

# Variable speed drives

## Altivar Process

### ATV900

Catalog

January 2018



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# General contents

|   |               |
|---|---------------|
| ■ General presentation.....   | page 2        |
| <i>IP 20, IP 21, IP 54 or IP 55 variable speed drive selection guide .....</i>          | <i>page 4</i> |
| <i>IP 23 or IP 54 Drive Systems selection guide .....</i>                               | <i>page 6</i> |
| ■ Altivar Process ATV900 variable speed drives presentation .....                       | page 8        |
| ■ Altivar Process ATV900 Drive Systems presentation .....                               | page 16       |
| <b>Altivar Process ATV900 variable speed drives</b>                                     |               |
| ■ 200...240 V 50/60 Hz supply, IP 21/UL Type 1 .....                                    | page 18       |
| ■ 380...480 V 50/60 Hz supply, wall-mounting .....                                      | page 19       |
| □ IP 21/UL Type 1, with integrated category C2 or C3 EMC filter .....                   | page 19       |
| □ IP 55, with integrated category C2 or C3 EMC filter .....                             | page 21       |
| □ IP 55, with Vario disconnect switch and integrated category C2 or C3 EMC filter ..... | page 22       |
| ■ 500...690 V 50/60 Hz supply, IP 00.....   | page 23       |
| ■ 380...440 V 50/60 Hz supply, floor-standing.....                                      | page 24       |
| □ IP 21, with integrated category C3 EMC filter .....                                   | page 24       |
| □ IP 54, with integrated category C3 EMC filter .....                                   | page 25       |
| ■ Replacement parts .....   | page 26       |
| ■ Accessories .....   | page 27       |
| ■ Graphic display terminal.....   | page 28       |
| ■ Accessories for graphic display terminal.....   | page 29       |
| ■ Web server .....  | page 30       |
| ■ DTM libraries and SoMove setup software .....   | page 31       |
| <b>Options</b>  |               |
| ■ Drive/option combinations .....   | page 32       |
| ■ Encoder modules and I/O expansion modules .....                                       | page 38       |
| ■ Communication buses and networks .....  | page 40       |
| ■ Braking units and resistors .....   | page 46       |
| ■ Passive filters .....   | page 54       |
| ■ EMC filters .....   | page 60       |
| ■ dv/dt filters .....   | page 63       |
| ■ Sinus filters .....   | page 66       |
| ■ Common mode filters .....   | page 68       |
| <b>Motor starters</b>   |               |
| ■ 200...240 V 50/60 Hz supply .....   | page 70       |
| ■ 380...415 V 50/60 Hz supply .....   | page 71       |
| ■ 440 V 50/60 Hz supply .....   | page 73       |
| ■ 500...690 V 50/60 Hz supply .....   | page 75       |
| <b>Dimensions</b>   |               |
| ■ Drives .....  | page 76       |
| ■ Options .....   | page 80       |
| <b>Services</b>   |               |
| ■ A whole world of services for your drives.....  | page 84       |
| <b>Index</b>  |               |
| ■ Product reference index.....  | page 86       |

# Variable speed drives

## Altivar Process ATV900

### Process efficiency, real-time intelligence

#### Altivar Process

Provides the efficiency you deserve

Altivar Process is the new comprehensive range of variable speed drives from Schneider Electric covering the majority of industrial applications with 2 series:

- > ATV600: drives focused on fluid management and processing and energy saving
- > ATV900: drives focused on maximum productivity with exceptional motor control and connectivity

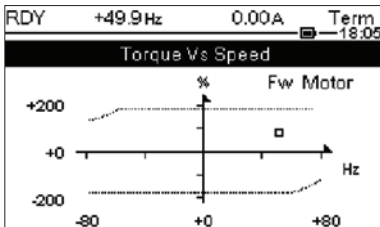
Wall-mounting drives, built-in cabinet, and floor-standing solutions are available with IP 20, IP 21, IP 23, IP 54, and IP 55 protection degrees, according to customer requirements.

Wall-mounting drives from 0.75 kW to 315 kW  
 Floor-standing drives from 110 kW to 315 kW  
 Drive Systems from 110 kW to 800 kW



From basic design to customized offer

Altivar Process drives



Display screen

#### Process efficiency

##### Motor performance and connectivity

- > Excellent motor performance on any type of motor
- > Dual port Ethernet offers maximum services such as connection to the control room and process transparency
- > Network service helps ensure operation continuity even in case of connection breakdown
- > Web server and data logging help reduce downtime through fast troubleshooting and preventive maintenance

##### Complete control of your applications

- > Maximize your application performance by using Drive-to-Drive communication: total control of any kind of coupling in master/slave applications
- > Total management and flexibility of speed and torque on rigid and elastic coupling
- > Asset monitoring functions to increase production and reduce downtime

#### Real-time intelligence

##### Web server and services via Ethernet

- > Embedded web server interface based on the Ethernet network gives you process monitoring with your daily working tools.
- > Local and remote access to energy use and customized dashboards means your energy is visible anywhere, any time, on PC, tablet, or smartphone.



## + Motor control application performance





**ODVA organization:**  
Supports network technologies based on EtherNet/IP



**FDT Technology:** An international standard with broad acceptance in the automation industry



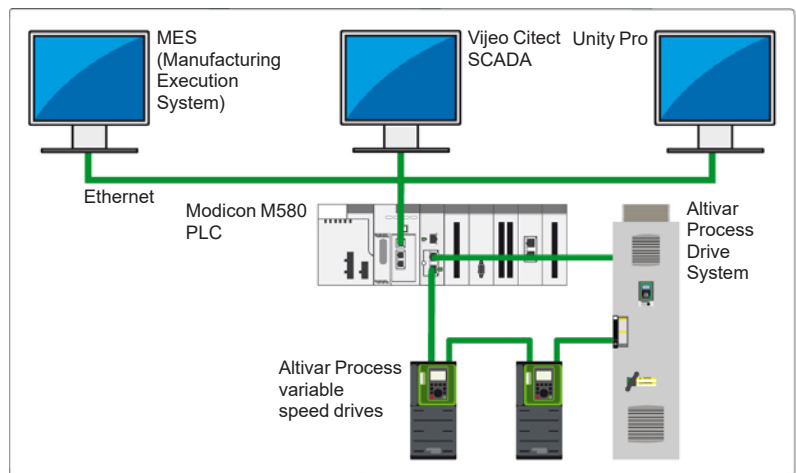
Achilles™ Level 2 certified



## User-friendliness

### Simple integration in PLC environments

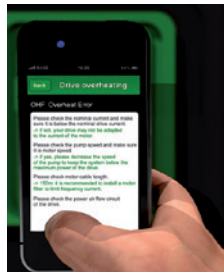
- > Easy integration thanks to standardized FDT/DTM and ODVA technology
- > Supported by predefined Unity Pro libraries
- > Easy access via PC, tablet, or smartphone
- > Secure connection via “Cyber-secure Ethernet”



Integration in the Modicon M580 automation platform



Scanning the QR code from a smartphone or tablet



Instant access to online help

### Sophisticated service concept

- > Modular design provides easy spare parts logistics
- > Optimized maintenance costs due to dynamic maintenance schedule, with integrated monitoring of individual components
- > Simple exchange of power modules and fans
- > Quick assistance with dynamic QR codes and Customer Care App



## Green product

### Designed to have a smaller carbon footprint

- > The Green Premium product label, Schneider Electric's eco-mark, indicates your compliance with international environmental standards such as:
  - > RoHS-2 according to EU directive CE 2002/95
  - > REACH according to EU regulation 1907/2006
  - > IEC 62635: The end-of-life instructions comply with the latest recycling rules, 70% of the product components can be recycled.

# IP 20, IP 21, IP 54, or IP 55 variable speed drives for asynchronous and synchronous motors

This manual was downloaded on [www.sdsdrives.com](http://www.sdsdrives.com)  
 Tel: (0)117 938 1800 - [info@sdsdrives.com](mailto:info@sdsdrives.com)

**Market segments**

- Oil & gas
- Mining, minerals & metals
- Food & beverage
- Water & wastewater



|   |                                  |
|---|----------------------------------|
| <b>Mounting type</b>                              | Wall-mounting                    |
| <b>Degree of protection</b>                       | IP 20 and IP 21/UL Type 1        |
| <b>Power range for 50...60 Hz line supply (1)</b> | Three-phase: 200...240 V (kW/HP) |
|   | Three-phase: 380...440 V (kW)    |
|   | Three-phase: 380...480 V (kW/HP) |
|   | Three-phase 500...690 V (kW/HP)  |
| <b>Drive</b>                                      | Output frequency                 |
|   | Control type                     |
| <b>Functions</b>                                  | Advanced functions               |
|   | Integrated safety function       |
| <b>Number of integrated I/O</b>                   | Analog inputs                    |
|   | Digital inputs                   |
|   | Digital output                   |
|   | Analog outputs                   |
|   | Relay outputs                    |
|   | Safety function inputs           |
| <b>I/O extension modules (optional)</b>           | Analog inputs                    |
|   | Digital inputs                   |
| <b>Relay output module (optional)</b>             | Relay outputs                    |
|   | Option modules                   |
| <b>Communication</b>                              | Integrated                       |
| <b>Configuration and runtime tools</b>            | Option modules                   |
| <b>Standards and certifications</b>               |                                  |
| <b>References</b>                                 |                                  |
| <b>Page</b>                                       |                                  |

|  |  |  |
|--|--|--|
|  | Wall-mounting  | Floor-standing   |
|  | IP 20 and IP 21/UL Type 1  | IP 21/UL Type 1 without braking unit   |
|  | 0.75...45/1...60   | 55...75/75...100   |
|  | –  | 110...315  |
|  | 0.75...220/1...350   | 55...315/75...500  |
|  | 2.2...90/3...125   | –  |
|  | 0.1...599 Hz   |  |
|  | Standard constant torque, optimized torque mode  |  |
|  | PM (Permanent Magnet) motor  |  |
|  | <ul style="list-style-type: none"> <li>■ Performance on motor control with an overload torque up to 180% Tn in an open or closed loop</li> <li>■ Asynchronous, synchronous, special motors: all efficiency classes, brand independent, permanent magnet motors, torque motors, conical sliding rotor, reluctance motor</li> <li>■ Integrated EtherNet/IP and Modbus TCP dual port, cybersecurity (Achilles Level 2)</li> <li>■ Smart integration in PlantStruxure and Foxboro Evo process automation systems</li> <li>■ Optimized energy efficiency, detection of energy consumption drift of the installation</li> <li>■ Adaptation to the process by dedicated functions with modular design</li> <li>■ Embedded safety functions STO SIL3</li> <li>■ Master/slave and load sharing with drive-to-drive capability:                             <ul style="list-style-type: none"> <li>□ torque sharing on rigid coupling</li> <li>□ torque sharing on elastic coupling</li> </ul> </li> <li>■ Contextual access to technical documentation through dynamic QR code</li> <li>■ Continuous and historical real-time measurements with customizable dashboards</li> <li>■ Predictive maintenance (e.g.: temperatures with PT100/1000 probe, fan monitoring, etc.)</li> </ul> |  |
|  | 1: STO (Safe Torque Off) SIL3  |  |
|  | 16   |  |
|  | 3: Configurable as voltage (0...±10 V) or current (0-20 mA/4-20 mA), including 2 for probes (PTC, PT100, PT1000, or KTY84)   |  |
|  | 8: Voltage 24 V $\overline{DC}$ (positive or negative logic)   |  |
|  | 1: Assignable  |  |
|  | 2: Configurable as voltage (0...10 V) or current (0-20 mA)   |  |
|  | 3: 1 with NO/NC contacts and 2 with NO contacts  |  |
|  | 2: For safety function STO   |  |
|  | 2 differential analog inputs configurable via software as current (0-20 mA/ 4-20 mA), or for PTC, PT100 or PT1000, 2 or 3-wire   |  |
|  | 6: Voltage 24 V $\overline{DC}$ (positive or negative logic)   |  |
|  | 2: Assignable  |  |
|  | 3: NO contacts   |  |
|  | EtherNet/IP and Modbus/TCP dual port, Modbus serial link   |  |
|  | PROFINET, CANopen RJ45 Daisy Chain, Sub-D, and screw terminals, Profibus DP V1, EtherCAT, and DeviceNet  |  |
|  | Graphic display terminal, embedded web server, DTM (Device Type Manager), SoMove software  |  |
|  | UL 508C, EN/IEC 61800-3, EN/IEC 61800-3 environment 1 category C2, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 61000-3-12, IEC 60721-3, IEC 61508, IEC 13849-1, REACH  | EN/IEC 61800-3, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 60721-3, IEC 61508 |
|  | <b>ATV930●●●●●</b>   | <b>ATV930●●●●●C</b>  |
|  | 18   | 24   |

(1) In "Normal duty" power values are given for applications requiring a slight overload (up to 120%). For power values in "Heavy duty" applications requiring a significant overload (up to 150%), see page 18.

- Oil & gas
- Mining, minerals & metals
- Food & beverage
- Water & wastewater



|  |  |  |
|--|--|--|
|  | Wall-mounting  | Floor-standing   |
|  | IP 55  | IP 55 with Vario disconnect switch   |
|  | –  | –  |
|  | 0.75...90/1...125  | 110...315  |
|  | –  | –  |
|  | 0.1...599 Hz   |  |
|  | Standard constant torque, optimized torque mode  |  |
|  | PM (Permanent Magnet) motor  |  |
|  | <ul style="list-style-type: none"> <li>■ Performance on motor control with an overload torque up to 180% Tn in an open or closed loop</li> <li>■ Asynchronous, synchronous, special motors: all efficiency classes, brand independent, permanent magnet motors, torque motors, conical sliding rotor, reluctance motor</li> <li>■ Integrated EtherNet/IP and Modbus TCP dual port, cybersecurity (Achilles Level 2)</li> <li>■ Smart integration in PlantStruxure and Foxboro Evo Process Automation Systems</li> <li>■ Optimized Energy Efficiency, detection of energy consumption drift of the installation</li> <li>■ Adaptation to the process by dedicated functions with modular design</li> <li>■ Embedded safety functions STO SIL3</li> <li>■ Master/slave and load sharing with drive-to-drive capability:                             <ul style="list-style-type: none"> <li>□ torque sharing on rigid coupling</li> <li>□ torque sharing on elastic coupling</li> </ul> </li> <li>■ Contextual access to technical documentation through dynamic QR code</li> <li>■ Continuous and historical real-time measurements with customizable dashboards</li> <li>■ Predictive maintenance (e.g.: temperatures with PT100/1000 probe, fan monitoring, etc.)</li> </ul> |  |
|  | 1: STO (Safe Torque Off) SIL3  |  |
|  | 16   |  |
|  | 3: Configurable as voltage (0...±10 V) or current (0-20 mA/4-20 mA), including 2 for probes (PTC, PT100, PT1000, or KTY84)   |  |
|  | 8: Voltage 24 V $\overline{DC}$ (positive or negative logic)   |  |
|  | 1: Assignable  |  |
|  | 2: Configurable as voltage (0...10 V) or current (0-20 mA)   |  |
|  | 3: 1 with NO/NC contacts and 2 with NO contacts  |  |
|  | 2: For safety function STO   |  |
|  | 2 differential analog inputs configurable via software as current (0-20 mA/ 4-20 mA), or for PTC, PT100 or PT1000, 2 or 3-wire   |  |
|  | 6: Voltage 24 V $\overline{DC}$ (positive or negative logic)   |  |
|  | 2: Assignable  |  |
|  | 3: NO contacts   |  |
|  | EtherNet/IP and Modbus/TCP dual port, Modbus serial link   |  |
|  | PROFINET, CANopen Daisy Chain RJ45, Sub-D, and screw terminals, Profibus DP V1, EtherCAT, and DeviceNet  |  |
|  | Graphic display terminal, embedded web server, DTM (Device Type Manager), SoMove software  |  |
|  | UL 508C, EN/IEC 61800-3, EN/IEC 61800-3 environment 1 category C2, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 61000-3-12, IEC 60721-3, IEC 61508, IEC 13849-1, REACH  | EN/IEC 61800-3, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 60721-3, IEC 61508 |
|  | <b>ATV950●●●●●</b>   | <b>ATV950●●●●●E</b>  |
|  | 21   | 25   |

(1) In "Normal duty" power values are given for applications requiring a slight overload (up to 120%). For power values in "Heavy duty" applications requiring a significant overload (up to 150%), see page 18.

# IP 23 and IP 54 Drive Systems for asynchronous and synchronous motors

This manual was downloaded on [www.sdsdrives.com](http://www.sdsdrives.com)  
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|                 |   |
|-----------------|---|
| Market segments | <ul style="list-style-type: none"> <li>■ Oil &amp; gas</li> <li>■ Mining, minerals &amp; metals</li> <li>■ Food &amp; beverage</li> <li>■ Water &amp; wastewater</li> </ul> |
|-----------------|---|



|  |   |   |
|--|---|---|
| Power range for 50...60 Hz line supply | Three-phase: 380...415 V (kW)           | 90...800  |
| Main characteristics                   |   | High Performance Drive Systems with an integrated line reactor to reduce the current harmonics<br>THDI < 48%  |
| Variants                               |   | High Performance standard offer<br>Modular with integrated options (ETO)<br>User-definable on request (Full ETO)  |
| Degree of protection                   |   | IP 23<br>IP 54 with separate air flows as an option   |
| Drive                                  | Output frequency<br>Control type        | 0.1...599 Hz<br>Standard constant torque, optimized torque mode<br>PM (Permanent Magnet) motor  |
| Communication                          | Asynchronous motor<br>Synchronous motor |   |
| Communication                          | Integrated<br>Option modules            | EtherNet/IP and Modbus/TCP dual port, Modbus serial link<br>PROFINET, CANopen RJ45 Daisy Chain, Sub-D and screw terminals, Profibus DP V1, EtherCAT and DeviceNet                 |
| Interfaces                             |   | Operating panel in the enclosure door<br>Control terminals inside the enclosure<br>Control terminals can be extended<br>Reading of the parameters via USB interface on the keypad |
| Type of drive                          |   | <b>ATV960●●●Q4X1</b>  |
| Page                                   |   | For further information, please consult your local Schneider Electric drives expert.  |

|                 |   |
|-----------------|---|
| Market segments | <ul style="list-style-type: none"> <li>■ Oil &amp; gas</li> <li>■ Mining, minerals &amp; metals</li> <li>■ Food &amp; beverage</li> <li>■ Water &amp; wastewater</li> </ul> |
|-----------------|---|



|  |   |   |
|--|---|---|
| Power range for 50...60 Hz line supply | Three-phase: 380...415 V (kW)           | 90...800  |
| Main characteristics                   |   | Regenerative Drive Systems with active mains rectifier to reduce the current harmonics<br>THDI < 5%   |
| Variants                               |   | Regenerative standard offer<br>Modular with integrated options (ETO)<br>User-definable on request (Full ETO)  |
| Degree of protection                   |   | IP 23<br>IP 54 with separate air flows as an option   |
| Drive                                  | Output frequency<br>Control type        | 0.1...599 Hz<br>Standard constant torque, optimized torque mode<br>PM (Permanent Magnet) motor  |
| Communication                          | Asynchronous motor<br>Synchronous motor |   |
| Communication                          | Integrated<br>Option modules            | EtherNet/IP and Modbus/TCP dual port, Modbus serial link<br>PROFINET, CANopen RJ45 Daisy Chain, Sub-D and screw terminals, Profibus DP V1, EtherCAT and DeviceNet                 |
| Interfaces                             |   | Operating panel in the enclosure door<br>Control terminals inside the enclosure<br>Control terminals can be extended<br>Reading of the parameters via USB interface on the keypad |
| Type of drive                          |   | <b>ATV980●●●Q4X1</b>  |
| Page                                   |   | For further information, please consult your local Schneider Electric drives expert.  |

# Variable speed drives

## Altivar Process ATV900



Altivar Process range

### Process automation

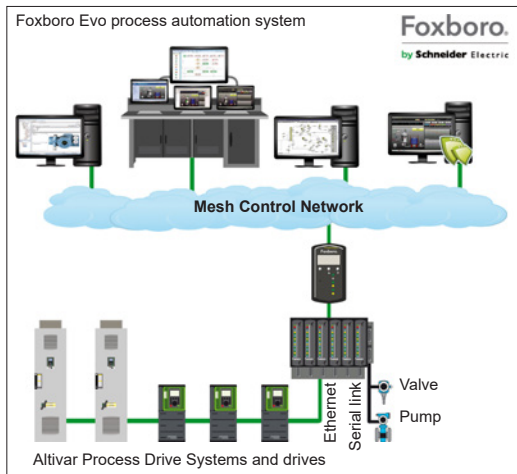
The Altivar Process is an IP 21, IP 23, IP 54, or IP 55 variable speed drive for three-phase synchronous and asynchronous motors, specially designed for the following market segments:

- Oil & gas
- Mining, minerals & metals
- Food & beverage
- Water & wastewater

The Altivar Process 900 series is focused on maximum productivity with exceptional motor control and connectivity.

It offers special functionalities for the industrial process segments:

- Excellent motor performance on any type of motor
- Total control of any kind of coupling in master/slave applications
- Network services help ensure operation continuity even in case of connection breakdown
- Web server and data logging help reduce downtime through fast troubleshooting and preventive maintenance



Altivar Process in Foxboro Evo DCS architecture

The association of Altivar Process services with Schneider Electric process automation control systems like Foxboro Evo (for process systems) or M580 ePAC (for hybrid systems) offers a high-performance, global automation and motor control solution with optimized total cost of ownership (TCO).

The solution provides operational integrity for people, processes, and assets, with improved maintenance support to reduce downtime and help ensure operation continuity.

It offers operational insight by accessing more information to optimize the process and to control the energy efficiency.

Based on market standards (FDT/DTM, Ethernet, etc.), it is a sustainable, scalable solution that enables processes to be adapted easily and affordably.



### Oil & gas applications

- Hydrocarbon production:
  - Drilling
  - Offshore and onshore extraction
  - Water treatment and re-injection
  - Crude oil storage
  - Separation
  - Pipeline pumping
  - Storage
  - Refining
  - DOF (Digital Oil Field)

### Use

- PCP (Progressive Cavity Pump)
- ESP (Electrically Submersible Pump)
- Rod pump
- Mud pump
- Rotary table, top drive
- Draw works
- Regasification compressor





### Process automation (continued)

#### Mining, minerals & metals applications

- Open-pit or underground mining
- Stockpiling/homogenization
- Concentration/mineral separation
- Solid-liquid separation
- Final handling/transport
- Clinker production
- Cement production

#### Use

- Long distance heavy conveying
- Bucket wheel excavator
- Special cranes:
  - Gantry cranes
  - Grab cranes
- Crushing
- Grinding mills (ball mills, SAG and AG mills)
- Spiral and magnetic separators
- Reclaimers and stackers
- Ship loaders
- Mobile miner
- Vibro feeders
- Crusher
- Long belt conveyor
- Kiln main drive
- Separator for VRM (Vertical Roller Mill)



#### Food & beverage applications

- Dairy beverage
- Agribusiness

#### Use

- Conveyors
- Mixers
- Shredders
- Centrifuges
- Hot rotary dryers



#### Water & wastewater applications

- Treatment plant
- Wastewater treatment

#### Use

- Decanter



# Variable speed drives

## Altivar Process ATV900



Cooling system with two separate air flows

### General presentation of the offer

Altivar Process drives can help improve equipment performance and reduce operating costs by optimizing energy consumption and user comfort.

