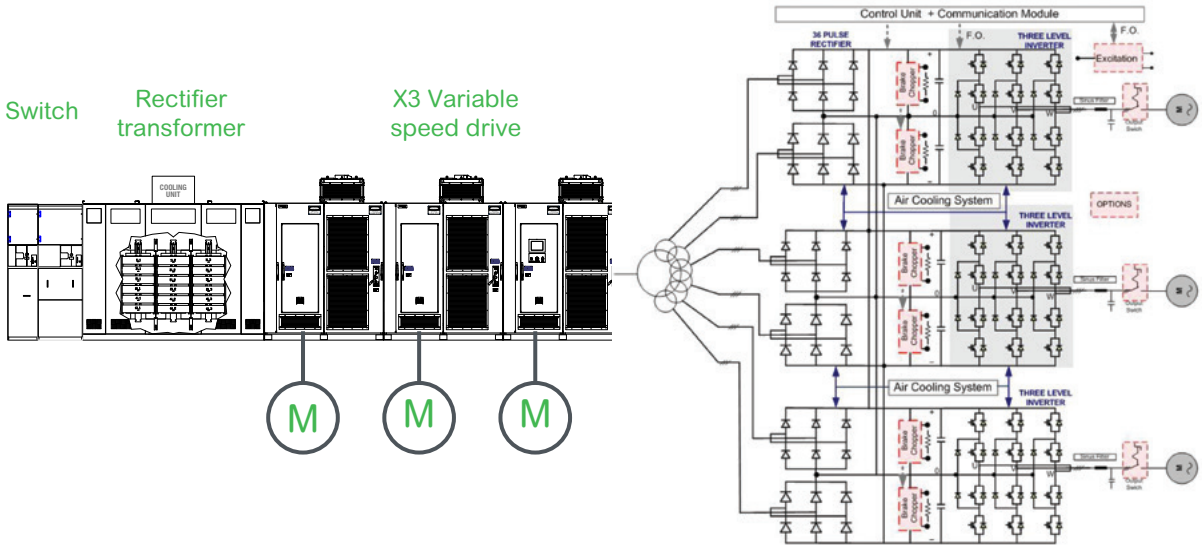
Communication modules

RS-485 and Ethernet are basic communication modules. Any communication protocol based on these are available, such as: EtherCat™, CANopen™, CC-Link™, DeviceNet™, Modbus™, InterBus™, ProfiBus™, ProfiNet™ and EtherNet/IP™.

ATV1260 Drives Family
Full range of MV solutions

Multi-motor configuration

Up to three inverters can connected to one single DC bus. While some motors can be braking, others can be motoring, thus transferring energy between themselves through the DC bus. Each motor can have its own speed set-point and protections all controlled by a single CPU, thus providing excellent dynamic response and load sharing characteristics while saving valuable floor space.

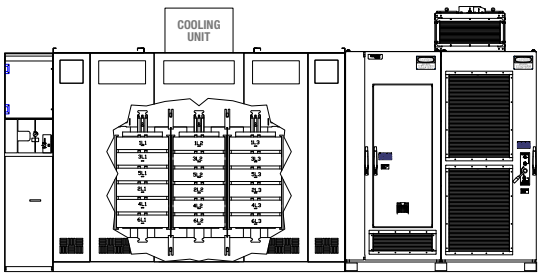


Sequential starting for multiple motor control

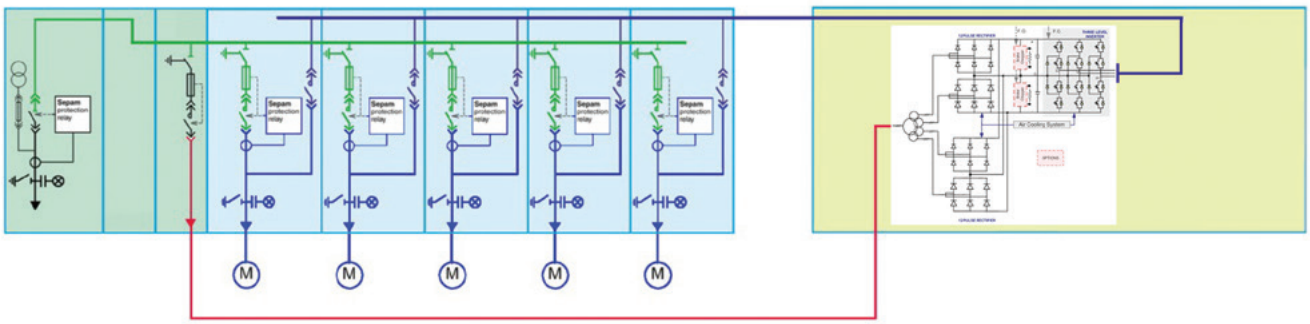
Start multiple motors from one VSD

- For high torque applications
- Starting loaded conveyers
- Flow control for pumping applications
- Reduces mechanical stress on equipment
- Minimizes network impact when starting

Altivar 1260



S3 Motorpact by-pass solution



Engineering Motorpact disconnect switch 20” and 49.5” wide

Optional with ATV1260

Latched FVNR controller, draw-out 4.0/4.16kV Motorpact, 3 phase, 60 HZ 60 KV BIL, 1.0 Service Factor, 40 degrees C 200, 400, 450 and 720 Amps

20 inches + 29.5” for higher current (720amp)