Altivar Process drives provide a wide range of integrated functions, such as:

- Safety and automation functions that meet the requirements of the most demanding applications
- Various optional fieldbus modules available for seamless integration into the main automation architectures
- Numerous configurable I/O as standard to facilitate adaptation to specific applications
- Intuitive commissioning using the graphic display terminal
- Local and remote access and monitoring using the embedded Web server
- Energy savings and protection of the grid by means of integrated harmonic filters
- Installation EMC conformity by means of integrated EMC filters

Depending on the power range, Altivar Process is available with several mounting types and protection indices:

- Wall-mounting IP 20 and 21/UL Type 1 from 0.75 kW/1 HP to 315 kW/500 HP, ready-to-use for easy integration inside or without an enclosure in an electrical room
- Wall-mounting IP 55 from 0.75 kW/1 HP to 90 kW/125 HP, ready-to-use for easy integration in a harsh environment or in an outdoor installation close to the system to reduce the length of the motor cable (the wall-mounting IP 55 offer is available with and without a disconnect switch)
- Floor-standing IP 21 and IP 54 from 110 to 315 kW, ready-to-use with minimum dimensions for easy, optimized integration in an electrical room in a standard or harsh environment

### Floor-standing drives

The floor-standing IP 21/IP 54 fully customisable turnkey drive offers integrate:

- The drive power and control modules
- Semiconductor protection fuses
- Line chokes to limit THDI levels
- A filter to help protect the motor against the effects of dv/dt
- Accessible busbars to simplify the motor wiring and power wiring

The IP 54 variant is fitted with additional equipment, such as:

- A main switch with external handle
- A system for separating the cooling air flow between the power and control parts, allowing operation in a very polluted environment as well as optimum management of thermal stress in the plant room

Altivar Process drives can also be supplied as Engineered Drive System variants from 110 to 1200 kW, developed by Schneider Electric based on customer specifications.

### Rugged

Altivar Process drives are designed to adapt to the harshest environments.

- Ambient operating temperature
- Wall-mounting drives:
  - IP 20 and 21: up to 160 kW, -15...+50 °C/+5...122 °F as standard, up to 60 °C/140 °F with derating; above 160 kW, -10...+40 °C/+14...104 °F as standard, up to 60 °C/140 °F with derating
  - IP 55: -15...+40 °C/5...104 °F as standard, up to 50 °C/122 °F with derating
- Floor-standing IP 21/IP 54 drives:
  - 0...40 °C/32...104 °F as standard
  - 40...50 °C/104...122 °F with derating
- Storage and transport temperature: -40...+70 °C/-40...+158 °F
- Operating altitude:
  - 0...1,000 m/0...3,281 ft without derating
  - 1,000...4,800 m/3,281...15,748 ft with derating of 1% per 100 m/328 ft
- Withstand to harsh environments:
  - Chemical class 3C3 conforming to IEC/EN 60721-3-3 (1)
  - Mechanical class 3S3 conforming to IEC/EN 60721-3-3 (1)
  - Electronic cards with protective coating
- Protection to suit requirements:
  - IP 00 for mounting in an enclosure, depending on the model
  - IP 20 and 21/UL Type 1 for wall mounting in a plant room and in an enclosure
  - IP 55 for wall mounting, with protection against dust and water jets
  - Floor-standing IP 21
  - Floor-standing IP 54, with protection against dust and water jets

(1) Altivar Process ATV930C22...C31N4 drives are certified as chemical class 3C2 and mechanical class 3S2 conforming to IEC/EN 60721.

**General presentation of the offer (continued)**

A large number of external options can be combined with the Altivar 900:

- Braking units and resistors
- Line chokes and passive filters (see pages 62)
- Additional EMC input filters for reducing conducted emissions on the line (see pages 60 and 61)
- Dv/dt and sinus filters for long cable runs or to remove the need for shielding (see pages 63 to 65)
- Mounting options: The Altivar 900 drive can be mounted in a variety of ways to adapt to the various needs of an installation.
- Mounting without an enclosure: The Altivar 900 drive can be mounted directly on a wall without having to be installed inside an enclosure. IP 20 and 21/UL Type 1 conformity can be achieved by using kits, for drives above 110 kW at 380...480 V and for drives from 2.2 to 90 kW at 500...690 V a supply voltage (see page 26)
- Optimized enclosures: A patented flange mounting kit allows to remove the heat generated by the power unit outside the enclosure when the variable speed drive is integrated in a cabinet (see page 27)

**Energy**

Altivar Process drives help to optimize power consumption by reducing the rms input current for the same load.

- Standard offer:
  - THDI  $\leq$  48% for 80 to 100% load, which is used to maintain an optimum power factor on the most common operating range
  - Embedded low harmonic DC choke technology complying with standard IEC 61000-3-12
- Passive filter options
  - Low harmonic offer compatible with standard IEEE 519

**Environment**

The Altivar Process drive has been developed to meet the requirements of directives regarding protection of the environment and anticipate future changes in regulations:

- RoHS-2 (1)
- REACH (2) + Solution for REACH Substitute It Now (halogen-free wiring and plastics)
- PEP (Product Environmental Profile) eco-passport Program for reducing the carbon footprint and conserving raw materials
- EoLI (End of Life Instruction) (3)
- More than 70% recyclable materials (new ruling)
- Efficient energy management: 30% reduction in consumption

**Electromagnetic compatibility (EMC)**

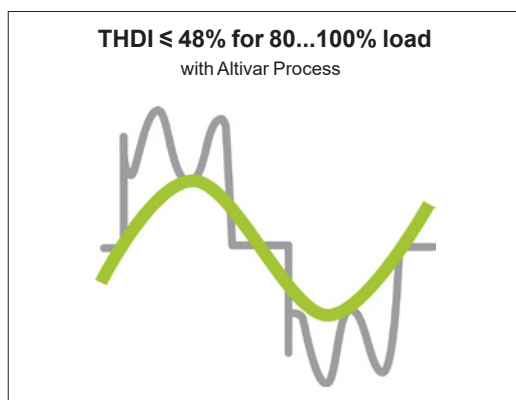
Compliance with electromagnetic compatibility requirements has been incorporated into the design of the drive, which simplifies installation and provides an economical means of helping to ensure equipment meets CE marking requirements.

Altivar Process drives have a category C2 or C3 EMC filter, except ATV930●●●M3 and ATV930●●●M3C models that can be equipped with an additional filter to meet more stringent requirements (see page 55).

**Installation/Maintenance**

Altivar Process drives are ergonomically designed to adapt to any type of installation:

- Products, systems, or integrated in iMCC
- IP 20 and 21/UL Type 1; IP 55, IP 54
- Easy installation of products and systems:
  - Cable entry equipped with Romex cable clamps to maintain an EMC connection for the power and control cable
  - Color code for connections to the removable terminal blocks on the HMI block
  - Long cable: Up to 150 m with category C3 EMC filter, depending on model
- Asynchronous or synchronous motor in open loop or closed loop for 0.1...599 Hz output frequency
- Special motors: Conical sliding rotor, reluctance motor
- Lower maintenance costs due to drive's ergonomic design:
  - Fans can be replaced in less than 5 minutes
  - No maintenance tool required
  - Limited number of parts
- Embedded Web server:
  - Compatible process elements for easier implementation
  - Direct worldwide access to monitoring and maintenance functions:
    - Reading values
    - Modifying data
    - Configuring parameters
    - Changing controller status



Altivar Process drive THDI

(1) European directive 2002/95/EC Restriction Of Hazardous Substances (applicable in 2016)

(2) European regulation 1907/2006

(3) According to IEC 62635 Enhanced Guidelines

# Variable speed drives

## Altivar Process ATV900

### Integrated functions

Altivar Process drives include numerous advanced functions for the more complex applications in each market segment.

#### Advanced functions

- Performance on motor control with an overload torque up to 180% T<sub>n</sub> in an open or closed loop
- Asynchronous, synchronous, special motors: all efficiency classes, brand independent, permanent magnet motors, torque motors, conical sliding rotor, reluctance
- Integrated EtherNet/IP and Modbus TCP dual port, cybersecurity (Achilles Level 2)
- Smart integration in PlantStruxure and Foxboro Evo process automation systems
- Optimized energy efficiency, detection of energy consumption drift of the installation
- Adaptation to the process by dedicated functions with modular design
- Embedded safety functions STO SIL3
- Master/slave and load sharing with drive-to-drive capability:
  - torque sharing on rigid coupling
  - torque sharing on elastic coupling
- Contextual access to technical documentation through dynamic QR code
- Continuous and historical real-time measurements with customizable dashboards
- Predictive maintenance (e.g.: temperatures with PT100/1000 probe, fan monitoring, etc.)

#### Power measurement function

Altivar Process drives integrate a power measurement function accurate to within 5%, based on measurement of the motor voltage and the power supply:

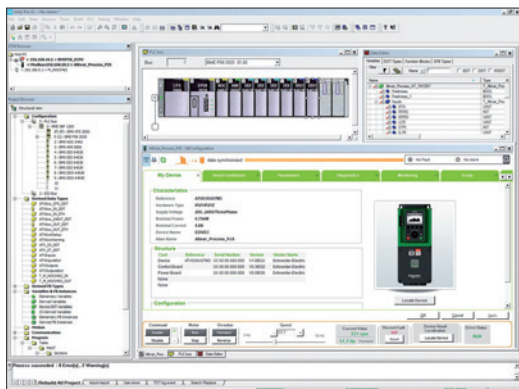
- Process drift detection for installation reliability throughout its entire service life
- Useful system performance information provided by comparing the energy used with the energy produced:
  - Typical KPIs:
    - Specific energy consumption

Users are therefore able to monitor and analyze input power, energy produced, and the KPIs directly from the drive or from the process management system.

#### Safety and monitoring functions

The Safety function STO and numerous monitoring functions are provided to help protect people and equipment.

- Advantages:
  - Time savings in terms of installation design and compliance
  - Fewer components and cables
  - Optimum space
  - Simplified setup of machines
  - Improved maintenance performance; limited machine intervention time and installation downtime
  - Optimized conditions for maintenance operations
- Conformity to standards EN/IEC 61508, EN/ISO 13849, IEC 61800-5-2
- Integrated STO (Safe Torque Off) function, SIL3/Plc
- Monitoring function to help protect against premature wear



Altivar Process DTM in Unity Pro

### Integration

#### Fieldbus protocols

- EtherNet/IP and Modbus/TCP Dual port and Modbus serial link:
  - Standard Modbus and Ethernet protocols
  - Connection of configuration and runtime tools
  - Control and supervision of the Altivar Process in process architectures (controllers, SCADA, HMIs, etc.) in industrial networks (read/write data)
  - Diagnostic, supervision, and fieldbus management functions
- Ethernet services:
  - SNMP, SNTP, BootP & DHCP, IP v6, cybersecurity services, FDR
  - Open Ethernet topologies

#### Integration of configuration and runtime tools

- FDT/DTM technology (see page 31):
  - Drive configuration, diagnostics, and control using Unity Pro or Foxboro Evo software

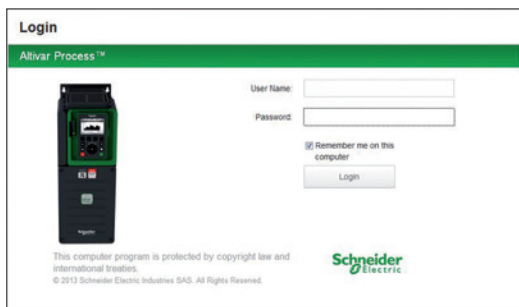
#### Configuration and runtime tools

- Graphic display terminal (see page 28):
  - Drive control, adjustment, and configuration
  - Display of current values (motor, I/O, etc.)
  - Configuration storage and download
  - Duplication of one drive configuration on another drive from a PC or another drive
  - Remote use by means of appropriate accessories (see page 29)
  - Connection to several drives using multidrop link components (see page 29)
- Embedded web server (see page 30):
  - Easily accessible from any PC, iPhone, iPad, Android system, and major web browsers
  - Network diagnostics in real time
  - Read/write values
- SoMove software (see page 31):
  - Advanced functions for configuration, setup, and maintenance of Altivar Process drives

#### Integrated services

Altivar Process drives feature integrated services to achieve optimum time savings:

- Simplified communication:
  - Ethernet dual port with embedded web server
- Energy management (integrated power measurement)
- Dynamic predictive maintenance
- 3 QR codes:
  - 1: Access to the Customer Care Center application and product data sheet
  - 2: Direct access to description of the functions
  - 3: QR code generated in the event of a detected error (red screen): Identification of the detected error, probable causes and remedies



Embedded web server login screen

# Variable speed drives

## Altivar Process ATV900



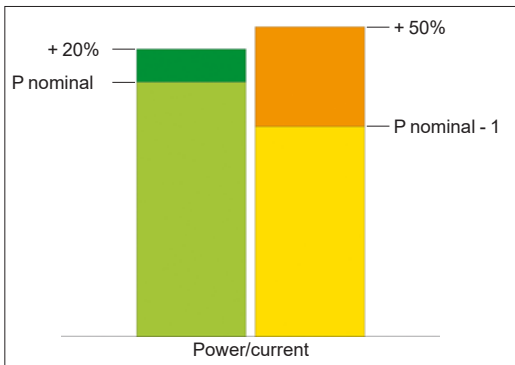
ATV930...N4F, ATV930...M3, ATV930...Y6, ATV950...N4, ATV950...N4E

### Extensive offer

The Altivar Process offer covers motor power ratings from 0.75...315 kW for three-phase voltages between 200...240 V, 380...480 V and 500...690 V.

| Three-phase power supply | Motor power                    | Degree of protection                        | Reference   |
|--------------------------|--------------------------------|---|---|
| 200...240 V              | 0.75 kW...75 kW<br>1...100 HP  | IP 21 UL type 1                             | ATV930U07M3...D45M3<br>ATV930D30M3C...D75M3C  |
| 380...480 V              | 0.75 kW...315 kW<br>1...500 HP | IP 21 UL type 1<br>IP 21 UL type 1<br>IP 55 | ATV930U07N4... C22N4<br>ATV930D55N4C...C31N4C<br>ATV950U07N4...D90N4<br>ATV950U07N4E...D90N4E (1) |
| 380...440 V              | 110 kW...315 kW                | IP 21<br>IP 54                              | ATV930C11N4F...C31N4F<br>ATV950C11N4F...C31N4F  |
| 500...690 V              | 2.2...90 kW<br>3...125 HP      | IP 20 UL Type 1                             | ATV930U22Y6...D90Y6   |

(1) Integrated disconnect switch



Normal duty and Heavy duty modes

Altivar Process variable speed drives are designed for use in two operating modes that can optimize the drive nominal rating according to the system constraints.

These two modes are:

- Normal duty (ND): Dedicated mode for applications requiring a slight overload (up to 120%) with a motor power no higher than the drive nominal power
- Heavy duty (HD): Dedicated mode for applications requiring a significant overload (up to 150%) with a motor power no higher than the drive nominal power derated by one rating



### Accessories and options

Altivar Process drives are designed to take numerous accessories and options to increase their functionality and also their capacity for integration and adaptation.

#### Accessories

- Drive:
- Fan kit (see page 26)
- Graphic display terminal:
- Remote mounting kit for mounting on enclosure door (see page 29)
- Multidrop connection accessories for connecting several drives to the RJ45 terminal port (see page 29)

#### Options

- Modules (see page 39):
- I/O extension:
  - 2 analog inputs
  - 6 digital inputs
  - 2 digital outputs
- With relay output:
  - 3 NO contacts
- Communication:
  - CANopen bus: RJ45 daisy chain, SUB-D, 5-way screw terminals
  - PROFINET bus
  - Profibus DP V1 bus
  - EtherCAT
  - DeviceNet bus
- Encoder modules (see page 38):
- Digital encoder interface module 5/12 V
- Analog encoder interface module
- Resolver interface module
- HTL encoder interface module
- Braking units and braking resistors (see page 46)
- Passive filters (see page 54)
- Additional EMC input filters for reducing conducted emissions on the line (see page 60)
- Output filters:
  - dv/dt filters (see page 63)
  - Sinus filters (see page 66)
  - Common mode filters (see page 68)

#### Motor starters

Schneider Electric offers combinations of circuit breakers and contactors to be able to use Altivar Process drives in optimum conditions (see page 70). For prospective line short circuit current up to 100 kA, please contact our Customer Care Center.

# Variable speed drives

## Altivar Process Drive systems



Engineered drive system based on the ATV960C50Q4X1 drive

### Engineered drive systems

Engineered drive systems from 0.75 to 800 kW based on the Altivar Process platform offer solutions ranging from compact enclosed systems to complex outdoor skids including third-party components or transformers, independent of the power range.

All engineered drive systems are fully tested and ready-to-connect drive solutions.

Several solutions are available depending on customer requirements.

### Compact drive systems

Compact drive systems are enclosure units with a built-in variable speed drive to control the speed of asynchronous or synchronous motors. The modular construction makes it possible to adapt the enclosure unit to particular requirements.

### Compact design

- Less space required in the control room
- Generous connection area for power cables
- Easy access to components
- Control panel for numerous options

### The energy-saving drive solution

- Up to 60% energy savings without additional costs
- Intelligent control of internal fans, depending on the operation
- Optimal energy efficiency over the entire life cycle
- Logging and graphic presentation of absorbed power



Full ETO drive system

### Low harmonic drive systems

This new technology reaches a total harmonic distortion (THD(i)) of ~ 2%, and fulfills the requirements of the IEEE 519 standard for THD(i) < 5% in the event of distorted AC supply.

### Extended motor lifetime with 3-level concept

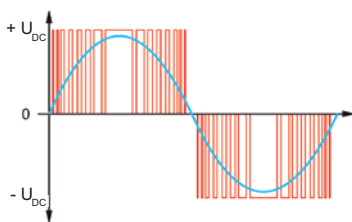
The 3-level technology of the active mains rectifier reduces the voltage load at the motor significantly, compared to other low harmonic variable speed drives. The fluctuating adaptation of the DC link voltage helps extend the motor lifetime.

### Reduced losses with 3-level concept

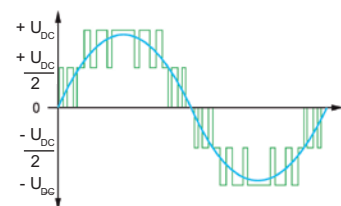
In comparison with the traditional circuit structure of active mains rectifiers, the switching frequency is increased and the current load is reduced at the same time when using 3-level technology.

### Compact dimensions thanks to 3-level concept

A significant advantage of the 3-level technology is the reduced dimensions of the integrated filter components. Due to the increased switching frequency and to its location inside the forced cooling air channel, the dimensions of the filter can be almost halved.



2-level technology



3-level technology



### People

- Worldwide network, 24/7:
- 400 highly qualified and certified experts
- Field service engineers, online experts

## Engineered Drive Systems (continued)

### Superior services

Our industry experts help you get the maximum return from your investments and optimize the value of your installations throughout their life cycle. Whether you need a brief telephone consultation, an on-site analysis, or the development of an entire system solution, our experts are at your disposal.

### Audits and consultancy services

- From the selection of drives and accessories to the development of entire system solutions
- On-site analysis
- Line supply consultancy (compensation, filtering, harmonics, etc.)

### Bespoke project management

- Measurement and analysis of your site
- Target definition
- Identification of opportunities to save energy and reduce costs
- Calculation of return on investment

### Customized training

- Our experienced specialists offer training, either at our premises or at your site

### Commissioning and on-site services

- Our specialists, experienced in a wide range of industrial sectors, leverage their extensive product and application knowledge to commission your systems

### Digital services

- On-screen and event-specific QR codes help operators diagnose detected errors quickly
- Online troubleshooting with step-by-step procedures
- Track and analyze events related to your drive
- Automatic creation of technical support requests

For further information, please consult your local Schneider Electric drives expert.

# Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 200...240 V 50/60 Hz



ATV930D11M3



ATV930D15M3



ATV930D30M3

| IP 21/UL Type 1 drives - Wall mounting (1)              |                 |                  |       |                |                      |                                |                                    |               |             |                |
|---|-----------------|------------------|-------|----------------|----------------------|--------------------------------|------------------------------------|---------------|-------------|----------------|
| Motor   |                 | Line supply      |       |                |                      | Altivar Process                |                                    |               |             |                |
| Power indicated on rating plate (2)                     |                 | Line current (3) |       | Apparent power | Prospective line Isc | Maximum continuous current (2) | Maximum transient current for 60 s | Reference (1) | Weight      |                |
|   |                 | 200 V            | 240 V |                |                      |                                |                                    |               |             | 240 V          |
| ND:   | Normal duty (4) |                  |       |                |                      |                                |                                    |               |             |                |
| HD:   | Heavy duty (5)  |                  |       |                |                      |                                |                                    |               |             |                |
|   | kW              | HP               | A     | A              | kVA                  | kA                             | A                                  | A             | kg/lb       |                |
| <b>Three-phase supply voltage: 200...240 V 50/60 Hz</b> |                 |                  |       |                |                      |                                |                                    |               |             |                |
| ND  | 0.75            | 1                | 3     | 2.6            | 1.1                  | 50                             | 4.6                                | 5.5           | ATV930U07M3 | 4.300/9.480    |
| HD  | 0.37            | 0.5              | 1.7   | 1.5            | 0.6                  | 50                             | 3.3                                | 5             |             |                |
| ND  | 1.5             | 2                | 5.9   | 5              | 2.1                  | 50                             | 8                                  | 9.6           | ATV930U15M3 | 4.300/9.480    |
| HD  | 0.75            | 1                | 3.3   | 3              | 1.2                  | 50                             | 4.6                                | 6.9           |             |                |
| ND  | 2.2             | 3                | 8.4   | 7.2            | 3                    | 50                             | 11.2                               | 13.4          | ATV930U22M3 | 4.500/9.921    |
| HD  | 1.5             | 2                | 6     | 5.3            | 2.2                  | 50                             | 8                                  | 12            |             |                |
| ND  | 3               | –                | 11.5  | 9.9            | 4.1                  | 50                             | 13.7                               | 16.4          | ATV930U30M3 | 4.500/9.921    |
| HD  | 2.2             | 3                | 8.7   | 7.6            | 3.2                  | 50                             | 11.2                               | 16.8          |             |                |
| ND  | 4               | 5                | 15.1  | 12.9           | 5.4                  | 50                             | 18.7                               | 22.4          | ATV930U40M3 | 4.600/10.141   |
| HD  | 3               | –                | 11.7  | 10.2           | 4.2                  | 50                             | 13.7                               | 20.6          |             |                |
| ND  | 5.5             | 7.5              | 20.2  | 17.1           | 7.1                  | 50                             | 25.4                               | 30.5          | ATV930U55M3 | 7.700/16.976   |
| HD  | 4               | 5                | 15.1  | 13             | 5.4                  | 50                             | 18.7                               | 28.1          |             |                |
| ND  | 7.5             | 10               | 27.1  | 22.6           | 9.4                  | 50                             | 32.7                               | 39.2          | ATV930U75M3 | 13.800/30.424  |
| HD  | 5.5             | 7.5              | 20.1  | 16.9           | 7                    | 50                             | 25.4                               | 38.1          |             |                |
| ND  | 11              | 15               | 39.3  | 32.9           | 13.7                 | 50                             | 46.8                               | 56.2          | ATV930D11M3 | 13.800/30.424  |
| HD  | 7.5             | 10               | 27.2  | 23.1           | 9.6                  | 50                             | 32.7                               | 49.1          |             |                |
| ND  | 15              | 20               | 52.6  | 45.5           | 18.9                 | 50                             | 63.4                               | 76.1          | ATV930D15M3 | 27.300/60.186  |
| HD  | 11              | 15               | 40.1  | 34.3           | 14.3                 | 50                             | 46.8                               | 70.2          |             |                |
| ND  | 18.5            | 25               | 66.7  | 54.5           | 22.7                 | 50                             | 78.4                               | 94.1          | ATV930D18M3 | 27.300/60.186  |
| HD  | 15              | 20               | 53.1  | 44.9           | 18.7                 | 50                             | 63.4                               | 95.1          |             |                |
| ND  | 22              | 30               | 76.0  | 64.3           | 26.7                 | 50                             | 92.6                               | 111.1         | ATV930D22M3 | 27.300/60.186  |
| HD  | 18.5            | 25               | 64.8  | 54.5           | 22.7                 | 50                             | 78.4                               | 117.6         |             |                |
| ND  | 30              | 40               | 104.7 | 88.6           | 36.8                 | 50                             | 123                                | 147.6         | ATV930D30M3 | 57.600/126.986 |
| HD  | 22              | 30               | 78.3  | 67.1           | 27.9                 | 50                             | 92.6                               | 138.9         |             |                |
| ND  | 37              | 50               | 128.0 | 107.8          | 44.8                 | 50                             | 149                                | 178.8         | ATV930D37M3 | 57.600/126.986 |
| HD  | 30              | 40               | 104.7 | 88.6           | 36.8                 | 50                             | 123                                | 184.5         |             |                |
| ND  | 45              | 60               | 155.1 | 130.4          | 54.2                 | 50                             | 176                                | 211.2         | ATV930D45M3 | 57.600/126.986 |
| HD  | 37              | 50               | 128.5 | 108.5          | 45.1                 | 50                             | 149                                | 223.5         |             |                |

| IP 21/UL Type 1 drives without braking unit - Wall mounting (1) |                 |                  |       |                |                      |                                |                                    |               |              |                |
|---|-----------------|------------------|-------|----------------|----------------------|--------------------------------|------------------------------------|---------------|--------------|----------------|
| Motor   |                 | Line supply      |       |                |                      | Altivar Process                |                                    |               |              |                |
| Power indicated on rating plate (2)                             |                 | Line current (3) |       | Apparent power | Prospective line Isc | Maximum continuous current (2) | Maximum transient current for 60 s | Reference (1) | Weight       |                |
|   |                 | 200 V            | 240 V |                |                      |                                |                                    |               |              | 240 V          |
| ND:   | Normal duty (4) |                  |       |                |                      |                                |                                    |               |              |                |
| HD:   | Heavy duty (5)  |                  |       |                |                      |                                |                                    |               |              |                |
|   | kW              | HP               | A     | A              | kVA                  | kA                             | A                                  | A             | kg/lb        |                |
| <b>Three-phase supply voltage: 200...240 V 50/60 Hz</b>         |                 |                  |       |                |                      |                                |                                    |               |              |                |
| ND  | 30              | 40               | 104.7 | 88.6           | 36.8                 | 50                             | 123                                | 147.6         | ATV930D30M3C | 56.600/124.782 |
| HD  | 22              | 30               | 78.3  | 67.1           | 27.9                 | 50                             | 92.6                               | 138.9         |              |                |
| ND  | 37              | 50               | 128.0 | 107.6          | 44.8                 | 50                             | 149                                | 178.8         | ATV930D37M3C | 56.600/124.782 |
| HD  | 30              | 40               | 104.7 | 88.6           | 36.8                 | 50                             | 123                                | 184.5         |              |                |
| ND  | 45              | 60               | 155.1 | 130.4          | 54.2                 | 50                             | 175                                | 211.2         | ATV930D45M3C | 56.600/124.782 |
| HD  | 37              | 50               | 128.5 | 108.5          | 45.1                 | 50                             | 149                                | 223.5         |              |                |
| ND  | 55              | 75               | 189   | 161            | 61.1                 | 50                             | 211                                | 253.2         | ATV930D55M3C | 82.000/180.779 |
| HD  | 45              | 60               | 156   | 134            | 50                   | 50                             | 176                                | 264           | (6)          |                |
| ND  | 75              | 100              | 256   | 215            | 83.7                 | 50                             | 282                                | 338.4         | ATV930D75M3C | 82.000/180.779 |
| HD  | 55              | 75               | 189   | 161            | 61.1                 | 50                             | 211                                | 316.5         | (6)          |                |

(1) Altivar Process **ATV930...M3** drives have been designed without an EMC filter. An additional filter can be added to help meet more stringent requirements and reduce electromagnetic emissions.

(2) These values are given for a nominal switching frequency of 4 kHz up to **ATV930D22M3** or 2.5 kHz for **ATV930D30M3...D45M3** and **ATV930D30M3C...D75M3C**, for use in continuous operation. The switching frequency is adjustable. Above 2.5 or 4 kHz (depending on the rating), the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see derating curves on our website [www.schneider-electric.com](http://www.schneider-electric.com)).

(3) Typical value for the indicated motor power and for the prospective line Isc.

(4) Values given for applications requiring a slight overload (up to 120%).

(5) Values given for applications requiring a significant overload (up to 150%).

(6) The power parts are accessible at the bottom of the drive. Product supplied as IP 00 for mounting in an enclosure. For IP 21 wall mounting, order the IP 21/UL Type 1 conformity kit **VW3A9704** separately (see page 27).

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).

# Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 380...480 V 50/60 Hz



ATV930D15N4



ATV930D30N4



ATV930D55N4

| IP 21/UL Type 1 drives with category C2 or C3 integrated EMC filter - Wall mounting <sup>(1)</sup> |                            |                             |       |                         |                         |   |   |           |             |                     |
|--|----------------------------|-----------------------------|-------|-------------------------|-------------------------|---|---|-----------|-------------|---------------------|
| Motor  |                            | Line supply                 |       |                         |                         | Altivar Process                                 |   |           |             |                     |
| Power indicated on rating plate <sup>(2)</sup>   |                            | Line current <sup>(3)</sup> |       | Apparent power<br>380 V | Prospective line<br>Isc | Maximum<br>continuous<br>current <sup>(2)</sup> | Maximum<br>transient<br>current for<br>60 s | Reference | Weight      |                     |
|  |                            | 380 V                       | 480 V |                         |                         |   |   |           |             |                     |
| ND:  | Normal duty <sup>(4)</sup> |                             |       |                         |                         |   |   |           |             |                     |
| HD:  | Heavy duty <sup>(5)</sup>  |                             |       |                         |                         |   |   |           |             |                     |
|  | kW                         | HP                          | A     | A                       | kVA                     | kA  | A   | A         | kg/lb       |                     |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz <sup>(4)</sup></b>                             |                            |                             |       |                         |                         |   |   |           |             |                     |
| ND   | 0.75                       | 1                           | 1.5   | 1.3                     | 1.1                     | 50  | 2.2   | 2.6       | ATV930U07N4 | 4.500/<br>9.921     |
| HD   | 0.37                       | 0.5                         | 0.9   | 0.8                     | 0.7                     | 50  | 1.5   | 2.3       |             |                     |
| ND   | 1.5                        | 2                           | 3     | 2.6                     | 2.2                     | 50  | 4   | 4.8       | ATV930U15N4 | 4.500/<br>9.921     |
| HD   | 0.75                       | 1                           | 1.7   | 1.5                     | 1.2                     | 50  | 2.2   | 3.3       |             |                     |
| ND   | 2.2                        | 3                           | 4.3   | 3.8                     | 3.2                     | 50  | 5.6   | 6.7       | ATV930U22N4 | 4.500/<br>9.921     |
| HD   | 1.5                        | 2                           | 3.1   | 2.9                     | 2.4                     | 50  | 4   | 6         |             |                     |
| ND   | 3                          | –                           | 5.8   | 5.1                     | 4.2                     | 50  | 7.2   | 8.6       | ATV930U30N4 | 4.600/<br>10.141    |
| HD   | 2.2                        | 3                           | 4.5   | 4                       | 3.3                     | 50  | 5.6   | 8.4       |             |                     |
| ND   | 4                          | 5                           | 7.6   | 6.7                     | 5.6                     | 50  | 9.3   | 11.2      | ATV930U40N4 | 4.600/<br>10.141    |
| HD   | 3                          | –                           | 6     | 5.4                     | 4.5                     | 50  | 7.2   | 10.8      |             |                     |
| ND   | 5.5                        | 7.5                         | 10.4  | 9.1                     | 7.6                     | 50  | 12.7  | 15.2      | ATV930U55N4 | 4.700/<br>10.362    |
| HD   | 4                          | 5                           | 8     | 7.2                     | 6.0                     | 50  | 9.3   | 14        |             |                     |
| ND   | 7.5                        | 10                          | 13.8  | 11.9                    | 9.9                     | 50  | 16.5  | 19.8      | ATV930U75N4 | 7.700/<br>16.976    |
| HD   | 5.5                        | 7.5                         | 10.5  | 9.2                     | 7.6                     | 50  | 12.7  | 19.1      |             |                     |
| ND   | 11                         | 15                          | 19.8  | 17                      | 14.1                    | 50  | 23.5  | 28.2      | ATV930D11N4 | 7.700/<br>16.976    |
| HD   | 7.5                        | 10                          | 14.1  | 12.5                    | 10.4                    | 50  | 16.5  | 24.8      |             |                     |
| ND   | 15                         | 20                          | 27    | 23.3                    | 19.4                    | 50  | 31.7  | 38        | ATV930D15N4 | 13.600/<br>29.983   |
| HD   | 11                         | 15                          | 20.6  | 18.1                    | 15.0                    | 50  | 23.5  | 35.3      |             |                     |
| ND   | 18.5                       | 25                          | 33.4  | 28.9                    | 24                      | 50  | 39.2  | 47        | ATV930D18N4 | 14.200/<br>31.306   |
| HD   | 15                         | 20                          | 27.7  | 24.4                    | 20.3                    | 50  | 31.7  | 47.6      |             |                     |
| ND   | 22                         | 30                          | 39.6  | 34.4                    | 28.6                    | 50  | 46.3  | 55.6      | ATV930D22N4 | 14.300/<br>31.526   |
| HD   | 18.5                       | 25                          | 34.1  | 29.9                    | 24.9                    | 50  | 39.2  | 58.8      |             |                     |
| ND   | 30                         | 40                          | 53.3  | 45.9                    | 38.2                    | 50  | 61.5  | 73.8      | ATV930D30N4 | 28.000/<br>61.729   |
| HD   | 22                         | 30                          | 40.5  | 35.8                    | 29.8                    | 50  | 46.3  | 69.5      |             |                     |
| ND   | 37                         | 50                          | 66.2  | 57.3                    | 47.6                    | 50  | 74.5  | 89.4      | ATV930D37N4 | 28.200/<br>62.170   |
| HD   | 30                         | 40                          | 54.8  | 48.3                    | 40.2                    | 50  | 61.5  | 92.3      |             |                     |
| ND   | 45                         | 60                          | 79.8  | 69.1                    | 57.4                    | 50  | 88  | 105.6     | ATV930D45N4 | 28.700/<br>63.273   |
| HD   | 37                         | 50                          | 67.1  | 59.0                    | 49.1                    | 50  | 74.5  | 111.8     |             |                     |
| ND   | 55                         | 75                          | 97.2  | 84.2                    | 70                      | 50  | 106   | 127.2     | ATV930D55N4 | 57.500/<br>126.766  |
| HD   | 45                         | 60                          | 81.4  | 71.8                    | 59.7                    | 50  | 88  | 132       |             |                     |
| ND   | 75                         | 100                         | 131.3 | 112.7                   | 93.7                    | 50  | 145   | 174       | ATV930D75N4 | 59.000/<br>125.663  |
| HD   | 55                         | 75                          | 98.9  | 86.9                    | 72.2                    | 50  | 106   | 159       |             |                     |
| ND   | 90                         | 125                         | 156.2 | 135.8                   | 112.9                   | 50  | 173   | 207.6     | ATV930D90N4 | 59.500/<br>131.174  |
| HD   | 75                         | 100                         | 134.3 | 118.1                   | 98.2                    | 50  | 145   | 217.5     |             |                     |
| ND   | 220                        | 350                         | 397   | 324                     | 247                     | 50  | 427   | 512       | ATV930C22N4 | 172.000/<br>379.195 |
| HD   | 160                        | 250                         | 296   | 246                     | 187                     | 50  | 302   | 453       | (6)         |                     |

(1) Category C2 EMC filter for **ATV930U07N4...D45N4**. Category C3 EMC filter above **ATV930D45N4**.  
 (2) These values are given for an adjustable nominal switching frequency of 4 kHz for **ATV930U07N4...ATV930D45N4** or 2.5 kHz for **ATV930D55N4...C22N4**, for use in continuous operation.  
 Above 2.5 or 4 kHz (depending on the rating), the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see derating curves on our website [www.schneider-electric.com](http://www.schneider-electric.com)).  
 (3) Typical value for the indicated motor power and for the prospective line Isc.  
 (4) Values given for applications requiring a slight overload (up to 120%).  
 (5) Values given for applications requiring a significant overload (up to 150%).  
 (6) Product supplied as IP 00 for mounting in an enclosure. For IP 21/UL Type 1 wall mounting, a conformity kit should be ordered separately (see page 27).

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).



# Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 380...480 V 50/60 Hz



ATV930C11N4C



ATV930C25N4C

| IP 21/UL Type 1 drives with category C3 integrated EMC filter without braking unit - Wall mounting |                  |       |                         |                         |                                |                                    |                 |        |              |                     |
|--|------------------|-------|-------------------------|-------------------------|--------------------------------|------------------------------------|-----------------|--------|--------------|---------------------|
| Motor<br>Power indicated on rating plate (1)   | Line supply      |       |                         |                         |                                |                                    | Altivar Process |        |              |                     |
|  | Line current (2) |       | Apparent power<br>380 V | Prospective line<br>Isc | Maximum continuous current (1) | Maximum transient current for 60 s | Reference       | Weight |              |                     |
|  | 380 V            | 480 V |                         |                         |                                |                                    |                 |        |              |                     |
| ND: Normal duty (3)  |                  |       |                         |                         |                                |                                    |                 |        |              |                     |
| HD: Heavy duty (4)   |                  |       |                         |                         |                                |                                    |                 |        |              |                     |
|  | kW               | HP    | A                       | A                       | kVA                            | kA                                 | A               | A      | kg/lb        |                     |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz (3)</b>  |                  |       |                         |                         |                                |                                    |                 |        |              |                     |
| ND   | 55               | 75    | 97.2                    | 84.2                    | 70.0                           | 50                                 | 106             | 127.2  | ATV930D55N4C | 56.500/<br>124.561  |
| HD   | 45               | 60    | 81.4                    | 71.8                    | 59.7                           | 50                                 | 88              | 132    |              |                     |
| ND   | 75               | 100   | 131.3                   | 112.7                   | 93.7                           | 50                                 | 145             | 174.0  | ATV930D75N4C | 58.000/<br>127.868  |
| HD   | 55               | 75    | 98.9                    | 86.9                    | 72.2                           | 50                                 | 106             | 159    |              |                     |
| ND   | 90               | 125   | 156.2                   | 135.8                   | 112.9                          | 50                                 | 173             | 207.6  | ATV930D90N4C | 58.500/<br>128.970  |
| HD   | 75               | 100   | 134.3                   | 118.1                   | 98.2                           | 50                                 | 145             | 217.5  |              |                     |
| ND   | 110              | 150   | 201                     | 165                     | 121.8                          | 50                                 | 211             | 253    | ATV930C11N4C | 82.000/<br>180.779  |
| HD   | 90               | 125   | 170                     | 143                     | 102.6                          | 50                                 | 173             | 259.5  | (5)          |                     |
| ND   | 132              | 200   | 237                     | 213                     | 161.4                          | 50                                 | 250             | 300    | ATV930C13N4C | 82.000/<br>180.779  |
| HD   | 110              | 150   | 201                     | 165                     | 121.8                          | 50                                 | 211             | 317    | (5)          |                     |
| ND   | 160              | 250   | 284                     | 262                     | 201.3                          | 50                                 | 302             | 362    | ATV930C16N4C | 82.000/<br>180.779  |
| HD   | 132              | 200   | 237                     | 213                     | 161.4                          | 50                                 | 250             | 375    | (5)          |                     |
| ND   | 220              | 350   | 397                     | 324                     | 247                            | 50                                 | 427             | 512    | ATV930C22N4C | 172.000/<br>319.195 |
| HD   | 160              | 250   | 296                     | 246                     | 187                            | 50                                 | 302             | 453    | (5)          |                     |
| ND   | 250              | 400   | 451                     | 366                     | 279                            | 50                                 | 481             | 577    | ATV930C25N4C | 203.000/<br>447.538 |
| HD   | 200              | 300   | 365                     | 301                     | 229                            | 50                                 | 387             | 581    | (5)          |                     |
| ND   | 315              | 500   | 569                     | 461                     | 351                            | 50                                 | 616             | 739    | ATV930C31N4C | 203.000/<br>447.538 |
| HD   | 250              | 400   | 457                     | 375                     | 286                            | 50                                 | 481             | 722    | (5)          |                     |

(1) These values are given for a nominal switching frequency of 2.5 kHz for use in continuous operation. The switching frequency is adjustable for all ratings. Above 2.5 kHz, the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see derating curves on our website [www.schneider-electric.com](http://www.schneider-electric.com)).

(2) Typical value for the indicated motor power and for the maximum prospective line Isc.

(3) Values given for applications requiring a slight overload (up to 120%).

(4) Values given for applications requiring a significant overload (up to 150%).

(5) Product supplied as IP 00 for mounting in an enclosure. For IP 21/UL Type 1 wall mounting, a conformity kit should be ordered separately (see page 27).

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).

## Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 380...480 V 50/60 Hz



ATV950D15N4



ATV950D30N4



ATV950D55N4

## IP 55 drives with category C2 or C3 integrated EMC filter - Wall mounting (1)

| Motor   | Line supply                         |       |                  |       |                | Altivar Process      |                                |                                    |             | Reference (6)      | Weight |
|---|-------------------------------------|-------|------------------|-------|----------------|----------------------|--------------------------------|------------------------------------|-------------|--------------------|--------|
|   | Power indicated on rating plate (2) |       | Line current (3) |       | Apparent power | Prospective line Isc | Maximum continuous current (2) | Maximum transient current for 60 s | kg/lb       |                    |        |
| ND: Normal duty (4)   | HD: Heavy duty (5)                  | 380 V | 480 V            | 380 V | kVA            |                      |                                |                                    |             | kA                 | A      |
| kW  | HP                                  | A     | A                | kVA   | kA             | A                    | A                              |                                    |             |                    |        |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz (4)</b> |                                     |       |                  |       |                |                      |                                |                                    |             |                    |        |
| ND  | 0.75                                | 1     | 1.5              | 1.3   | 1.1            | 50                   | 2.2                            | 2.6                                | ATV950U07N4 | 10.500/<br>23.149  |        |
| HD  | 0.37                                | 0.5   | 0.9              | 0.8   | 0.7            | 50                   | 1.5                            | 2.3                                |             |                    |        |
| ND  | 1.5                                 | 2     | 3                | 2.6   | 2.2            | 50                   | 4                              | 4.8                                | ATV950U15N4 | 10.500/<br>23.149  |        |
| HD  | 0.75                                | 1     | 1.7              | 1.5   | 1.2            | 50                   | 2.2                            | 3.3                                |             |                    |        |
| ND  | 2.2                                 | 3     | 4.3              | 3.8   | 3.2            | 50                   | 5.6                            | 6.7                                | ATV950U22N4 | 10.500/<br>23.149  |        |
| HD  | 1.5                                 | 2     | 3.1              | 2.9   | 2.4            | 50                   | 4                              | 6                                  |             |                    |        |
| ND  | 3                                   | –     | 5.8              | 5.1   | 4.2            | 50                   | 7.2                            | 8.6                                | ATV950U30N4 | 10.600/<br>23.369  |        |
| HD  | 2.2                                 | 3     | 4.5              | 4     | 3.3            | 50                   | 5.6                            | 8.4                                |             |                    |        |
| ND  | 4                                   | 5     | 7.6              | 6.7   | 5.6            | 50                   | 9.3                            | 11.2                               | ATV950U40N4 | 10.600/<br>23.369  |        |
| HD  | 3                                   | –     | 6                | 5.4   | 4.5            | 50                   | 7.2                            | 10.8                               |             |                    |        |
| ND  | 5.5                                 | 7.5   | 10.4             | 9.1   | 7.6            | 50                   | 12.7                           | 15.2                               | ATV950U55N4 | 10.700/<br>23.589  |        |
| HD  | 4                                   | 5     | 8                | 7.2   | 6.0            | 50                   | 9.3                            | 14                                 |             |                    |        |
| ND  | 7.5                                 | 10    | 13.8             | 11.9  | 9.9            | 50                   | 16.5                           | 19.8                               | ATV950U75N4 | 13.700/<br>30.203  |        |
| HD  | 5.5                                 | 7.5   | 10.5             | 9.2   | 7.6            | 50                   | 12.7                           | 19.1                               |             |                    |        |
| ND  | 11                                  | 15    | 19.8             | 17    | 14.1           | 50                   | 23.5                           | 28.2                               | ATV950D11N4 | 13.700/<br>30.203  |        |
| HD  | 7.5                                 | 10    | 14.1             | 12.5  | 10.4           | 50                   | 16.5                           | 24.8                               |             |                    |        |
| ND  | 15                                  | 20    | 27               | 23.3  | 19.4           | 50                   | 31.7                           | 38                                 | ATV950D15N4 | 19.600/<br>43.211  |        |
| HD  | 11                                  | 15    | 20.6             | 18.1  | 15             | 50                   | 23.5                           | 35.3                               |             |                    |        |
| ND  | 18.5                                | 25    | 33.4             | 28.9  | 24             | 50                   | 39.2                           | 47                                 | ATV950D18N4 | 20.600/<br>45.415  |        |
| HD  | 15                                  | 20    | 27.7             | 24.4  | 20.3           | 50                   | 31.7                           | 47.6                               |             |                    |        |
| ND  | 22                                  | 30    | 39.6             | 34.4  | 28.6           | 50                   | 46.3                           | 55.6                               | ATV950D22N4 | 20.600/<br>45.415  |        |
| HD  | 18.5                                | 25    | 34.1             | 29.9  | 24.9           | 50                   | 39.2                           | 58.8                               |             |                    |        |
| ND  | 30                                  | 40    | 53.3             | 45.9  | 38.2           | 50                   | 61.5                           | 73.8                               | ATV950D30N4 | 50.000/<br>110.231 |        |
| HD  | 22                                  | 30    | 40.5             | 35.8  | 29.8           | 50                   | 46.3                           | 69.5                               |             |                    |        |
| ND  | 37                                  | 50    | 66.2             | 57.3  | 47.6           | 50                   | 74.5                           | 89.4                               | ATV950D37N4 | 50.000/<br>110.231 |        |
| HD  | 30                                  | 40    | 54.8             | 48.3  | 40.2           | 50                   | 61.5                           | 92.3                               |             |                    |        |
| ND  | 45                                  | 60    | 79.8             | 69.1  | 57.4           | 50                   | 88                             | 105.6                              | ATV950D45N4 | 50.000/<br>110.231 |        |
| HD  | 37                                  | 50    | 67.1             | 59    | 49.1           | 50                   | 74.5                           | 111.8                              |             |                    |        |
| ND  | 55                                  | 75    | 97.2             | 84.2  | 70             | 50                   | 106                            | 127.2                              | ATV950D55N4 | 87.000/<br>191.802 |        |
| HD  | 45                                  | 60    | 81.4             | 71.8  | 59.7           | 50                   | 88                             | 132                                |             |                    |        |
| ND  | 75                                  | 100   | 131.3            | 112.7 | 93.7           | 50                   | 145                            | 174                                | ATV950D75N4 | 87.000/<br>191.802 |        |
| HD  | 55                                  | 75    | 98.9             | 86.9  | 72.2           | 50                   | 106                            | 159                                |             |                    |        |
| ND  | 90                                  | 125   | 156.2            | 135.8 | 112.9          | 50                   | 173                            | 207.6                              | ATV950D90N4 | 87.700/<br>193.345 |        |
| HD  | 75                                  | 100   | 134.3            | 118.1 | 98.2           | 50                   | 145                            | 217.5                              |             |                    |        |

(1) Category C2 EMC filter for ATV950U07N4...D45N4. Category C3 EMC filter above ATV950D45N4.