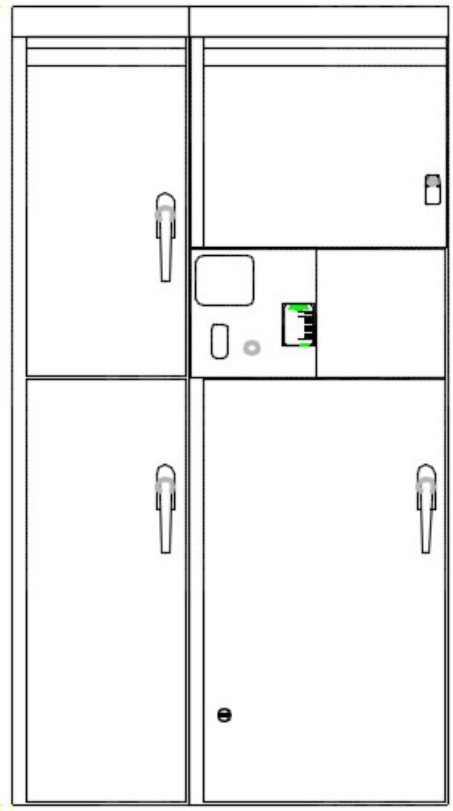
240 VAC control power- user/customer supplied

Type 1 Indoor construction (option for NEMA 3R)

Front and rear access

NEMA 3R

200-450 amp, 20” wide (indoor)



720 amp, 49.5” wide

Features

- Contactor for isolation
- Manual disconnect, and class E fuse protection
- Latched trip coil voltage- capacitor trip unit
- SEPAM monitoring relay for under voltage and phase loss
- 3 KVA CPT
- 3 phase CT’s, on for the protective relay
- Shorting TB for 3 phase CT
- 3-phase VT
- Cable support
- Copper ground bus

ATV1260 Drives Family
Full range of MV solutions

Solutions designed to meet your challenges

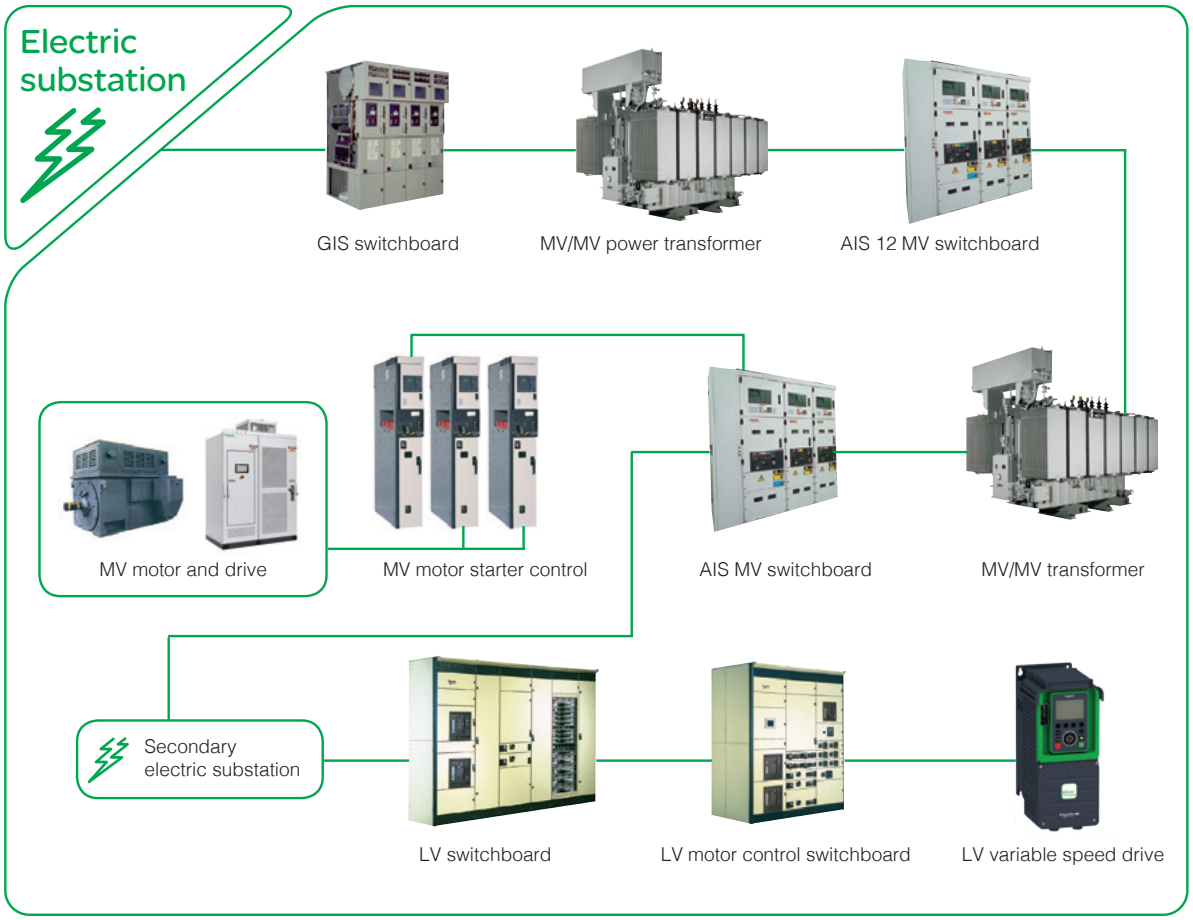
We design energy management solutions

The Altivar 1260 is one component of an overall Schneider Electric medium voltage power system comprised of key distribution products and services designed to meet your challenges. At Schneider Electric we strive daily to be your first choice in quality energy solutions.

Life-cycle solutions

Schneider Electric provides services from system design and consulting, to maintenance support, modernization of your installation, and project delivery. Schneider Electric provides the people, tools, and processes to help maximize your business's infrastructure.

- Start-up and commissioning
- Technical training
- Remote technical support
- On-site technical support
- Preventative maintenance
- Industrial repair services
- Spare parts management
- Migration and modernization
- Software renewals
- Extended warranty



Notes

Life Is On | Schneider Electric

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