(2) These values are given for an adjustable nominal switching frequency of 4 kHz up to ATV950D45N4 or 2.5 kHz for ATV950D55N4...D90N4, for use in continuous operation.

Above 2.5 or 4 kHz (depending on the rating), the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current, see derating curves on our website www.schneider-electric.com.

(3) Typical value for the indicated motor power and for the prospective line Isc.

(4) Values given for applications requiring a slight overload (up to 120%).

(5) Values given for applications requiring a significant overload (up to 150%).

(6) Supplied with cable gland.

**Note:** Consult the summary tables of possible drive, option and accessory combinations (see page 32).

# Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 380...480 V 50/60 Hz



ATV950D15N4E



ATV950D30N4E



ATV950D55N4E

| IP 55 drives with Vario disconnect switch and category C2 or C3 integrated EMC filter - Wall mounting (1) |                                     |       |                  |       |                |                      |                                |                                    |               |                |
|---|-------------------------------------|-------|------------------|-------|----------------|----------------------|--------------------------------|------------------------------------|---------------|----------------|
| Motor   | Line supply                         |       |                  |       |                |                      | Altivar Process                |                                    |               |                |
|   | Power indicated on rating plate (2) |       | Line current (3) |       | Apparent power | Prospective line Isc | Maximum continuous current (2) | Maximum transient current for 60 s | Reference (6) | Weight         |
| ND:   | HP                                  | 380 V | 480 V            | 380 V | A              |                      |                                |                                    |               |                |
| HD:   | HP                                  |       |                  | kVA   | kA             |                      |                                |                                    |               |                |
| Three-phase supply voltage: 380...480 V 50/60 Hz (4)  |                                     |       |                  |       |                |                      |                                |                                    |               |                |
| ND  | 0.75                                | 1     | 1.5              | 1.3   | 1.1            | 50                   | 2.2                            | 2.6                                | ATV950U07N4E  | 10.500/23.149  |
| HD  | 0.37                                | 0.5   | 0.9              | 0.8   | 0.7            | 50                   | 1.5                            | 2.3                                |               |                |
| ND  | 1.5                                 | 2     | 3                | 2.6   | 2.2            | 50                   | 4                              | 4.8                                | ATV950U15N4E  | 10.500/23.149  |
| HD  | 0.75                                | 1     | 1.7              | 1.5   | 1.2            | 50                   | 2.2                            | 3.3                                |               |                |
| ND  | 2.2                                 | 3     | 4.3              | 3.8   | 3.2            | 50                   | 5.6                            | 6.7                                | ATV950U22N4E  | 10.500/23.149  |
| HD  | 1.5                                 | 2     | 3.1              | 2.9   | 2.4            | 50                   | 4                              | 6                                  |               |                |
| ND  | 3                                   | -     | 5.8              | 5.1   | 4.2            | 50                   | 7.2                            | 8.6                                | ATV950U30N4E  | 10.600/23.369  |
| HD  | 2.2                                 | 3     | 4.5              | 4     | 3.3            | 50                   | 5.6                            | 8.4                                |               |                |
| ND  | 4                                   | 5     | 7.6              | 6.7   | 5.6            | 50                   | 9.3                            | 11.2                               | ATV950U40N4E  | 10.600/23.369  |
| HD  | 3                                   | -     | 6                | 5.4   | 4.5            | 50                   | 7.2                            | 10.8                               |               |                |
| ND  | 5.5                                 | 7.5   | 10.4             | 9.1   | 7.6            | 50                   | 12.7                           | 15.2                               | ATV950U55N4E  | 10.700/23.589  |
| HD  | 4                                   | 5     | 8                | 7.2   | 6.0            | 50                   | 9.3                            | 14                                 |               |                |
| ND  | 7.5                                 | 10    | 13.8             | 11.9  | 9.9            | 50                   | 16.5                           | 19.8                               | ATV950U75N4E  | 13.700/30.203  |
| HD  | 5.5                                 | 7.5   | 10.5             | 9.2   | 7.6            | 50                   | 12.7                           | 19.1                               |               |                |
| ND  | 11                                  | 15    | 19.8             | 17    | 14.1           | 50                   | 23.5                           | 28.2                               | ATV950D11N4E  | 13.700/30.203  |
| HD  | 7.5                                 | 10    | 14.1             | 12.5  | 10.4           | 50                   | 16.5                           | 24.8                               |               |                |
| ND  | 15                                  | 20    | 27               | 23.3  | 19.4           | 50                   | 31.7                           | 38                                 | ATV950D15N4E  | 19.600/43.211  |
| HD  | 11                                  | 15    | 20.6             | 18.1  | 15             | 50                   | 23.5                           | 35.3                               |               |                |
| ND  | 18.5                                | 25    | 33.4             | 28.9  | 24             | 50                   | 39.2                           | 47                                 | ATV950D18N4E  | 20.600/45.415  |
| HD  | 15                                  | 20    | 27.7             | 24.4  | 20.3           | 50                   | 31.7                           | 47.6                               |               |                |
| ND  | 22                                  | 30    | 39.6             | 34.4  | 28.6           | 50                   | 46.3                           | 55.6                               | ATV950D22N4E  | 20.600/45.415  |
| HD  | 18.5                                | 25    | 34.1             | 29.9  | 24.9           | 50                   | 39.2                           | 58.8                               |               |                |
| ND  | 30                                  | 40    | 53.3             | 45.9  | 38.2           | 50                   | 61.5                           | 73.8                               | ATV950D30N4E  | 52.000/114.640 |
| HD  | 22                                  | 30    | 40.5             | 35.8  | 29.8           | 50                   | 46.3                           | 69.5                               |               |                |
| ND  | 37                                  | 50    | 66.2             | 57.3  | 47.6           | 50                   | 74.5                           | 89.4                               | ATV950D37N4E  | 52.000/114.640 |
| HD  | 30                                  | 40    | 54.8             | 48.3  | 40.2           | 50                   | 61.5                           | 92.3                               |               |                |
| ND  | 45                                  | 60    | 79.8             | 69.1  | 57.4           | 50                   | 88                             | 105.6                              | ATV950D45N4E  | 52.000/114.640 |
| HD  | 37                                  | 50    | 67.1             | 59    | 49.1           | 50                   | 74.5                           | 111.8                              |               |                |
| ND  | 55                                  | 75    | 97.2             | 84.2  | 70             | 50                   | 106                            | 127.2                              | ATV950D55N4E  | 89.300/196.873 |
| HD  | 45                                  | 60    | 81.4             | 71.8  | 59.7           | 50                   | 88                             | 132                                |               |                |
| ND  | 75                                  | 100   | 131.3            | 112.7 | 93.7           | 50                   | 145                            | 174                                | ATV950D75N4E  | 89.300/196.872 |
| HD  | 55                                  | 75    | 98.9             | 86.9  | 72.2           | 50                   | 106                            | 159                                |               |                |
| ND  | 90                                  | 125   | 156.2            | 135.8 | 112.9          | 50                   | 173                            | 207.6                              | ATV950D90N4E  | 90.000/198.416 |
| HD  | 75                                  | 100   | 134.3            | 118.1 | 98.2           | 50                   | 145                            | 217.5                              |               |                |

(1) Category C2 EMC filter for **ATV950U07N4E...D45N4E**. Category C3 EMC filter above **ATV950D45N4E**.  
 (2) These values are given for an adjustable nominal switching frequency of 4 kHz up to **ATV950D45N4E** or 2.5 kHz for **ATV950D55N4E...D90N4E**, for use in continuous operation. Above 2.5 or 4 kHz (depending on the rating), the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see derating curves on our website [www.schneider-electric.com](http://www.schneider-electric.com)).  
 (3) Typical value for the indicated motor power and for the prospective line Isc.  
 (4) Values given for applications requiring a slight overload (up to 120%).  
 (5) Values given for applications requiring a significant overload (up to 150%).  
 (6) Supplied with cable gland.

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).

# Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 500...690 V 50/60 Hz



| IP 00 drives (1)                              |                 |       |      |                  |       |                |       |                              |                             |                                 |             |                |  |  |
|---|-----------------|-------|------|------------------|-------|----------------|-------|------------------------------|-----------------------------|---------------------------------|-------------|----------------|--|--|
| Motor   |                 |       |      | Line supply      |       |                |       |                              |                             | Altivar Process                 |             |                |  |  |
| Power indicated on rating plate (2)           |                 |       |      | Line current (3) |       | Apparent power |       | Maximum prospective line Isc | Max. continuous current (2) | Max. transient current for 60 s | Reference   | Weight         |  |  |
| ND:   | Normal duty (4) |       |      | 500 V            | 690 V | 690 V          |       |                              |                             |                                 |             |                |  |  |
| HD:   | Heavy duty (5)  |       |      |                  |       |                |       |                              |                             |                                 |             |                |  |  |
| Supply voltage                                |                 | 500 V |      | 690 V            |       |                |       |                              |                             |                                 |             |                |  |  |
|   | kW              | HP    | kW   | HP               | A     | A              | kVA   | kA                           | A                           | A                               |             | kg/lb          |  |  |
| <b>With category C3 integrated EMC filter</b> |                 |       |      |                  |       |                |       |                              |                             |                                 |             |                |  |  |
| ND  | 1.5             | 2     | 2.2  | 3                | 3.4   | 3.6            | 4.3   | 70                           | 3.1                         | 3.7                             | ATV930U22Y6 | 22.000/48.502  |  |  |
| HD  | 1.1             | 1.5   | 1.5  | 2                | 2.6   | 2.6            | 3.1   | 70                           | 2.4                         | 3.6                             |             |                |  |  |
| ND  | 2.2             | 3     | 3    | –                | 4.7   | 4.8            | 5.7   | 70                           | 4.2                         | 5.0                             | ATV930U30Y6 | 22.000/48.502  |  |  |
| HD  | 1.5             | 2     | 2.2  | 3                | 3.4   | 3.6            | 4.3   | 70                           | 3.1                         | 4.7                             |             |                |  |  |
| ND  | 3               | –     | 4    | 5                | 6.2   | 6.1            | 7.3   | 70                           | 5.4                         | 6.5                             | ATV930U40Y6 | 22.000/48.502  |  |  |
| HD  | 2.2             | 3     | 3    | –                | 4.7   | 4.8            | 5.7   | 70                           | 4.2                         | 6.3                             |             |                |  |  |
| ND  | 4               | 5     | 5.5  | 7.5              | 7.9   | 8              | 9.6   | 70                           | 7.2                         | 8.6                             | ATV930U55Y6 | 22.000/48.502  |  |  |
| HD  | 3               | –     | 4    | 5                | 6.2   | 6.1            | 7.3   | 70                           | 5.4                         | 8.1                             |             |                |  |  |
| ND  | 5.5             | 7.5   | 7.5  | 10               | 10.4  | 10.5           | 12.5  | 70                           | 9.5                         | 11.4                            | ATV930U75Y6 | 22.000/48.502  |  |  |
| HD  | 4               | 5     | 5.5  | 7.5              | 7.9   | 8              | 9.6   | 70                           | 7.2                         | 10.8                            |             |                |  |  |
| ND  | 7.5             | 10    | 11   | 15               | 13.6  | 14.7           | 17.6  | 70                           | 13.5                        | 16.2                            | ATV930D11Y6 | 22.000/48.502  |  |  |
| HD  | 5.5             | 7.5   | 7.5  | 10               | 10.4  | 10.5           | 12.5  | 70                           | 9.5                         | 14.3                            |             |                |  |  |
| ND  | 11              | 15    | 15   | 20               | 18.4  | 19.2           | 22.9  | 70                           | 18                          | 21.6                            | ATV930D15Y6 | 22.000/48.502  |  |  |
| HD  | 7.5             | 10    | 11   | 15               | 13.6  | 14.7           | 17.6  | 70                           | 13.5                        | 20.3                            |             |                |  |  |
| ND  | 15              | 20    | 18.5 | 25               | 23.1  | 23             | 27.5  | 70                           | 24                          | 28.8                            | ATV930D18Y6 | 22.000/48.502  |  |  |
| HD  | 11              | 15    | 15   | 20               | 18.4  | 19.2           | 22.9  | 70                           | 18                          | 27.0                            |             |                |  |  |
| ND  | 18.5            | 25    | 22   | 30               | 27.6  | 26             | 31.1  | 70                           | 29                          | 34.8                            | ATV930D22Y6 | 22.000/48.502  |  |  |
| HD  | 15              | 20    | 18.5 | 25               | 23.2  | 23             | 27.5  | 70                           | 24                          | 36.0                            |             |                |  |  |
| ND  | 22              | 30    | 30   | 40               | 32.1  | 32.8           | 39.2  | 70                           | 34                          | 40.8                            | ATV930D30Y6 | 22.000/48.502  |  |  |
| HD  | 18.5            | 25    | 22   | 30               | 27.6  | 26             | 31.1  | 70                           | 29                          | 43.5                            |             |                |  |  |
| ND  | 30              | 40    | 37   | 50               | 47.2  | 46.2           | 55.2  | 70                           | 45                          | 54.0                            | ATV930D37Y6 | 53.000/116.845 |  |  |
| HD  | 22              | 30    | 30   | 40               | 37.7  | 38.5           | 46.0  | 70                           | 34                          | 51.0                            |             |                |  |  |
| ND  | 37              | 50    | 45   | 60               | 55.6  | 54.4           | 65.0  | 70                           | 55                          | 66.0                            | ATV930D45Y6 | 53.000/116.845 |  |  |
| HD  | 30              | 40    | 37   | 50               | 47.2  | 46.2           | 55.2  | 70                           | 45                          | 67.5                            |             |                |  |  |
| ND  | 45              | 60    | 55   | 75               | 65.5  | 62.5           | 74.7  | 70                           | 66                          | 79.2                            | ATV930D55Y6 | 53.000/116.845 |  |  |
| HD  | 37              | 50    | 45   | 60               | 55.6  | 54.4           | 65.0  | 70                           | 55                          | 82.5                            |             |                |  |  |
| ND  | 55              | 75    | 75   | 100              | 82.7  | 87.7           | 104.8 | 70                           | 83                          | 99.6                            | ATV930D75Y6 | 53.000/116.845 |  |  |
| HD  | 45              | 60    | 55   | 75               | 71    | 68.5           | 81.9  | 70                           | 66                          | 99.0                            |             |                |  |  |
| ND  | 75              | 100   | 90   | 125              | 108.3 | 99.4           | 118.8 | 70                           | 108                         | 129.6                           | ATV930D90Y6 | 53.000/116.845 |  |  |
| HD  | 55              | 75    | 75   | 100              | 82.7  | 87.7           | 104.8 | 70                           | 83                          | 124.5                           |             |                |  |  |

(1) Product supplied as IP 00 for mounting in an enclosure. For IP 20/UL Type1 wall mounting, an adaptation kit should be ordered separately.

(2) These values are given for use in continuous operation with a nominal switching frequency between 2.5 kHz (ATV930D37Y6...D90Y6) and 4 kHz (ATV930U22Y6...D30Y6). The switching frequency is adjustable from 1...4.9 kHz (ATV930D37Y6...D90Y6) to 2...8 kHz (ATV930U22Y6...D30Y6).

Above the nominal switching frequency, the drive will automatically reduce it in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, nominal drive current should be derated according to the derating curves available on www.schneider-electric.com.

(3) Typical value for the indicated motor power and for the maximum prospective line Isc.

(4) Values given for applications requiring a slight overload (up to 110%).

(5) Values given for applications requiring a significant overload (up to 150%).

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).

# Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 380...440 V 50/60 Hz

PF 15/2006



ATV930C16N4F

| IP 21 drives with category C3 integrated EMC filter - Floor standing (5) |     |                  |       |                         |                              |                                |                                    |           |              |                     |
|--|-----|------------------|-------|-------------------------|------------------------------|--------------------------------|------------------------------------|-----------|--------------|---------------------|
| Motor  |     | Line supply      |       |                         |                              | Altivar Process                |                                    |           |              |                     |
| Power indicated on rating plate (1)                                      |     | Line current (2) |       | Apparent power<br>380 V | Maximum prospective line Isc | Maximum continuous current (1) | Maximum transient current for 60 s | Reference | Weight       |                     |
|  |     | 380 V            | 400 V |                         |                              |                                |                                    |           |              |                     |
| ND: Normal duty (3)  |     |                  |       |                         |                              |                                |                                    |           |              |                     |
| HD: Heavy duty (4)   |     |                  |       |                         |                              |                                |                                    |           |              |                     |
| kW   | HP  | A                | A     | kVA                     | kA                           | A                              | A                                  |           | kg/lb        |                     |
| <b>Three-phase supply voltage: 380...440 V 50/60 Hz (3)</b>              |     |                  |       |                         |                              |                                |                                    |           |              |                     |
| ND   | 110 | –                | 207   | 195                     | 135                          | 50                             | 211                                | 253       | ATV930C11N4F | 300.000/<br>661.386 |
| HD   | 90  | –                | 174   | 164                     | 113                          | 50                             | 173                                | 260       |              |                     |
| ND   | 132 | –                | 250   | 232                     | 161                          | 50                             | 250                                | 300       | ATV930C13N4F | 300.000/<br>661.386 |
| HD   | 110 | –                | 207   | 197                     | 136                          | 50                             | 211                                | 317       |              |                     |
| ND   | 160 | –                | 291   | 277                     | 192                          | 50                             | 302                                | 362       | ATV930C16N4F | 300.000/<br>661.386 |
| HD   | 132 | –                | 244   | 232                     | 161                          | 50                             | 250                                | 375       |              |                     |
| ND   | 200 | –                | 369   | 349                     | 242                          | 50                             | 370                                | 444       | ATV930C20N4F | 400.000/<br>881.848 |
| HD   | 160 | –                | 302   | 286                     | 198                          | 50                             | 302                                | 453       |              |                     |
| ND   | 250 | –                | 453   | 432                     | 299                          | 50                             | 477                                | 572       | ATV930C25N4F | 400.000/<br>881.848 |
| HD   | 200 | –                | 369   | 353                     | 244                          | 50                             | 370                                | 555       |              |                     |
| ND   | 315 | –                | 566   | 538                     | 373                          | 50                             | 590                                | 708       | ATV930C31N4F | 400.000/<br>881.848 |
| HD   | 250 | –                | 453   | 432                     | 299                          | 50                             | 477                                | 716       |              |                     |

- (1) These values are given for a nominal switching frequency of 2.5 kHz for use in continuous operation. The switching frequency is adjustable for all ratings. Above 2.5 kHz, the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see derating curves on our website [www.schneider-electric.com](http://www.schneider-electric.com)).
- (2) Typical value for the indicated motor power and for the maximum prospective line Isc.
- (3) Values given for applications requiring a slight overload (up to 120%).
- (4) Values given for applications requiring a significant overload (up to 150%).
- (5) Integrated motor chokes allowing a shielded motor cable length up to 300 m/984 ft in category C3 and an unshielded cable length up to 450 m/1,476 ft in category C4.

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).



## Variable speed drives

## Altivar Process ATV900

Three-phase supply voltage: 380...440 V 50/60 Hz

PF151221



ATV950C31N4F

| IP 54 drives with switch and category C3 integrated EMC filter - Floor standing <sup>(1)</sup> |                            |    |                             |       |                |                              |                            |                                    |              |                     |
|--|----------------------------|----|-----------------------------|-------|----------------|------------------------------|----------------------------|------------------------------------|--------------|---------------------|
| Motor  |                            |    | Line supply                 |       |                |                              | Altivar Process            |                                    |              |                     |
| Power indicated on rating plate  |                            |    | Line current <sup>(2)</sup> |       | Apparent power | Maximum prospective line Isc | Maximum continuous current | Maximum transient current for 60 s | Reference    | Weight              |
|  |                            |    | 380 V                       | 400 V |                |                              |                            |                                    |              |                     |
| ND:  | Normal duty <sup>(3)</sup> |    |                             |       |                |                              |                            |                                    |              |                     |
| HD:  | Heavy duty <sup>(4)</sup>  |    |                             |       |                |                              |                            |                                    |              |                     |
|  | kW                         | HP | A                           | A     | kVA            | kA                           | A                          | A                                  |              | kg/lb               |
| <b>Three-phase supply voltage: 380...440 V 50/60 Hz <sup>(3)</sup></b>                         |                            |    |                             |       |                |                              |                            |                                    |              |                     |
| ND   | 110                        | –  | 207                         | 195   | 135            | 50                           | 211                        | 253                                | ATV950C11N4F | 310.000/<br>683.433 |
| HD   | 90                         | –  | 174                         | 164   | 113            | 50                           | 173                        | 260                                |              |                     |
| ND   | 132                        | –  | 250                         | 232   | 161            | 50                           | 250                        | 300                                | ATV950C13N4F | 310.000/<br>683.433 |
| HD   | 110                        | –  | 207                         | 197   | 136            | 50                           | 211                        | 317                                |              |                     |
| ND   | 160                        | –  | 291                         | 277   | 192            | 50                           | 302                        | 362                                | ATV950C16N4F | 310.000/<br>683.433 |
| HD   | 132                        | –  | 244                         | 232   | 161            | 50                           | 250                        | 375                                |              |                     |
| ND   | 200                        | –  | 369                         | 349   | 242            | 50                           | 370                        | 444                                | ATV950C20N4F | 420.000/<br>925.941 |
| HD   | 160                        | –  | 302                         | 286   | 198            | 50                           | 302                        | 453                                |              |                     |
| ND   | 250                        | –  | 453                         | 432   | 299            | 50                           | 477                        | 572                                | ATV950C25N4F | 420.000/<br>925.941 |
| HD   | 200                        | –  | 369                         | 353   | 244            | 50                           | 370                        | 555                                |              |                     |
| ND   | 315                        | –  | 566                         | 538   | 373            | 50                           | 590                        | 708                                | ATV950C31N4F | 420.000/<br>925.941 |
| HD   | 250                        | –  | 453                         | 432   | 299            | 50                           | 477                        | 716                                |              |                     |

(1) Integrated motor chokes allowing a shielded motor cable length up to 300 m/984 ft in category C3 and an unshielded cable length up to 450 m/1,476 ft in category C4.

(2) Typical value for the indicated motor power and for the maximum prospective line Isc.

(3) Values given for applications requiring a slight overload (up to 120%).

(4) Values given for applications requiring a significant overload (up to 150%).

**Note:** Consult the summary tables of possible drive, option, and accessory combinations (see page 32).

## Variable speed drives

## Altivar Process ATV900

## Replacement parts

F19\_FAN\_LPSECT17001



VX5VPS3002

F19\_FAN\_LPSECT17002



VX5VPS5002

## Replacement parts

| Description  | For drive   | Reference           | Weight<br>kg/lb |
|--|---|---------------------|-----------------|
| <b>Fan kit for wall-mounting drives</b>                                  |   |                     |                 |
| <b>Power fan for IP 21 and IP 55 drives, bracket, instruction sheets</b> | ATV930U07M3...U40M3, ATV930U07N4...U55N4, ATV950U07N4...U55N4, ATV950U07N4E...U55N4E                        | <b>VX5VPS1001</b>   | –               |
|  | ATV930U55M3, ATV930U75N4...D11N4, ATV950U75N4...D11N4, ATV950U75N4E...D11N4E                                | <b>VX5VPS2001</b>   | –               |
|  | ATV930U75M3...D11M3, ATV930D15N4...D22N4, ATV950D15N4...D22N4, ATV950D15N4E...D22N4E                        | <b>VX5VPS3001</b>   | –               |
|  | ATV930U22Y6...D30Y6   | <b>VX5VPS3002</b>   | –               |
|  | ATV930D15M3...D22M3, ATV930D30N4...D45N4, ATV950D30N4...D45N4, ATV950D30N4E...D45N4E                        | <b>VX5VPS4001</b>   | –               |
|  | ATV930D30M3...D45M3, ATV930D30M3C...D45M3C, ATV930D55N4...D90N4, ATV950D55N4...D90N4, ATV950D55N4E...D90N4E | <b>VX5VPS5001</b>   | –               |
|  | ATV930D37Y6...D90Y6   | <b>VX5VPS5002</b>   | –               |
|  | ATV930D55M3C...D75M3C, ATV930C11N4C...C16N4C  | <b>VX5VPS6001</b>   | –               |
|  | ATV930C22N4, ATV930C22N4C...ATV930C31N4C  | <b>VZ3V1212 (1)</b> | –               |
|  |   | <b>VZ3V1213 (2)</b> | –               |
| <b>Control fan for IP 55 drives, bracket, instruction sheets</b>         | ATV950U07N4...D22N4, ATV950U07N4E...D22N4E  | <b>VX5VP50A001</b>  | –               |
|  | ATV950D30N4...D90N4, ATV950D30N4E...D90N4E  | <b>VX5VP50BC001</b> | –               |
| <b>Fan kit for floor-standing drives</b>                                 |   |                     |                 |
| <b>Power fan, bracket, instruction sheets</b>                            | ATV930C11N4F...C31N4F, ATV950C11N4F...C31N4F  | <b>VX5VPM001</b>    | –               |
| <b>Door fan, bracket, instruction sheets</b>                             | ATV930C11N4F...C31N4F, ATV950C11N4F...C31N4F  | <b>VX5VPM002</b>    | –               |
| <b>Enclosure grid filter pads</b>  |   |                     |                 |
| <b>223 x 223 mm/<br/>8.78 x 8.78 in.<br/>enclosure grid filter pad</b>   | ATV950C11N4F...C16N4F   | <b>NSYCAF223</b>    | –               |
| <b>291 x 291 mm/<br/>11.46 x 11.46 in.<br/>enclosure grid filter pad</b> | ATV950C20N4F...C31N4F   | <b>NSYCAF291</b>    | –               |

(1) Fan power electronic for drive, with 1 unit for ATV930C22N4(C), 2 units for ATV930C25N4C, and 3 units for ATV930C31N4C.

(2) Internal fan for drive, with 1 unit for ATV930C22N4(C), 2 units for ATV930C25N4C, and 3 units for ATV930C31N4C.

F19\_ACC\_CPSC17009



VW3A95116

## Accessories for flange-mounting

| Description                                   | For use with                             | Use with braking unit | Enclosure max. height (mm/in.) | Enclosure max. width (mm/in.) | Reference   | Weight kg/lb |
|---|--|-----------------------|--------------------------------|-------------------------------|-------------|--------------|
| Mounting bracket for flange-mounting kit      | NSYPTDS1, NSYPTDS2, NSYPTDS3             | –                     | –                              | –                             | NSYAEFPFPTD | –            |
| Flange-mounting kit for separate air flow (1) | ATV930U07M3...U40M3, ATV930U07N4...U55N4 | –                     | 360/14.17                      | 235/9.25                      | NSYPTDS1    | –            |
|   | ATV930U55M3, ATV930U75N4...D11N4         | –                     | 420/16.54                      | 265/10.43                     | NSYPTDS2    | –            |
|   | ATV930U75M3...D11M3, ATV930D15N4...D22N4 | –                     | 555/21.85                      | 295/11.61                     | NSYPTDS3    | –            |
|   | ATV930D15M3...D22M3, ATV930D30N4...D45N4 | –                     | 800/31.50                      | 385/15.16                     | NSYPTDS4    | –            |
|   | ATV930D30M3...D45M3, ATV930D55N4...D90N4 | –                     | 975/38.39                      | 427/16.81                     | NSYPTDS5    | –            |
|   | ATV930C11N4...C16N4, ATV930D55M3...D75M3 | –                     | –                              | –                             | VW3A95116   | –            |
|   | ATV930C22N4                              | –                     | –                              | –                             | VW3A9513    | –            |
| ATV930C25N4, ATV930C31N4                      | Without braking unit                     | –                     | –                              | VW3A9514                      | –           |              |
|   | With braking unit                        | –                     | –                              | VW3A9515                      | –           |              |

F19\_ACC\_CPSC17006



VW3A9705

## IP 20 and IP 21/UL Type 1 conformity kits

| Description                    | For use with                             | Use with braking unit | Reference | Weight kg/lb |
|--------------------------------|--|-----------------------|-----------|--------------|
| IP 20/UL Type 1 conformity kit | ATV930U22Y6...D30Y6                      | –                     | VW3A9705  | –            |
|                                | ATV930D37Y6...D90Y6                      | –                     | VW3A9706  | –            |
| IP 21/UL Type 1 conformity kit | ATV930D55M3...D75M3, ATV930C11N4...C16N4 | –                     | VW3A9704  | –            |
| UL Type 1 conformity kit       | ATV930C22N4                              | –                     | VW3A9212  | –            |
|                                | ATV930C25N4, ATV930C31N4                 | Without braking unit  | VW3A9213  | –            |
|                                |  | With braking unit     | VW3A9214  | –            |

## IP 31 conformity kit

| Description          | For use with               | Use with braking unit | Reference | Weight kg/lb |
|----------------------|----------------------------|-----------------------|-----------|--------------|
| IP 31 conformity kit | ATV930C22N4, ATV930C22N4C  | –                     | VW3A9112  | –            |
|                      | ATV930C25N4C, ATV930C31N4C | Without braking unit  | VW3A9113  | –            |
|                      |                            | With braking unit     | VW3A9114  | –            |

(1) RUE-2192 patented system.

# Variable speed drives

## Altivar Process ATV900

### Option: Configuration and runtime tools



Graphic display terminal  
(example shows dynamic speed and torque)



Detected fault: The screen's red backlight  
is activated automatically



Embedded dynamic QR codes for contextual,  
instantaneous access to online help



Scanning the QR code from a smartphone  
or tablet



Instant access to online help

### Graphic display terminal (supplied with the drive)

This terminal can be:

- Connected and mounted on the front of the drive
- Connected and mounted on an enclosure door using a remote mounting accessory
- Connected to a PC to exchange files via a Mini USB/USB connection (1)
- Connected to several drives in multidrop mode (see page 29)

This terminal is used to:

- Control, adjust, and configure the drive
- Display current values (motor, I/O, and process data)
- Display graphic dashboards such as the energy consumption monitoring dashboard
- Store and download configurations (several configuration files can be stored in the 16 MB memory)
- Duplicate the configuration of one powered-up drive on another powered-up drive
- Copy configurations from a PC or drive and duplicate them on another drive (the drives must be powered on for the duration of the duplication operations)

Other characteristics:

- 24 integrated languages (complete alphabets) covering the majority of countries around the world (other languages can be added; please consult our website [www.schneider-electric.com](http://www.schneider-electric.com))
- 2-color backlit display (white and red); if an error is detected, the red backlight is activated automatically (function can be disabled)
- Operating range: -15...50 °C/+5...122 °F
- Degree of protection: IP 65
- Trend curves: Graphic display of changes over time in monitoring variables, energy data, and process data
- Embedded dynamic QR codes for contextual, instantaneous access to online help (diagnostics and settings, etc.) using a smartphone or tablet
- Real-time clock with 10-year backup battery providing data acquisition and event timestamping functions even when the drive is stopped

### Description

Display:

- 8 lines, 240 x 160 pixels
- Displays bar charts, gauges, and trend charts
- 4 function keys to facilitate navigation and provide contextual links for enabling functions
- "STOP/RESET" button: Local control of motor stop command/clearing detected errors
- "RUN" button: Local control of motor run command
- Navigation buttons:
  - OK button: Saves the current value (ENT)
  - Turn ±: Increases or decreases the value, goes to the next or previous line
  - "ESC" button: Aborts a value, parameter, or menu to return to the previous selection
  - Home: Root menu
  - Information (i): Contextual help

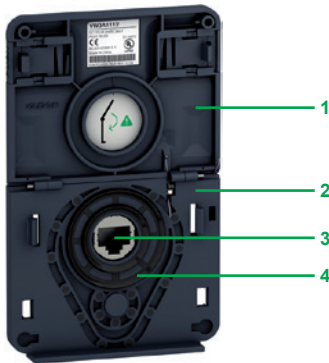
### References

| Description              | Reference | Weight<br>kg/<br>lb |
|--------------------------|-----------|---------------------|
| Graphic display terminal | VW3A1111  | 0.200/<br>0.441     |

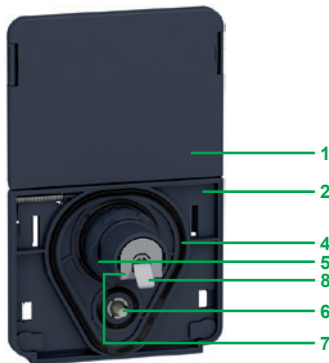
### Communication accessory

| Description   | Reference    | Weight<br>kg/<br>lb |
|---|--------------|---------------------|
| IP 20 WiFi dongle<br>remote mounting of the Ethernet port for connection of WiFi equipment (PC, tablet, smartphone, etc.)<br>powered by internal rechargeable battery | TCSEGWB13FA0 | 0.350/<br>0.772     |

(1) Graphic display terminal used only as a handheld terminal.



Remote mounting kit for mounting graphic display terminal on enclosure door (front panel)



Remote mounting kit for graphic display terminal (rear panel)

### Accessories for graphic display terminal

- Remote mounting kit for mounting on enclosure door with IP 65 degree of protection as standard

The kit comprises:

- Tightening tool (also sold separately under the reference ZB5AZ905)

- Cover plate to maintain IP 65 protection when there is no terminal connected
- Mounting plate
- RJ45 port for the graphic display terminal
- Seal
- Fixing nut
- Anti-rotation pin
- RJ45 port for connecting the remote-mounting cordset (10 m/32.81 ft maximum)  
Cordsets should be ordered separately depending on the length required
- Grounding connector

Drilling a hole with a standard Ø 22 tool, as used for a pushbutton, allows the unit to be mounted without needing a cut-out in the enclosure (Ø 22.5 mm/Ø 0.89 in. drill hole).

### References

| Description   | Length<br>m/<br>ft                                      | IP | Reference   | Weight<br>kg/<br>lb  |
|---|---|----|---|--|
| <b>Remote mounting kit</b><br>Order with remote-mounting cordset<br>VW3A1104R●●●  | –   | 65 | <b>VW3A1112</b>   | –  |
| <b>Tightening tool</b><br>for remote mounting kit   | –   | –  | <b>ZB5AZ905</b>   | 0.016/<br>0.035  |
| <b>Remote-mounting cordset</b><br>equipped with 2<br>RJ45 connectors  | 1/<br>3.28<br>3/<br>9.84<br>5/<br>16.40<br>10/<br>32.81 | –  | <b>VW3A1104R10</b><br><b>VW3A1104R30</b><br><b>VW3A1104R50</b><br><b>VW3A1104R100</b> | 0.050/<br>0.110<br>0.150/<br>0.331<br>0.250/<br>0.551<br>0.500/<br>1.102 |
| <b>USB/Mini B USB cable</b><br>for connecting the<br>display terminal to a PC   | –   | –  | <b>TCSXCNAMUM3P</b>   | –  |
| <b>IP 65 remote mounting kit for Ethernet port (1)</b><br>Ø 22 RJ45 female/female adapter with seal                           | –   | 65 | <b>VW3A1115</b>   | 0.200/<br>0.441  |
| <b>Set of 10 x IP55 shutters for ATV650:</b><br>to keep IP55 protection level when the<br>graphic display terminal is removed | –   | 55 | <b>VW3A1116</b>   | 0.640/<br>1.411  |

### Multidrop connection accessories

These accessories are used to connect a graphic display terminal to several drives via a multidrop link. This multidrop connection uses the RJ45 terminal port on the front of the drive.

### Connection accessories

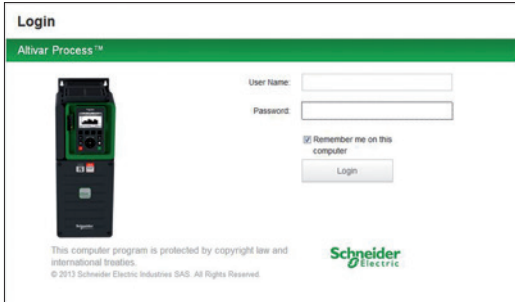
| Description  | Sold in<br>lots of    | Unit<br>reference             | Weight<br>kg/<br>lb |
|--|-----------------------|-------------------------------|---------------------|
| <b>Modbus splitter box</b><br><b>10 RJ45 connectors</b><br><b>and 1 screw terminal block</b> | –                     | <b>LU9GC3</b>                 | 0.500/<br>1.102     |
| <b>Modbus T-junction boxes</b><br>With 0.3 m/0.98 ft<br>integrated cable                     | –                     | <b>VW3A8306TF03</b>           | 0.190/<br>0.419     |
| With 1 m/3.28 ft<br>integrated cable   | –                     | <b>VW3A8306TF10</b>           | 0.210/<br>0.463     |
| <b>Modbus line terminator</b><br>For<br>RJ45<br>connector                                    | R = 120 Ω<br>C = 1 nf | <b>2</b><br><b>VW3A8306RC</b> | 0.010/<br>0.022     |

### Cordsets (equipped with 2 RJ45 connectors)

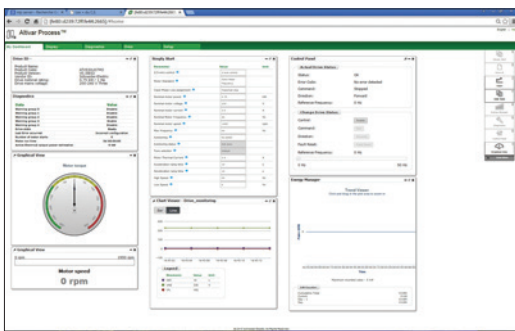
| Used for           | Length<br>m/<br>ft | Reference          | Weight<br>kg/<br>lb |
|--------------------|--------------------|--------------------|---------------------|
| <b>Serial link</b> | 0.3/<br>0.98       | <b>VW3A8306R03</b> | 0.025/<br>0.055     |
|                    | 1/<br>3.28         | <b>VW3A8306R10</b> | 0.060/<br>0.132     |
|                    | 3/<br>9.84         | <b>VW3A8306R30</b> | 0.130/<br>0.287     |

(1) Used to connect a remote PC to the RJ45 port on an IP 21 drive mounted in an enclosure or on a wall. Drill hole with a standard Ø 22 tool, as used for a pushbutton. (Requires a remote-mounting cordset VW3A1104R●●● equipped with 2 RJ45 connectors).

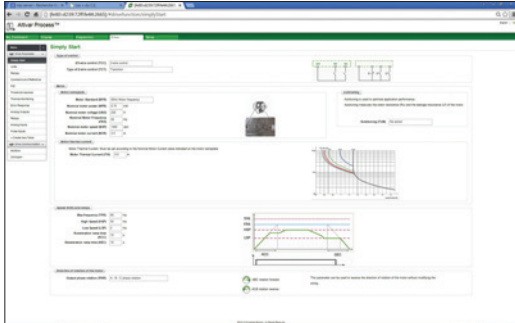




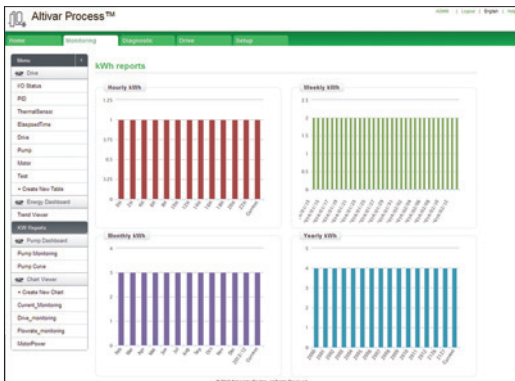
Login screen



Customizable widgets



Drive adjustment parameters



Energy dashboard

## Web server

### Presentation

- The Web server can be accessed:
  - For a drive not connected to an Ethernet network
    - Via an Ethernet cable or the Schneider Electric WiFi dongle (the drive then appears as a network device)
  - For a drive connected to an Ethernet network
    - From any point on the network by entering the drive IP address
- The Web server is used for:
  - Commissioning the drive (setting configuration parameters and enabling the main functions)
  - Monitoring energy and process data, as well as drive and motor data
  - Diagnostics (drive status, file transfer, detected error and warning logs)

### Description

The Web server is structured around 5 tabs.

- “My dashboard” tab:
  - Configurable using a wide choice of widgets; groups all the information and dashboards selected by the user on one page
- “Display” tab:
  - Monitors energy indicators, efficiency, and performance
  - Displays process data
  - Monitors drive parameters and status
  - Shows the I/O state and assignment
- “Diagnostics” tab:
  - Drive status
  - Time and date-stamped warning and detected error logs
  - Network diagnostics
  - Access to drive self-tests
- “Drive” tab:
  - Access to the main drive adjustment parameters with contextual help
- “Setup” tab:
  - Network configuration
  - Access management
  - Transferring and retrieving drive configurations
  - Exporting data acquisition files and logs
  - Customizing pages (colors, logos, etc.)

Other characteristics:

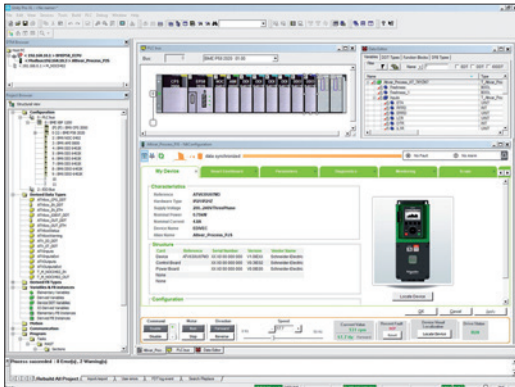
- Ease of connection via the RJ45 port or WiFi connection
- Password-protected authentication (modifiable password; access rights can be configured by administrator)
- No downloads or installation necessary
- Web server can be disabled
- Works in a similar way on PCs, iPhones, iPads, Android systems, and the following major web browsers:
  - Internet Explorer® (version 8 or higher)
  - Google Chrome® (version 11 or higher)
  - Mozilla Firefox® (version 4 or higher)
  - Safari® (version 5.1.7 or higher)

## DTM

### Presentation

Using FDT/DTM technology it is possible to configure, control, and diagnose Altivar Process drives directly in Unity Pro and SoMove software by means of the same software brick (DTM).

FDT/DTM technology standardizes the communication interface between field devices and host systems. The DTM contains a uniform structure for managing drive access parameters.



Altivar Process DTM in Unity

### Specific functions of the Altivar Process DTM

- Offline or online access to drive data
- Drive firmware updates
- Transfer of configuration files from and to the drive
- Customization (dashboard, My Menu, etc.)
- Access to drive parameters and option cards
- Oscilloscope function
- Graphic interface to assist with configuration of the Altivar Process functions
- Energy and process dashboards
- Graphic display of system operation and comparison with optimum operation (dynamic speed and torque curves)
- Detected error and warning logs (with timestamping)

Advantages of the DTM library in Unity Pro:

- Single tool for configuration, setup, and diagnostics
- Network scan for automatic recognition of network configuration
- Ability to add/remove, copy/paste configuration files from other drives in the same architecture
- Single input point for all parameters shared between the ePAC (programmable controller) and the Altivar Process drive
- Creation of drive profiles for implicit communication with the ePAC as well as dedicated profiles for programs with DFBs (derived function blocks)
- Integration in the fieldbus topology
- Drive configuration is an integral part of the Unity Pro project file (STU) and the archive file (STA)

Advantages of the DTM library in SoMove:

- Drive-oriented software environment
- Wired connection to the Ethernet communication port
- Standard cable (file transfer performance)
- Function block library for Unity Pro
- Display blocks for Vijeo Citect

■ Third-party software and downloads:

The Altivar Process DTM library is a flexible, open, and interactive tool that can be used in a third-party FDT.

DTMs can be downloaded from our website [www.schneider-electric.com](http://www.schneider-electric.com).

## SoMove software

### Presentation

SoMove software for PC is used to configure, set up, and maintain Altivar Process drives.

In addition to the functions offered by the Web server, SoMove software features the oscilloscope function for accurate display of data samples, as well as access to multi-drive applications.

The software can be connected to Altivar Process variable speed drives via:

- A Bluetooth® wireless connection with the Bluetooth/Modbus adapter TCSWAAC13FB
- Ethernet Modbus and WiFi connection with the WiFi dongle TCSEGWB13FA0
- Ethernet Modbus TCP connection

For more information on SoMove setup software, please consult the “SoMove: Setup Software” catalog available on our website [www.schneider-electric.com](http://www.schneider-electric.com).



SoMove software

| Table showing possible combinations of options for ATV930●●●M3/M3C, ATV930●●●N4/N4C drives     |       |                     |                          |                              |                              |               |                         |               |               |                          |               |                            |              |                            |                         |          |
|--|-------|---------------------|--------------------------|------------------------------|------------------------------|---------------|-------------------------|---------------|---------------|--------------------------|---------------|----------------------------|--------------|----------------------------|-------------------------|----------|
| Motor<br>kW HP   | Drive | Accessories         |                          |                              | Options                      |               |                         |               | EMC filters   | IP 21 kit for EMC filter | dv/dt filters | IP 21 kit for dv/dt filter | Sinus filter | IP 21 kit for sinus filter | Common mode filters (2) |          |
|  |       | Flange-mounting kit | UL Type 1 conformity kit | IP 21 conformity kit         | Passive filters (50 Hz)      |               | Passive filters (60 Hz) |               |               |                          |               |                            |              |                            |                         |          |
|  |       |                     |                          |                              | THDI < 10%                   | THDI < 5%     | THDI < 10%              | THDI < 5%     |               |                          |               |                            |              |                            |                         |          |
| <b>Three-phase supply voltage: 200...240 V 50/60 Hz - IP 21/UL Type 1</b>                      |       |                     |                          |                              |                              |               |                         |               |               |                          |               |                            |              |                            |                         |          |
| 0.75   | 1     | ATV930U07M3         | NSYPTDS1                 | –                            | –                            | –             | –                       | –             |               | VW3A4701                 | VW3A47901     | VW3A5301                   | VW3A53902    | VW3A5401                   | VW3A53901               | VW3A5502 |
| 1.5  | 2     | ATV930U15M3         | NSYPTDS1                 | –                            | –                            | –             | –                       | –             |               | VW3A4701                 | VW3A47901     | VW3A5302                   | VW3A53902    | VW3A5402                   | VW3A53901               | VW3A5502 |
| 2.2  | 3     | ATV930U22M3         | NSYPTDS1                 | –                            | –                            | –             | –                       | –             |               | VW3A4702                 | VW3A47902     | VW3A5302                   | VW3A53902    | VW3A5402                   | VW3A53901               | VW3A5502 |
| 3  | –     | ATV930U30M3         | NSYPTDS1                 | –                            | –                            | –             | –                       | –             |               | VW3A4702                 | VW3A47902     | VW3A5302                   | VW3A53902    | VW3A5402                   | VW3A53901               | VW3A5502 |
| 4  | 5     | ATV930U40M3         | NSYPTDS1                 | –                            | –                            | –             | –                       | –             |               | VW3A4703                 | VW3A47903     | VW3A5303                   | VW3A53902    | VW3A5403                   | VW3A53902               | VW3A5502 |
| 5.5  | 7.5   | ATV930U55M3         | NSYPTDS2                 | –                            | –                            | –             | –                       | –             |               | VW3A4703                 | VW3A47903     | VW3A5304                   | VW3A53903    | VW3A5404                   | VW3A53903               | VW3A5502 |
| 7.5  | 10    | ATV930U75M3         | NSYPTDS3                 | –                            | –                            | –             | –                       | –             |               | VW3A4703                 | VW3A47903     | VW3A5304                   | VW3A53903    | VW3A5404                   | VW3A53903               | VW3A5504 |
| 11   | 15    | ATV930D11M3         | NSYPTDS3                 | –                            | –                            | –             | –                       | –             |               | VW3A4704                 | VW3A47904     | VW3A5304                   | VW3A53903    | VW3A5404                   | VW3A53903               | VW3A5504 |
| 15   | 20    | ATV930D15M3         | NSYPTDS4                 | –                            | –                            | –             | –                       | –             |               | VW3A4705                 | VW3A47905     | VW3A5305                   | VW3A53905    | VW3A5405                   | VW3A53904               | VW3A5504 |
| 18.5   | 25    | ATV930D18M3         | NSYPTDS4                 | –                            | –                            | –             | –                       | –             |               | VW3A4706                 | VW3A47906     | VW3A5305                   | VW3A53905    | VW3A5405                   | VW3A53904               | VW3A5504 |
| 22   | 30    | ATV930D22M3         | NSYPTDS4                 | –                            | –                            | –             | –                       | –             |               | VW3A4706                 | VW3A47906     | VW3A5305                   | VW3A53905    | VW3A5405                   | VW3A53904               | VW3A5504 |
| 30   | 40    | ATV930D30M3         | NSYPTDS5                 | –                            | –                            | –             | –                       | –             |               | VW3A4707                 | VW3A47907     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 37   | 50    | ATV930D37M3         | NSYPTDS5                 | –                            | –                            | –             | –                       | –             |               | VW3A4707                 | VW3A47907     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 45   | 60    | ATV930D45M3         | NSYPTDS5                 | –                            | –                            | –             | –                       | –             |               | VW3A4708                 | VW3A47908     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| <b>Three-phase supply voltage: 200...240 V 50/60 Hz - IP 21/UL Type 1 without braking unit</b> |       |                     |                          |                              |                              |               |                         |               |               |                          |               |                            |              |                            |                         |          |
| 45   | 60    | ATV930D30M3C        | NSYPTDS5                 | –                            | –                            | –             | –                       | –             |               | VW3A4707                 | VW3A47907     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 45   | 60    | ATV930D37M3C        | NSYPTDS5                 | –                            | –                            | –             | –                       | –             |               | VW3A4707                 | VW3A47907     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 45   | 60    | ATV930D45M3C        | NSYPTDS5                 | –                            | –                            | –             | –                       | –             |               | VW3A4708                 | VW3A47908     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 55   | 75    | ATV930D55M3C        | VW3A95116                | VW3A9704                     | VW3A9704                     | –             | –                       | –             |               | VW3A4709                 | –             | VW3A5307                   | –            | –                          | –                       | VW3A5506 |
| 75   | 100   | ATV930D75M3C        | VW3A95116                | VW3A9704                     | VW3A9704                     | –             | –                       | –             |               | VW3A4710                 | –             | VW3A5307                   | –            | VW3A5407 (1)               | –                       | VW3A5506 |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz - IP 21/UL Type 1</b>                      |       |                     |                          |                              |                              |               |                         |               |               |                          |               |                            |              |                            |                         |          |
| 0.75   | –     | ATV930U07N4         | NSYPTDS1                 | –                            | –                            | VW3A46101     | VW3A46120               | VW3A46139     | VW3A46158     | VW3A4701                 | VW3A47901     | VW3A5301                   | VW3A53902    | VW3A5401                   | VW3A53901               | VW3A5502 |
| 1.5  | 2     | ATV930U15N4         | NSYPTDS1                 | –                            | –                            | VW3A46101     | VW3A46120               | VW3A46139     | VW3A46158     | VW3A4701                 | VW3A47901     | VW3A5301                   | VW3A53902    | VW3A5401                   | VW3A53901               | VW3A5502 |
| 2.2  | 3     | ATV930U22N4         | NSYPTDS1                 | –                            | –                            | VW3A46101     | VW3A46120               | VW3A46139     | VW3A46158     | VW3A4701                 | VW3A47901     | VW3A5301                   | VW3A53902    | VW3A5401                   | VW3A53901               | VW3A5502 |
| 3  | –     | ATV930U30N4         | NSYPTDS1                 | –                            | –                            | VW3A46101     | VW3A46120               | VW3A46139     | VW3A46158     | VW3A4702                 | VW3A47902     | VW3A5302                   | VW3A53902    | VW3A5402                   | VW3A53901               | VW3A5502 |
| 4  | 5     | ATV930U40N4         | NSYPTDS1                 | –                            | –                            | VW3A46102     | VW3A46121               | VW3A46140     | VW3A46159     | VW3A4702                 | VW3A47902     | VW3A5302                   | VW3A53902    | VW3A5402                   | VW3A53901               | VW3A5502 |
| 5.5  | 7.5   | ATV930U55N4         | NSYPTDS1                 | –                            | –                            | VW3A46102     | VW3A46121               | VW3A46140     | VW3A46159     | VW3A4702                 | VW3A47902     | VW3A5302                   | VW3A53902    | VW3A5402                   | VW3A53901               | VW3A5502 |
| 7.5  | 10    | ATV930U75N4         | NSYPTDS2                 | –                            | –                            | VW3A46103     | VW3A46122               | VW3A46141     | VW3A46160     | VW3A4703                 | VW3A47903     | VW3A5303                   | VW3A53902    | VW3A5403                   | VW3A53902               | VW3A5502 |
| 11   | 15    | ATV930D11N4         | NSYPTDS2                 | –                            | –                            | VW3A46104     | VW3A46123               | VW3A46142     | VW3A46161     | VW3A4703                 | VW3A47903     | VW3A5303                   | VW3A53902    | VW3A5403                   | VW3A53902               | VW3A5502 |
| 15   | 20    | ATV930D15N4         | NSYPTDS3                 | –                            | –                            | VW3A46105     | VW3A46124               | VW3A46143     | VW3A46162     | VW3A4703                 | VW3A47903     | VW3A5304                   | VW3A53903    | VW3A5404                   | VW3A53903               | VW3A5504 |
| 18.5   | 25    | ATV930D18N4         | NSYPTDS3                 | –                            | –                            | VW3A46106     | VW3A46125               | VW3A46144     | VW3A46163     | VW3A4704                 | VW3A47904     | VW3A5304                   | VW3A53903    | VW3A5404                   | VW3A53903               | VW3A5504 |
| 22   | 30    | ATV930D22N4         | NSYPTDS3                 | –                            | –                            | VW3A46107     | VW3A46126               | VW3A46145     | VW3A46164     | VW3A4704                 | VW3A47904     | VW3A5304                   | VW3A53903    | VW3A5404                   | VW3A53903               | VW3A5504 |
| 30   | 40    | ATV930D30N4         | NSYPTDS4                 | –                            | –                            | VW3A46108     | VW3A46127               | VW3A46146     | VW3A46165     | VW3A4705                 | VW3A47905     | VW3A5305                   | VW3A53905    | VW3A5405                   | VW3A53904               | VW3A5504 |
| 37   | 50    | ATV930D37N4         | NSYPTDS4                 | –                            | –                            | VW3A46109     | VW3A46128               | VW3A46147     | VW3A46166     | VW3A4706                 | VW3A47906     | VW3A5305                   | VW3A53905    | VW3A5405                   | VW3A53904               | VW3A5504 |
| 45   | 60    | ATV930D45N4         | NSYPTDS4                 | –                            | –                            | VW3A46110     | VW3A46129               | VW3A46148     | VW3A46167     | VW3A4706                 | VW3A47906     | VW3A5305                   | VW3A53905    | VW3A5405                   | VW3A53904               | VW3A5504 |
| 55   | 75    | ATV930D55N4         | NSYPTDS5                 | –                            | –                            | VW3A46111     | VW3A46130               | VW3A46149     | VW3A46168     | VW3A4707                 | VW3A47907     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 75   | 100   | ATV930D75N4         | NSYPTDS5                 | –                            | –                            | VW3A46112     | VW3A46131               | VW3A46150     | VW3A46169     | VW3A4708                 | VW3A47908     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 90   | 125   | ATV930D90N4         | NSYPTDS5                 | –                            | –                            | VW3A46113     | VW3A46132               | VW3A46151     | VW3A46170     | VW3A4708                 | VW3A47908     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 200  | 350   | ATV930C22N4         | VW3A9513                 | VW3A9212                     | VW3A9112                     | VW3A46118     | VW3A46137               | VW3A46155     | VW3A46174     | VW3A4411                 | –             | VW3A5106                   | –            | VW3A5209                   | –                       | –        |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz - IP 21/UL Type 1 without braking unit</b> |       |                     |                          |                              |                              |               |                         |               |               |                          |               |                            |              |                            |                         |          |
| 55   | 75    | ATV930D55N4C        | NSYPTDS5                 | –                            | –                            | VW3A46111     | VW3A46130               | VW3A46149     | VW3A46168     | VW3A4707                 | VW3A47907     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 75   | 100   | ATV930D75N4C        | NSYPTDS5                 | –                            | –                            | VW3A46112     | VW3A46131               | VW3A46150     | VW3A46169     | VW3A4708                 | VW3A47908     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 90   | 125   | ATV930D90N4C        | NSYPTDS5                 | –                            | –                            | VW3A46113     | VW3A46132               | VW3A46151     | VW3A46170     | VW3A4708                 | VW3A47908     | VW3A5306                   | –            | VW3A5406                   | –                       | VW3A5504 |
| 110  | 150   | ATV930C11N4C        | VW3A95116                | VW3A9704                     | VW3A9704                     | VW3A46114     | VW3A46133               | VW3A46152     | VW3A46171     | VW3A4709                 | –             | VW3A5307                   | –            | –                          | –                       | VW3A5506 |
| 132  | 200   | ATV930C13N4C        | VW3A95116                | VW3A9704                     | VW3A9704                     | VW3A46115     | VW3A46134               | VW3A46153     | VW3A46172     | VW3A4709                 | –             | VW3A5307                   | –            | VW3A5407 (1)               | –                       | VW3A5506 |
| 160  | 250   | ATV930C16N4C        | VW3A95116                | VW3A9704                     | VW3A9704                     | VW3A46116     | VW3A46135               | VW3A46154     | VW3A46173     | VW3A4710                 | –             | VW3A5307                   | –            | VW3A5407 (1)               | –                       | VW3A5506 |
| 220  | 350   | ATV930C22N4C        | VW3A9513                 | VW3A9212                     | VW3A9112                     | VW3A46118     | VW3A46137               | VW3A46155     | VW3A46174     | VW3A4411                 | –             | VW3A5106                   | –            | VW3A5209                   | –                       | –        |
| 250  | 400   | ATV930C25N4C        | VW3A9514                 | VW3A9213 (3)<br>VW3A9214 (4) | VW3A9113 (3)<br>VW3A9114 (4) | VW3A46119     | VW3A46138               | VW3A46157     | VW3A46176     | VW3A4411                 | –             | VW3A5107                   | –            | VW3A5210                   | –                       | –        |
| 315  | 500   | ATV930C31N4C        | VW3A9514                 | VW3A9213 (3)<br>VW3A9214 (4) | VW3A9113 (3)<br>VW3A9114 (4) | 2 x VW3A46116 | 2 x VW3A46135           | 2 x VW3A46153 | 2 x VW3A46172 | VW3A4411                 | –             | VW3A5107                   | –            | VW3A5210                   | –                       | –        |
| <b>Pages</b>   | 18    | 26                  | 27                       | 27                           | 54                           | 56            | 58                      | 59            | 60            | 61                       | 63            | 65                         | 66           | 67                         | 68                      |          |

(1) In "Normal Duty", apply a derating of Pn-1 to the drive nominal power with a minimum switching frequency of 4 kHz. For example: an ATV630D75M3 drive with sinus filter can be used on a 55 kW motor.  
 (2) Maximum length of unshielded cable: 300 m. For other lengths or for shielded cables, see page 68.  
 (3) Without braking resistor.  
 (4) With braking resistor.

| Table showing possible combinations of options for ATV930●●●Y6 drives |             |                         |                             |                         |           |                         |           |             |             |                             |               |                               |              |                               |                       |   |
|---|-------------|-------------------------|-----------------------------|-------------------------|-----------|-------------------------|-----------|-------------|-------------|-----------------------------|---------------|-------------------------------|--------------|-------------------------------|-----------------------|---|
| Motor<br>kW HP  | Drive       | Accessories             |                             | Options                 |           |                         |           |             | EMC filters | IP 21 kit for<br>EMC filter | dv/dt filters | IP 20 kit for<br>dv/dt filter | Sinus filter | IP 21 kit for<br>sinus filter | Common<br>mode filter |   |
|   |             | Flange-<br>mounting kit | UL Type 1<br>conformity kit | Passive filters (50 Hz) |           | Passive filters (60 Hz) |           | Line chokes |             |                             |               |                               |              |                               |                       |   |
|   |             |                         |                             | THDI < 10%              | THDI < 5% | THDI < 10%              | THDI < 5% | THDI < 48%  |             |                             |               |                               |              |                               |                       |   |
| Three-phase supply voltage: 500...690 V 50/60 Hz - IP 20/UL Type 1    |             |                         |                             |                         |           |                         |           |             |             |                             |               |                               |              |                               |                       |   |
| 1.5 2   | ATV930U22Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4551    | (1)                         | –             | VW3A5103, 5104                | VW3A9612     | VW3A5215                      | –                     | – |
| 2.2 3   | ATV930U30Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4551    | (1)                         | –             | VW3A5103, 5104                | VW3A9612     | VW3A5215                      | –                     | – |
| 3 –   | ATV930U40Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4551    | (1)                         | –             | VW3A5103, 5104                | VW3A9612     | VW3A5215                      | –                     | – |
| 4 5   | ATV930U55Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4552    | (1)                         | –             | VW3A5103, 5104                | VW3A9612     | VW3A5215                      | –                     | – |
| 5.5 7.5   | ATV930U75Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4552    | (1)                         | –             | VW3A5103, 5104                | VW3A9612     | VW3A5215                      | –                     | – |
| 7.5 10  | ATV930D11Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4553    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5216                      | –                     | – |
| 11 15   | ATV930D15Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4553    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5216                      | –                     | – |
| 15 20   | ATV930D18Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4554    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5216                      | –                     | – |
| 18.5 25   | ATV930D22Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4554    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5216                      | –                     | – |
| 22 30   | ATV930D30Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4555    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5217                      | –                     | – |
| 30 40   | ATV930D37Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4555    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5217                      | –                     | – |
| 37 50   | ATV930D45Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4555    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5218                      | –                     | – |
| 45 60   | ATV930D55Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4556    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5218                      | –                     | – |
| 55 75   | ATV930D75Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4556    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5219                      | –                     | – |
| 75 100  | ATV930D90Y6 | –                       | –                           | –                       | –         | –                       | –         | –           | VW3A4556    | (1)                         | –             | VW3A5104                      | VW3A9612     | VW3A5219                      | –                     | – |
| <b>Pages</b>  | 23          | –                       | –                           | –                       | –         | –                       | –         | –           | 62          | –                           | –             | 63                            | 65           | 66                            | –                     | – |

(1) Please, consult our Customer Care Center.



| Table showing possible combinations of options for ATV950●●●N4/N4E drives                    |     |              |                     |                                      |                         |               |                         |               |             |                          |               |                            |              |                            |                         |
|--|-----|--------------|---------------------|--------------------------------------|-------------------------|---------------|-------------------------|---------------|-------------|--------------------------|---------------|----------------------------|--------------|----------------------------|-------------------------|
| Motor  |     | Drive        | Accessories         |                                      | Options                 |               |                         |               | EMC filters | IP 21 kit for EMC filter | dv/dt filters | IP 21 kit for dv/dt filter | Sinus filter | IP 21 kit for sinus filter | Common mode filters (3) |
| kW   | HP  |              | Flange-mounting kit | Kit for IP 21 / UL Type 1 conformity | Passive filters (50 Hz) |               | Passive filters (60 Hz) |               |             |                          |               |                            |              |                            |                         |
|  |     |              |                     | THDI < 10%                           | THDI < 5%               | THDI < 10%    | THDI < 5%               |               |             |                          |               |                            |              |                            |                         |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz - IP 55</b>                              |     |              |                     |                                      |                         |               |                         |               |             |                          |               |                            |              |                            |                         |
| 0.75   | 1   | ATV950U07N4  | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          | VW3A5502                |
| 1.5  | 2   | ATV950U15N4  | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          | VW3A5502                |
| 2.2  | 3   | ATV950U22N4  | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          | VW3A5502                |
| 3  | –   | ATV950U30N4  | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          | VW3A5502                |
| 4  | 5   | ATV950U40N4  | –                   | –                                    | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          | VW3A5502                |
| 5.5  | 7.5 | ATV950U55N4  | –                   | –                                    | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          | VW3A5502                |
| 7.5  | 10  | ATV950U75N4  | –                   | –                                    | VW3A46103 (1)           | VW3A46122 (1) | VW3A46141 (1)           | VW3A46160 (1) | VW3A4703    | –                        | VW3A5303      | –                          | VW3A5403 (1) | –                          | VW3A5502                |
| 11   | 15  | ATV950D11N4  | –                   | –                                    | VW3A46104 (1)           | VW3A46123 (1) | VW3A46142 (1)           | VW3A46161 (1) | VW3A4703    | –                        | VW3A5303      | –                          | VW3A5403 (1) | –                          | VW3A5502                |
| 15   | 20  | ATV950D15N4  | –                   | –                                    | VW3A46105 (1)           | VW3A46124 (1) | VW3A46143 (1)           | VW3A46162 (1) | VW3A4703    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          | VW3A5504                |
| 18.5   | 25  | ATV950D18N4  | –                   | –                                    | VW3A46106 (1)           | VW3A46125 (1) | VW3A46144 (1)           | VW3A46163 (1) | VW3A4704    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          | VW3A5504                |
| 22   | 30  | ATV950D22N4  | –                   | –                                    | VW3A46107 (1)           | VW3A46126 (1) | VW3A46145 (1)           | VW3A46164 (1) | VW3A4704    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          | VW3A5504                |
| 30   | 40  | ATV950D30N4  | –                   | –                                    | VW3A46108 (1)           | VW3A46127 (1) | VW3A46146 (1)           | VW3A46165 (1) | VW3A4705    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          | VW3A5504                |
| 37   | 50  | ATV950D37N4  | –                   | –                                    | VW3A46109 (1)           | VW3A46128 (1) | VW3A46147 (1)           | VW3A46166 (1) | VW3A4706    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          | VW3A5504                |
| 45   | 60  | ATV950D45N4  | –                   | –                                    | VW3A46110 (1)           | VW3A46129 (1) | VW3A46148 (1)           | VW3A46167 (1) | VW3A4706    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          | VW3A5504                |
| 55   | 75  | ATV950D55N4  | –                   | –                                    | VW3A46111 (1)           | VW3A46130 (1) | VW3A46149 (1)           | VW3A46168 (1) | VW3A4707    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          | VW3A5504                |
| 75   | 100 | ATV950D75N4  | –                   | –                                    | VW3A46112 (1)           | VW3A46131 (1) | VW3A46150 (1)           | VW3A46169 (1) | VW3A4708    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          | VW3A5504                |
| 90   | 125 | ATV950D90N4  | –                   | –                                    | VW3A46113 (1)           | VW3A46132 (1) | VW3A46151 (1)           | VW3A46170 (1) | VW3A4708    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          | VW3A5504                |
| <b>Three-phase supply voltage: 380...480 V 50/60 Hz - IP 55 with Vario disconnect switch</b> |     |              |                     |                                      |                         |               |                         |               |             |                          |               |                            |              |                            |                         |
| 0.75   | 1   | ATV950U07N4E | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          | VW3A5502                |
| 1.5  | 2   | ATV950U15N4E | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          | VW3A5502                |
| 2.2  | 3   | ATV950U22N4E | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          | VW3A5502                |
| 3  | –   | ATV950U30N4E | –                   | –                                    | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          | VW3A5502                |
| 4  | 5   | ATV950U40N4E | –                   | –                                    | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          | VW3A5502                |
| 5.5  | 7.5 | ATV950U55N4E | –                   | –                                    | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          | VW3A5502                |
| 7.5  | 10  | ATV950U75N4E | –                   | –                                    | VW3A46103 (1)           | VW3A46122 (1) | VW3A46141 (1)           | VW3A46160 (1) | VW3A4703    | –                        | VW3A5303      | –                          | VW3A5403 (1) | –                          | VW3A5502                |
| 11   | 15  | ATV950D11N4E | –                   | –                                    | VW3A46104 (1)           | VW3A46123 (1) | VW3A46142 (1)           | VW3A46161 (1) | VW3A4703    | –                        | VW3A5303      | –                          | VW3A5403 (1) | –                          | VW3A5502                |
| 15   | 20  | ATV950D15N4E | –                   | –                                    | VW3A46105 (1)           | VW3A46124 (1) | VW3A46143 (1)           | VW3A46162 (1) | VW3A4703    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          | VW3A5504                |
| 18.5   | 25  | ATV950D18N4E | –                   | –                                    | VW3A46106 (1)           | VW3A46125 (1) | VW3A46144 (1)           | VW3A46163 (1) | VW3A4704    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          | VW3A5504                |
| 22   | 30  | ATV950D22N4E | –                   | –                                    | VW3A46107 (1)           | VW3A46126 (1) | VW3A46145 (1)           | VW3A46164 (1) | VW3A4704    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          | VW3A5504                |
| 30   | 40  | ATV950D30N4E | –                   | –                                    | VW3A46108 (1)           | VW3A46127 (1) | VW3A46146 (1)           | VW3A46165 (1) | VW3A4705    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          | VW3A5504                |
| 37   | 50  | ATV950D37N4E | –                   | –                                    | VW3A46109 (1)           | VW3A46128 (1) | VW3A46147 (1)           | VW3A46166 (1) | VW3A4706    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          | VW3A5504                |
| 45   | 60  | ATV950D45N4E | –                   | –                                    | VW3A46110 (1)           | VW3A46129 (1) | VW3A46148 (1)           | VW3A46167 (1) | VW3A4706    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          | VW3A5504                |
| 55   | 75  | ATV950D55N4E | –                   | –                                    | VW3A46111 (1)           | VW3A46130 (1) | VW3A46149 (1)           | VW3A46168 (1) | VW3A4707    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          | VW3A5504                |
| 75   | 100 | ATV950D75N4E | –                   | –                                    | VW3A46112 (1)           | VW3A46131 (1) | VW3A46150 (1)           | VW3A46169 (1) | VW3A4708    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          | VW3A5504                |
| 90   | 125 | ATV950D90N4E | –                   | –                                    | VW3A46113 (1)           | VW3A46132 (1) | VW3A46151 (1)           | VW3A46170 (1) | VW3A4708    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          | VW3A5504                |
| <b>Pages</b>   | 21  | –            | –                   | 54                                   | 56                      | 58            | 59                      | 60            | –           | 63                       | –             | 66                         | –            | 68                         |                         |

| I/O extension modules              |           |      |
|------------------------------------|-----------|------|
| Description                        | Reference | Page |
| Module with digital and analog I/O | VW3A3203  | 39   |
| Module with relay outputs          | VW3A3204  | 39   |

| Encoder interface modules        |           |      |
|----------------------------------|-----------|------|
| Description                      | Reference | Page |
| Digital encoder interface module | VW3A3420  | 38   |
| Analog encoder interface module  | VW3A3422  | 38   |
| Resolver interface module        | VW3A3423  | 38   |
| HTL encoder interface module     | VW3A3424  | 38   |

| List of fieldbus modules (2) |           |      |
|------------------------------|-----------|------|
| Description                  | Reference | Page |
| CANopen Daisy chain          | VW3A3608  | 43   |
| CANopen SUB-D                | VW3A3618  | 43   |
| CANopen screw terminal block | VW3A3628  | 44   |
| PROFINET                     | VW3A3627  | 45   |
| PROFIBUS DP V1               | VW3A3607  | 45   |
| DeviceNet                    | VW3A3609  | 45   |

(1) When used with ATV950U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.  
(2) For module compatibility table, see opposite.

| Module compatibility table  |                                     |                            |                         |   |
|---|-------------------------------------|----------------------------|-------------------------|---|
| Module type   | Digital and analog I/O VW3A3203 (4) | Relay outputs VW3A3204 (4) | Fieldbuses VW3A36●● (5) | Encoder interface modules VW3A3420, VW3A3422, VW3A3423 and VW3A3424 (5) |
| Digital and analog I/O VW3A3203                                     |                                     |                            |                         |   |
| Relay outputs VW3A3204  |                                     |                            |                         |   |
| Fieldbuses VW3A36●●   |                                     |                            |                         |   |
| Encoder interface modules VW3A3420, VW3A3422, VW3A3423 and VW3A3424 |                                     |                            |                         |   |

Combination possible

Combination impossible

(3) Maximum length of unshielded cable: 300 m. For other lengths or for shielded cables, see page 68.

(4) Maximum combination involving two types of module is 2.

(5) Maximum combination involving two types of module is 1.



# Variable speed drives

## Altivar Process ATV900

### Option: Encoder interface modules



VW3A3420 digital encoder interface module



VW3A3422 analog encoder interface module



VW3A3423 resolver interface module



VW3A3424 HTL encoder interface module

### Presentation

Encoder interface modules are used for Flux Vector Control operation with sensor (FVC mode) for asynchronous motors, or for Vector Control operation with speed feedback (FSY mode) for synchronous motors.

They improve drive performance irrespective of the motor load state:

- Zero speed torque
- Accurate speed regulation
- Torque accuracy
- Shorter response times on a torque surge
- Improved dynamic performance in transient state

For asynchronous motors, in the other control modes (voltage vector control, voltage/frequency ratio), encoder interface modules improve static speed accuracy.

Depending on the model, encoder interface modules can also be used for monitoring, irrespective of the control type:

- Overspeed detection
- Load slipping detection

They can also transmit a reference value provided by the encoder input to the Altivar variable speed drive. This specific feature is used to synchronize the speed of several drives. The encoder options have a thermal sensor input to monitor one standard temperature sensor.

4 modules are available depending on the encoder technology:

- Encoder with digital output
- Encoder with analog output
- Resolver interface
- HTL encoder interface

The Altivar variable speed drive can only be equipped with one of the encoder interface modules. The interface encoder module is inserted in a dedicated slot. It is protected against encoder supply short circuits and overloads.

### References

| Description                      | Technology type      | Used with encoder (1)          | Power supply | Maximum current | Maximum cable length | Maximum operating frequency | Supported thermal sensors                   | Reference | Weight          |
|----------------------------------|----------------------|--------------------------------|--------------|-----------------|----------------------|-----------------------------|---|-----------|-----------------|
|                                  |                      |                                | V ~          | mA              | m/ft                 | kHz                         |   |           | kg/lb           |
| Digital encoder interface module | TTL (A/B/I)          | XCC1●●●●●●R<br>XCC1●●●●●●X     | 5, 12 or 24  | 250, 100        | 100/328              | 1,000                       | PTC (digital/linear), PT100, PT1000, Klixon | VW3A3420  | 0.150/<br>0.331 |
|                                  | SSI                  | XCC2●●●●●●S●●<br>XCC3●●●●●●S●● | 5, 12 or 24  | 250, 100        | 50/164 (2)           | 1,000 (2)                   |   |           | 0.150/<br>0.331 |
|                                  | EnDat® 2.2           |                                | 5, 12        | 250, 100        | 50/164 (2)           | 1,000 (2)                   |   |           | 0.150/<br>0.331 |
| Analog encoder interface module  | 1 Vpp                |                                | 5, 12 or 24  | 250, 100        | 100/328              | 100                         | PTC (digital/linear), PT100, PT1000, Klixon | VW3A3422  | 0.150/<br>0.331 |
|                                  | SinCos<br>Hiperface® |                                | 5, 12 or 24  | 250, 100        | 100/328              | 100                         |   |           | 0.150/<br>0.331 |
| Resolver interface module        | Resolver             | –                              | –            | 50              | 100/328              | 3...12                      | PTC (digital/linear), PT100, PT1000, Klixon | VW3A3423  | 0.150/<br>0.331 |
| HTL encoder interface module     | HTL                  | –                              | 12, 15 or 24 | 200, 175, 100   | 500/1640             | 300                         | PTC (digital/linear), PT100, PT1000, Klixon | VW3A3424  | 0.150/<br>0.331 |

### Connection accessories (3)

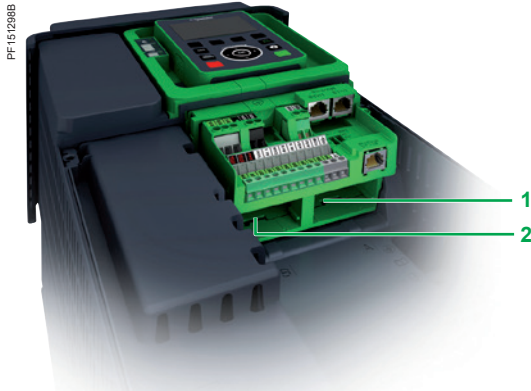
| Description  | Composition | Length m/ft | Reference | Weight kg/lb |
|--|-------------|-------------|-----------|--------------|
| <b>Cordset</b>   |             |             |           |              |
| Cordset equipped with 1 x 15-way high density male SUB-D connector for digital or analog encoder modules | –           | 1/3.28      | VW3M4701  | –            |

(1) To determine the complete reference, please refer to the "Detection for the automation solution - OsiSense" catalog or our website [www.schneider-electric.com](http://www.schneider-electric.com).  
 (2) With propagation delay compensation on EnDat® up to 100 m/328 ft and higher maximum frequencies possible, SSI 300 kHz up to 100m/328ft possible.  
 (3) See the complete list of connection accessories on our website [www.schneider-electric.com](http://www.schneider-electric.com).

# Variable speed drives

## Altivar Process ATV900

### Option: I/O extension modules



#### I/O extension modules

##### Presentation

By installing I/O extension modules Altivar Process drives can be adapted to meet the needs of applications that manage additional sensors or specific sensors.

2 extension modules are available:

- Module with digital and analog I/O
- Module with relay outputs

These modules are inserted in slots A and B on Altivar Process drives:

- 1 Slot A for I/O extension or fieldbus modules
- 2 Slot B for I/O extension modules and encoder modules

##### Module with digital and analog I/O

- 2 differential analog inputs configurable via software as current (0-20 mA/4-20 mA), or for PTC, PT100, or PT1000, 2 or 3-wire
  - 14-bit resolution
- 6 x 24 V  $\overline{\text{V}}$  positive or negative digital inputs
  - Sampling: 1 ms max
- 2 assignable digital outputs
- 2 removable spring terminal blocks

##### Module with relay outputs

- 3 relay outputs with NO contacts
- 1 fixed screw terminal block



VW3A3203



VW3A3204

#### I/O extension modules

| Description                        | I/O type       |                 |               |               | Reference | Weight<br>kg/lb |
|------------------------------------|----------------|-----------------|---------------|---------------|-----------|-----------------|
|                                    | Digital inputs | Digital outputs | Analog inputs | Relay outputs |           |                 |
| Module with digital and analog I/O | 6              | 2               | 2 (1)         | –             | VW3A3203  | –               |
| Module with relay outputs          | –              | –               | –             | 3 (2)         | VW3A3204  | –               |

(1) Differential analog inputs configurable via software as current (0-20 mA/4-20 mA), or for PTC, PT100, or PT1000, 2 or 3-wire. When configured as PTC probe inputs, they must never be used to protect an ATEX motor in applications in explosive atmospheres. Please refer to the ATEX guide on our website [www.schneider-electric.com](http://www.schneider-electric.com).

(2) NO contacts.

**Note:** Digital and analog I/O modules and relay output modules can go in either slot A or slot B on Altivar Process drives. However, the drives cannot take 2 modules of the same type (e.g., 2 digital and analog I/O modules or 2 relay output modules).

# Variable speed drives

## Altivar Process ATV900

### Communication buses and networks

#### Presentation

Altivar Process drives have 3 built-in RJ45 communication ports as standard:

- 1 EtherNet/IP and Modbus TCP dual port
- 1 serial port

#### Integrated communication protocols

Altivar Process drives integrate the EtherNet/IP and Modbus TCP and Modbus serial link communication protocols as standard.

##### ■ EtherNet/IP and Modbus TCP dual port

This offers standard services regularly used in industrial networks: Connection to the Modbus TCP or EtherNet/IP network

- EtherNet IP adapter including standard CIP objects (AC/DC drive objects, CIP energy objects, etc.), compliant to ODVA specification
- The RSTP connection allows ring topology to help ensure continuity of service.
- Dual port allows daisy chain connection to simplify cabling and network infrastructure (no need to use a switch).
- Modbus TCP message handling is based on the Modbus protocol and is used to exchange process data with other network devices (e.g., a PLC). It provides Altivar Process drives with access to the Modbus protocol and to the high performance of the Ethernet network, which is the communication standard for numerous devices.
- SNMP (Simple Network Management Protocol) offers standard diagnostics services for network management tools.
- The FDR (Fast Device Replacement) service allows automatic reconfiguration of a new device installed to replace an existing device.
- Device security is reinforced by disabling some unused services as well as managing a list of authorized devices.
- Setup and adjustment tools (SoMove, Unity with DTM) can be connected locally or remotely.
- The embedded Web server is used to display operating data and dashboards as well as to configure and diagnose system elements from any web browser.

These numerous services offered by Altivar Process drives simplify integration into Schneider Electric process automation control systems like M580 ePAC or Foxboro Evo DCS.

##### ■ Serial port

- Field network operation for exchanging data with other devices via the Modbus protocol
- Multidrop connection of the following HMIs and configuration tools:
  - The graphic display terminal supplied with the drive
  - A Magelis industrial HMI terminal
  - A PC with SoMove or Unity setup software

The detailed specifications for the EtherNet/IP or serial communication ports, and the Modbus and Modbus TCP protocols are available on our website [www.schneider-electric.com](http://www.schneider-electric.com).

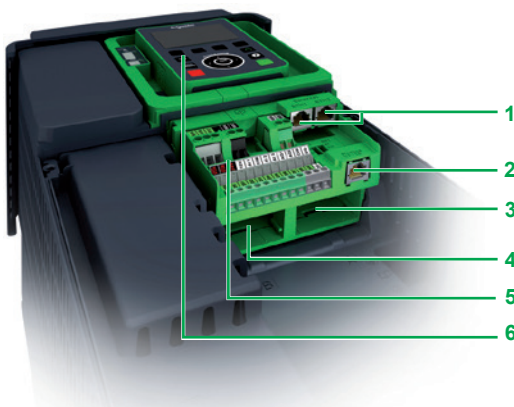
#### Description

- 1 2 x RJ45 EtherNet/IP and Modbus TCP port
- 2 RJ45 serial port
- 3 Slot A for I/O extension or fieldbus modules
- 4 Slot B for I/O extension modules and encoder modules
- 5 Removable screw terminal blocks for 24 V  $\pm$  power supply and integrated I/O
- 6 RJ45 serial link for HMI (graphic display terminal, Magelis terminal, etc.)

Altivar Process drives can only take one fieldbus module, in slot A **3** only. They cannot take 2 modules of the same type (e.g., 2 digital and analog I/O modules or 2 relay output modules). The drives can take one digital and analog I/O module and one relay output module in either slot A **3** or slot B **4**.

**Note:** The user manuals and description files (*gsd*, *eds*) for devices on the fieldbuses and networks are available on our website [www.schneider-electric.com](http://www.schneider-electric.com).

PF151298B



# Variable speed drives

## Altivar Process ATV900

### Communication buses and networks

#### Optional fieldbus modules

The Altivar Process drive can also be connected to other industrial fieldbuses and networks by using one of the fieldbus modules available as an option. Fieldbus modules are supplied in “cassette” format for ease of mounting/removal.

Dedicated fieldbus modules:

- CANopen:
- RJ45 Daisy Chain
- Sub-D
- Screw terminal block
- EtherCAT
- PROFINET
- PROFIBUS DP V1
- DeviceNet

PROFINET and PROFIBUS DP V1 modules also support the Profidrive and CiA402 profiles.

It is possible to maintain communication using a separate power supply for the control and power sections. Monitoring and diagnostics via the network are possible even if there is no power supplied to the power section.

#### Functions

The drive functions can be accessed via the various communication networks:

- Configuration
- Adjustment
- Control
- Monitoring

Altivar Process drives offer a high degree of interfacing flexibility with the possibility to assign, by configuration, the different control sources (I/O, communication networks, and HMI terminal) to control functions in order to meet the requirements of complex applications.

Network services and parameters are configured using the SoMove drive setup software, or using Unity software if the drive is being integrated into a PlantStruXure architecture.

Communication is monitored according to the specific criteria for each protocol. However, regardless of the protocol, it is possible to configure how the drive responds to a detected communication interruption, as follows:

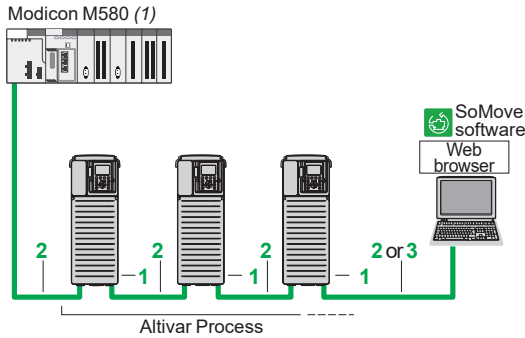
- Define the type of stop when a communication interruption is detected
- Maintain last command received
- Fallback position at preset speed
- Ignore the detected communication interruption

# Variable speed drives

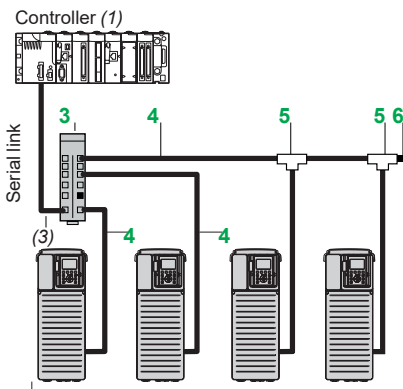
## Altivar Process ATV900

### Communication buses and networks

#### Integrated ports



Example of connection on an EtherNet/IP network



Example of serial link architecture

#### Integrated EtherNet/IP and Modbus TCP dual port

| Description   | Item         | Length<br>m/<br>ft | Unit<br>reference | Weight<br>kg/<br>lb |
|---|--------------|--------------------|-------------------|---------------------|
| <b>ConneXium cordsets (2)</b>   |              |                    |                   |                     |
| <b>Straight shielded twisted pair cables</b><br>equipped with 2 RJ45 connectors<br>conforming to EIA/TIA-568 category 5<br>and IEC 11801/EN 50173-1, class D      | 2            | 2/<br>6.56         | 490NTW00002       | –                   |
|   | 5/           | 16.40              | 490NTW00005       | –                   |
|   | 12/<br>39.37 | 490NTW00012        | –                 |                     |
| <b>Crossover shielded twisted pair<br/>cables</b><br>equipped with 2 RJ45 connectors<br>conforming to EIA/TIA-568 category 5<br>and IEC 11801/EN 50173-1, class D | 3            | 5/<br>16.40        | 490NTC00005       | –                   |
|   | 15/<br>49.21 | 490NTC00015        | –                 |                     |
| <b>Straight shielded twisted pair cables</b><br>equipped with 2 RJ45 connectors<br>conforming to UL and CSA 22.1  | 2            | 2/<br>6.56         | 490NTW00002U      | –                   |
|   | 5/           | 16.40              | 490NTW00005U      | –                   |
|   | 12/<br>39.37 | 490NTW00012U       | –                 |                     |
| <b>Crossover shielded twisted pair<br/>cables</b><br>equipped with 2 RJ45 connectors<br>conforming to UL and CSA 22.1   | 3            | 5/<br>16.40        | 490NTC00005U      | –                   |
|   | 15/<br>49.21 | 490NTC00015U       | –                 |                     |

#### Integrated serial port

| Description   | Item                                  | Length<br>m/<br>ft    | Unit<br>reference | Weight<br>kg/<br>lb |                 |                 |
|---|---------------------------------------|-----------------------|-------------------|---------------------|-----------------|-----------------|
| <b>Connection accessories</b>   |                                       |                       |                   |                     |                 |                 |
| <b>Splitter box</b><br>10 RJ45 connectors and 1 screw<br>terminal block | 3                                     | –                     | LU9GC3            | 0.500/<br>1.102     |                 |                 |
| <b>Modbus<br/>T-junction<br/>boxes</b>                                  | With 0.3m/0.98 ft<br>integrated cable | 5                     | 0.3/<br>0.98      | VW3A8306TF03        | 0.190/<br>0.419 |                 |
|   | With 1 m/3.28 ft<br>integrated cable  | 5                     | 1/<br>3.28        | VW3A8306TF10        | 0.210/<br>0.463 |                 |
| <b>Modbus line<br/>terminator (4)</b>                                   | For RJ45<br>connector                 | R = 120 Ω<br>C = 1 nf | 6                 | –                   | VW3A8306RC      | 0.010/<br>0.022 |
| <b>Cordsets</b><br>equipped with 2 RJ45 connectors                      | 4                                     | 0.3/<br>0.98          | VW3A8306R03       | 0.025/<br>0.055     |                 |                 |
|   | 1/<br>3.28                            | VW3A8306R10           | 0.060/<br>0.132   |                     |                 |                 |
|   | 3/<br>9.84                            | VW3A8306R30           | 0.130/<br>0.287   |                     |                 |                 |

- (1) Please refer to the "Modicon automation platform" catalogs on our website [www.schneider-electric.com](http://www.schneider-electric.com).
- (2) Also exist in 40 and 80 m/131 and 262 ft lengths. For other ConneXium connection accessories, please consult our website [www.schneider-electric.com](http://www.schneider-electric.com).
- (3) Cable depends on the PLC.
- (4) Sold in lots of 2.

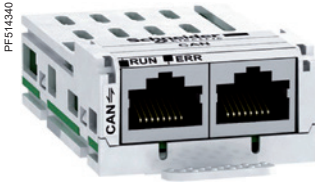


# Variable speed drives

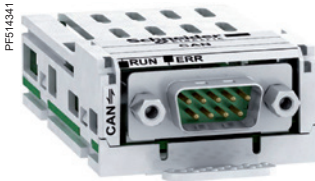
## Altivar Process ATV900

### Communication buses and networks

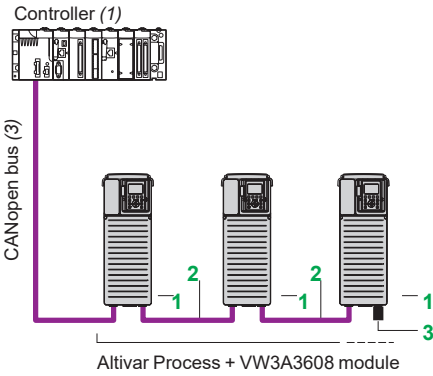
#### Option: Communication modules



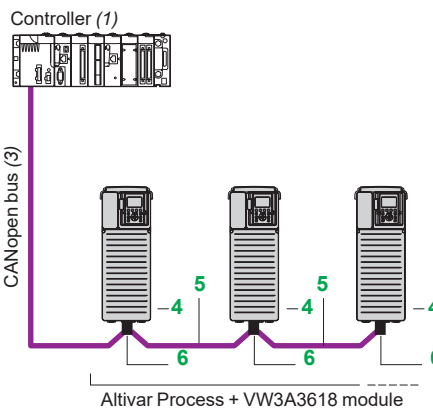
VW3A3608



VW3A3618



Optimized solution for daisy chain connection to the CANopen bus



Example of connection to the CANopen bus via SUB-D connector

### CANopen bus (1)

| Description | Item | Length<br>m/<br>ft | Unit<br>reference | Weight<br>kg/<br>lb |
|-------------|------|--------------------|-------------------|---------------------|
|-------------|------|--------------------|-------------------|---------------------|

#### Fieldbus module

|   |          |   |                 |   |
|---|----------|---|-----------------|---|
| <b>CANopen Daisy chain module</b><br>Ports: 2 RJ45 connectors | <b>1</b> | – | <b>VW3A3608</b> | – |
|---|----------|---|-----------------|---|

#### Connection to RJ45 connector (optimized solution for daisy chain connection on CANopen bus)

|  |          |              |                     |                 |
|--|----------|--------------|---------------------|-----------------|
| <b>CANopen cordsets</b><br>equipped with 2 RJ45 connectors | <b>2</b> | 0.3/<br>0.98 | <b>VW3CANCARR03</b> | 0.050/<br>0.110 |
|  |          | 1/<br>3.28   | <b>VW3CANCARR1</b>  | 0.500/<br>1.102 |

|   |          |   |                      |   |
|---|----------|---|----------------------|---|
| <b>CANopen line terminator for RJ45 connector</b> | <b>3</b> | – | <b>TCSCAR013M120</b> | – |
|---|----------|---|----------------------|---|

#### Fieldbus module

|  |          |   |                 |   |
|--|----------|---|-----------------|---|
| <b>CANopen SUB-D module</b><br>Ports: 1 x 9-way male SUB-D connector | <b>4</b> | – | <b>VW3A3618</b> | – |
|--|----------|---|-----------------|---|

#### Connection to SUB-D connector

|   |          |                |                    |                   |
|---|----------|----------------|--------------------|-------------------|
| <b>CANopen cables (3) (4)</b><br>Standard cable, CE mark<br>Low smoke zero halogen.<br>Flame-retardant<br>(IEC 60332-1) | <b>5</b> | 50/<br>164.04  | <b>TSXCANCA50</b>  | 4.930/<br>10.869  |
|   |          | 100/<br>328.08 | <b>TSXCANCA100</b> | 8.800/<br>19.401  |
|   |          | 300/<br>984.25 | <b>TSXCANCA300</b> | 24.560/<br>54.145 |

|  |          |                |                    |                   |
|--|----------|----------------|--------------------|-------------------|
| <b>CANopen cables (3) (4)</b><br>UL certification, CE mark<br>Flame-retardant<br>(IEC 60332-2) | <b>5</b> | 50/<br>164.04  | <b>TSXCANCB50</b>  | 3.580/<br>7.893   |
|  |          | 100/<br>328.08 | <b>TSXCANCB100</b> | 7.840/<br>17.284  |
|  |          | 300/<br>984.25 | <b>TSXCANCB300</b> | 21.870/<br>48.215 |

|   |          |                |                    |                  |
|---|----------|----------------|--------------------|------------------|
| <b>CANopen cables (3) (4)</b><br>Cable for harsh environments or mobile installations, CE mark<br>Low smoke zero halogen<br>Flame-retardant (IEC 60332-1) | <b>5</b> | 50/<br>164.04  | <b>TSXCANCD50</b>  | 3.510/<br>7.738  |
|   |          | 100/<br>328.08 | <b>TSXCANCD100</b> | 7.770/<br>17.130 |
|   |          | 300/<br>984.25 | <b>TSXCANCD300</b> | 7.770/<br>17.130 |

|  |          |   |                       |                 |
|--|----------|---|-----------------------|-----------------|
| <b>IP 20 straight CANopen connector (5)</b><br>9-way female SUB-D connector with line terminator that can be deactivated<br>For connecting CAN-H, CAN-L, CAN-GND | <b>6</b> | – | <b>TSXCANKCDF180T</b> | 0.049/<br>0.108 |
|--|----------|---|-----------------------|-----------------|

- (1) Altivar Process drives can only take one fieldbus module.
- (2) Please refer to the "Modicon automation platform" catalogs on our website [www.schneider-electric.com](http://www.schneider-electric.com).
- (3) Cable depends on the PLC.
- (4) Standard environment:
  - No particular environmental constraints
  - Operating temperature between +5 °C and +60 °C/+41 °F and +140 °F
  - Fixed installation
 Harsh environment:
  - Resistance to hydrocarbons, industrial oils, detergents, solder splashes
  - Relative humidity up to 100%
  - Saline atmosphere
  - Operating temperature between -10 °C and +70 °C/+14 °F and 158 °F
  - Significant temperature variations
- (5) Only straight connectors are compatible with Altivar Process drives.

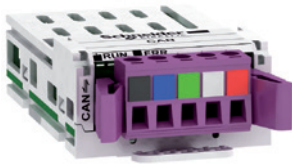
# Variable speed drives

## Altivar Process ATV900

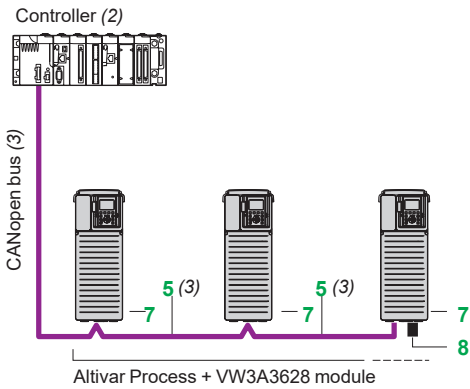
### Communication buses and networks

#### Option: Communication modules

PF095129



VW3A3628



Example of connection to the CANopen bus with a screw terminal block

#### CANopen bus (continued) (1)

| Description  | Item | Length<br>m/<br>ft | Unit<br>reference | Weight<br>kg/<br>lb |
|--|------|--------------------|-------------------|---------------------|
| <b>Fieldbus module</b>   |      |                    |                   |                     |
| <b>CANopen module</b><br>Port: 1 x 5-way screw terminal block  | 7    | –                  | VW3A3628          | –                   |
| <b>Connection to screw terminal block</b>  |      |                    |                   |                     |
| <b>CANopen IP 20 cordsets (3)</b><br>equipped with 2 x 9-way female SUB-D connectors   | 5    | 0.3/<br>0.98       | TSXCANCADD03      | 0.091/<br>0.201     |
| Standard cable, C€ mark.   |      | 1/<br>3.28         | TSXCANCADD1       | 0.143/<br>0.315     |
| Low smoke zero halogen   |      | 3/<br>9.84         | TSXCANCBDD3       | 0.268/<br>0.591     |
| Flame-retardant<br>(IEC 60332-1)   |      | 5/<br>16.40        | TSXCANCBDD5       | 0.400/<br>0.882     |
| <b>IP 20 CANopen tap junction boxes</b><br>equipped with:<br>■ 4 x 9-way male SUB-D connectors<br>+ screw terminal block for trunk cable tap link<br>■ Line terminator                                 | –    | –                  | TSXCANTDM4        | 0.196/<br>0.432     |
| <b>IP 20 CANopen tap junction boxes</b><br>equipped with:<br>■ 2 screw terminal blocks for trunk cable tap link<br>■ 2 RJ45 connectors for connecting drives<br>■ 1 RJ45 connector for connecting a PC | –    | –                  | VW3CANTAP2        | –                   |
| <b>CANopen line terminator for screw terminal connector (4)</b>  | 8    | –                  | TCSCAR01NM120     | –                   |

(1) Altivar Process drives can only take one fieldbus module.

(2) Please refer to the "Modicon automation platform" catalogs on our website [www.schneider-electric.com](http://www.schneider-electric.com).

(3) Cable depends on the PLC.

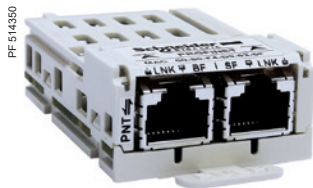
(4) Sold in lots of 2.

# Variable speed drives

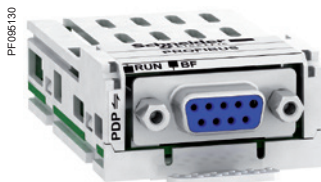
## Altivar Process ATV900

### Communication buses and networks

#### Option: Communication modules



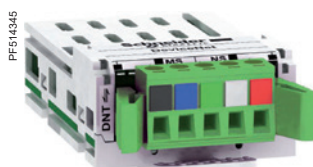
VW3A3627



VW3A3607



VW3A3601



VW3A3609

| PROFINET bus (1)  |                 |                     |
|---|-----------------|---------------------|
| Description   | Reference       | Weight<br>kg/<br>lb |
| <b>Fieldbus module</b>                                    |                 |                     |
| <b>PROFINET module</b><br>equipped with 2 RJ45 connectors | <b>VW3A3627</b> | 0.290/<br>0.639     |

| PROFIBUS DP V1 bus (1)   |                 |                     |
|--|-----------------|---------------------|
| Description  | Reference       | Weight<br>kg/<br>lb |
| <b>Fieldbus module</b>   |                 |                     |
| <b>PROFIBUS DP V1 module</b><br>Port: 1 x 9-way female SUB-D connector<br>Conforming to PROFIBUS DP V1<br>Profiles supported:<br>■ CiA 402 drive<br>■ Profidrive<br>Offers several message handling modes based on DP V1 | <b>VW3A3607</b> | 0.140/<br>0.309     |

| SUB-D connection                                     |               |   |
|--|---------------|---|
| IP 20 straight connectors (2)<br>for Profibus module | <b>LU9AD7</b> | – |

| EtherCAT bus (1)  |                 |                     |
|---|-----------------|---------------------|
| Description   | Reference       | Weight<br>kg/<br>lb |
| <b>Fieldbus module</b>                                    |                 |                     |
| <b>EtherCAT module</b><br>equipped with 2 RJ45 connectors | <b>VW3A3601</b> | 0.290/<br>0.639     |

| DeviceNet bus (1)  |                 |                     |
|--|-----------------|---------------------|
| Description  | Reference       | Weight<br>kg/<br>lb |
| <b>Fieldbus module</b>   |                 |                     |
| <b>DeviceNet module</b><br>Port: 1 removable 5-way screw connector<br>Profiles supported:<br>■ CIP AC DRIVE<br>■ CiA 402 drive | <b>VW3A3609</b> | 0.300/<br>0.661     |

(1) Altivar Process drives can only take one fieldbus module.

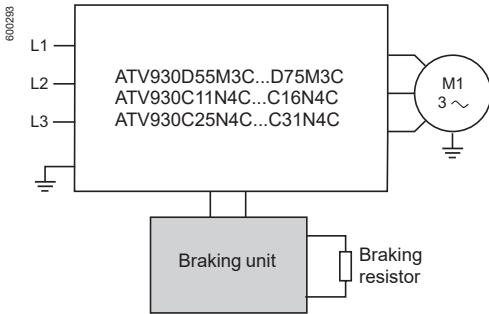
(2) Only straight connectors are compatible with Altivar Process drives.

# Variable speed drives

## Altivar Process ATV900

### Option: Braking units

### Presentation



Braking units allow Altivar Process drives to operate while braking to a standstill or during “generator” operation, by dissipating the energy in the braking resistor.

ATV930U07M3...D45M3, ATV930U07N4...C22N4, ATV930D15Y6...D90Y6 and ATV950U07N4...D90N4 drives have a built-in dynamic brake transistor.

For ATV930D55M3C...D75M3C, ATV930C11N4C...C16N4C and ATV930C25N4C...C31N4C drives, a braking unit must be used.

Braking units provide IP 20 protection. Thermal protection is given by an integrated temperature probe.

### Applications

High-inertia machines, machines with slow and fast cycles, high-power machines performing vertical movements.

### References

| For drives                                  | Power      |         | Losses              | Cable (drive-braking unit) |                | Cable (braking unit-resistors) |                | Percentage of conduction time                  | Minimum resistor value | Reference       | Weight            |
|---|------------|---------|---------------------|----------------------------|----------------|--------------------------------|----------------|--|------------------------|-----------------|-------------------|
|   | Continuous | Maximum | At continuous power | Cross-section              | Maximum length | Cross-section                  | Maximum length |  |                        |                 |                   |
|   | kW         | kW      | W                   | mm <sup>2</sup>            | m              | mm <sup>2</sup>                | m              | %  | Ohms                   |                 | kg/lb             |
| <b>Supply voltage: 200...240 V 50/60 Hz</b> |            |         |                     |                            |                |                                |                |  |                        |                 |                   |
| ATV930D55M3C<br>...D75M3C                   | 60         | 80      | 400                 | 3 x 120                    | 10             | 3 x 120                        | 10             | 5% at 150 kW<br>15% at 120 kW<br>50% at 95 kW  | 1.4                    | <b>VW3A7106</b> | 28.000/<br>61.729 |
| <b>Supply voltage: 380...480 V 50/60 Hz</b> |            |         |                     |                            |                |                                |                |  |                        |                 |                   |
| ATV930C11N4C<br>...C16N4C                   | 100        | 160     | 400                 | 2 x 120                    | 5              | 2 x 120                        | 5              | 5% at 320 kW<br>15% at 250 kW<br>50% at 200 kW | 2.5                    | <b>VW3A7105</b> | 28.000/<br>61.729 |
| ATV930C25N4C<br>ATV930C31N4C                | 200        | 420     | 550                 | –<br>(1)                   | –<br>(1)       | 2 x 95                         | 50             | 5% at 420 kW<br>15% at 320 kW<br>50% at 250 kW | 1                      | <b>VW3A7101</b> | 30.000/<br>66.139 |

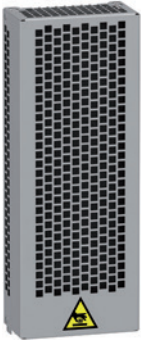
(1) For the ATV930C25N4C variable speed drive, the braking unit is connected to the drive with internal connections.

# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors

PF161255



VW3A7741

#### Presentation

Braking resistors allow Altivar Process drives to operate while braking to a standstill, by dissipating the braking energy. They enable maximum transient braking torque.

Braking resistors are designed to be located outside the enclosure, but should not inhibit natural cooling. Air inlets and outlets must not be obstructed in any way. The air must be free of dust, corrosive gas, and condensation.

Several resistor models are available, depending on the drive rating:

- With IP 20 and IP 23 casing and thermal protection provided by temperature-controlled switch or by the drive

The internal circuits of Altivar Process drives rated 90 kW or less have a built-in dynamic brake transistor.

An external braking unit is necessary for wall-mounting Altivar Process drives between 110 kW and 315 kW at 400...480 V as well as 55 kW and 75 kW at 200...240 V.

#### Applications

Braking resistors are designed for a defined cycle (see the 3 cycle types defined below).

Depending on your own applications and cycles, you can use these resistors or define a new value.

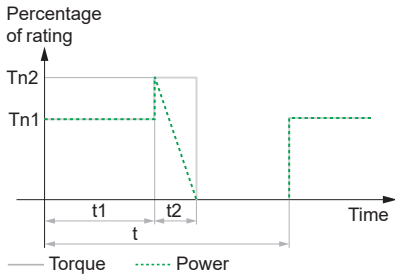
- Braking resistors for light braking cycles for machines with cycles and inertia. The braking power is limited to 1.5 Tn for 0.8 s every 40 s.
- Braking resistors for medium braking cycles for machines with high inertia and conveyors. The braking power is limited to 1.35 Tn for 4 s every 40 s.
- Braking resistors for severe braking cycles for machines with very high inertia and vertical movements (hoisting). The braking power is limited to 1.65 Tn for 6 s and Tn for 54 s every 120 s.



# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors



| Light Cycle           |                        |
|-----------------------|------------------------|
| $t = 40\text{ s}$     | $t$ : period           |
| $t1 = 0\text{ s}$     | $Tn1$ : braking torque |
| $t2 = 0.8\text{ s}$   | $Tn2$ : braking torque |
| $Tn1 = 0$             | $Tn$ : nominal torque  |
| $Tn2 = 1.5 \times Tn$ |                        |

| References for a light braking cycle                       |                                      |                             |  |                             |                 |                   |
|--|--------------------------------------|-----------------------------|--|-----------------------------|-----------------|-------------------|
| For drives   | Degree of protection of the resistor | Ohmic value at 20 °C/ 68 °F | Average power available at 50 °C/ 122 °F (1) | Quantity required per drive | Reference       | Weight            |
|  |                                      | Ω                           | kW   |                             |                 | kg/lb             |
| <b>Supply voltage: 200...240 V or 380...480 V 50/60 Hz</b> |                                      |                             |  |                             |                 |                   |
| ATV930U07M3  | IP20                                 | 100                         | 0.1  | 1                           | <b>VW3A7730</b> | 1.500/<br>3.307   |
| ATV930U07N4...U40N4  |                                      |                             |  |                             |                 |                   |
| ATV950U07N4...U40N4  |                                      |                             |  |                             |                 |                   |
| ATV950U07N4E...U40N4E                                      |                                      |                             |  |                             |                 |                   |
| ATV930U15M3...U22M3  | IP20                                 | 60                          | 0.16   | 1                           | <b>VW3A7731</b> | 2.000/<br>4.409   |
| ATV930U55N4...U75N4  |                                      |                             |  |                             |                 |                   |
| ATV950U55N4...U75N4  |                                      |                             |  |                             |                 |                   |
| ATV950U55N4E...U75N4E                                      |                                      |                             |  |                             |                 |                   |
| ATV930U30M3...U40M3  | IP20                                 | 28                          | 0.3  | 1                           | <b>VW3A7732</b> | 3.000/<br>6.614   |
| ATV930D11N4...D15N4  |                                      |                             |  |                             |                 |                   |
| ATV950D11N4...D15N4  |                                      |                             |  |                             |                 |                   |
| ATV950D11N4E...D15N4E                                      |                                      |                             |  |                             |                 |                   |
| ATV930U55M3...U75M3  | IP20                                 | 16                          | 1.1  | 1                           | <b>VW3A7733</b> | 4.000/<br>8.818   |
| ATV930D18N4...D30N4  |                                      |                             |  |                             |                 |                   |
| ATV950D18N4...D30N4  |                                      |                             |  |                             |                 |                   |
| ATV950D18N4E...D30N4E                                      |                                      |                             |  |                             |                 |                   |
| ATV930D11M3  | IP20                                 | 10                          | 1.1  | 1                           | <b>VW3A7734</b> | 5.500/<br>12.125  |
| ATV930D37N4...D45N4  |                                      |                             |  |                             |                 |                   |
| ATV950D37N4...D45N4  |                                      |                             |  |                             |                 |                   |
| ATV950D37N4E...D45N4E                                      |                                      |                             |  |                             |                 |                   |
| ATV930D15M3  | IP20                                 | 8                           | 1.1  | 1                           | <b>VW3A7735</b> | 5.500/<br>12.125  |
| ATV930D55N4  |                                      |                             |  |                             |                 |                   |
| ATV950D55N4  |                                      |                             |  |                             |                 |                   |
| ATV950D55N4E   |                                      |                             |  |                             |                 |                   |
| ATV930D18M3...D22M3  | IP23                                 | 5                           | 1.9  | 1                           | <b>VW3A7736</b> | 18.000/<br>39.683 |
| ATV930D75N4...D90N4  |                                      |                             |  |                             |                 |                   |
| ATV950D75N4...D90N4  |                                      |                             |  |                             |                 |                   |
| ATV950D75N4E...D90N4E                                      |                                      |                             |  |                             |                 |                   |
| ATV930D30M3...D45M3  | IP23                                 | 2.5                         | 3.2  | 1                           | <b>VW3A7737</b> | 21.000/<br>46.297 |
| ATV930C11N4C...C16N4C                                      |                                      |                             |  |                             |                 |                   |
| ATV930C31N4C   | IP23                                 | 2.5                         | 3.2  | 2                           |                 |                   |
| ATV930D55M3C...D75M3C                                      | IP23                                 | 1.4                         | 1.5  | 1                           | <b>VW3A7738</b> | 16.000/<br>35.274 |
| ATV930C22N4  | IP23                                 | 1.4                         | 5.1  | 1                           | <b>VW3A7748</b> | 29.000/<br>69.934 |
| ATV930C25N4C   |                                      |                             |  |                             |                 |                   |

(1) Load factor for resistors: The value of the average power that can be dissipated at 50 °C/122 °F from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

- Normal duty: 0.8 s braking with a 1.2 Tn braking torque for a 40 s cycle
- Heavy duty: 0.8 s braking with a 1.5 Tn braking torque for a 40 s cycle

# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors

PF151251A



VW3A7736

#### References for a light braking cycle (continued)

| For drives                                   | Degree of protection of the resistor | Ohmic value at 20 °C/ 68 °F | Average power available at 50 °C/ 122 °F (1) | Quantity required per drive | Reference       | Weight            |
|--|--------------------------------------|-----------------------------|--|-----------------------------|-----------------|-------------------|
|  |                                      | Ω                           | kW   |                             |                 | kg/ lb            |
| <b>Supply voltage: 500...690 V 50/ 60 Hz</b> |                                      |                             |  |                             |                 |                   |
| ATV930U22Y6                                  | IP20                                 | 100                         | 0.1  | 1                           | <b>VW3A7730</b> | 1.500/<br>3.306   |
| ATV930U30Y6                                  | IP20                                 | 100                         | 0.1  | 1                           | <b>VW3A7730</b> | 1.500/<br>3.306   |
| ATV930U40Y6                                  | IP20                                 | 100                         | 0.1  | 1                           | <b>VW3A7730</b> | 1.500/<br>3.306   |
| ATV930U55Y6                                  | IP20                                 | 100                         | 0.1  | 1                           | <b>VW3A7730</b> | 1.500/<br>3.306   |
| ATV930U75Y6                                  | IP20                                 | 60                          | 0.16   | 1                           | <b>VW3A7731</b> | 1.800/<br>3.968   |
| ATV930D11Y6                                  | IP20                                 | 28                          | 0.3  | 1                           | <b>VW3A7732</b> | 2.700/<br>5.952   |
| ATV930D15Y6                                  | IP20                                 | 28                          | 0.3  | 1                           | <b>VW3A7732</b> | 2.700/<br>5.952   |
| ATV930D18Y6                                  | IP20                                 | 28                          | 0.3  | 1                           | <b>VW3A7732</b> | 2.700/<br>5.952   |
| ATV930D22Y6                                  | IP20                                 | 16                          | 0.96   | 1                           | <b>VW3A7733</b> | 3.800/<br>8.377   |
| ATV930D30Y6                                  | IP20                                 | 16                          | 0.96   | 1                           | <b>VW3A7733</b> | 3.800/<br>8.377   |
| ATV930D37Y6                                  | IP20                                 | 10                          | 0.96   | 1                           | <b>VW3A7734</b> | 4.300/<br>9.479   |
| ATV930D45Y6                                  | IP20                                 | 10                          | 0.96   | 1                           | <b>VW3A7734</b> | 4.300/<br>9.479   |
| ATV930D55Y6                                  | IP20                                 | 10                          | 0.96   | 1                           | <b>VW3A7734</b> | 4.300/<br>9.479   |
| ATV930D75Y6                                  | IP23                                 | 5                           | 1.9  | 1                           | <b>VW3A7736</b> | 18.000/<br>39.683 |
| ATV930D90Y6                                  | IP23                                 | 5                           | 1.9  | 1                           | <b>VW3A7736</b> | 18.000/<br>39.683 |

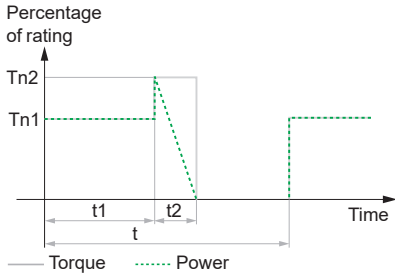
(1) Load factor for resistors: The value of the average power that can be dissipated at 50 °C/ 122 °F from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

- Normal duty: 0.8 s braking with a 1.2 T<sub>n</sub> braking torque for a 40 s cycle
- Heavy duty: 0.8 s braking with a 1.5 T<sub>n</sub> braking torque for a 40 s cycle

# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors



| Medium Cycle           |                        |
|------------------------|------------------------|
| $t = 40\text{ s}$      | $t$ : period           |
| $t1 = 0\text{ s}$      | $Tn1$ : braking torque |
| $t2 = 4\text{ s}$      | $Tn2$ : braking torque |
| $Tn1 = 0$              | $Tn$ : nominal torque  |
| $Tn2 = 1.35 \times Tn$ |                        |

| References for a medium braking cycle  |                                      |                             |  |                             |                 |                    |
|--|--------------------------------------|-----------------------------|--|-----------------------------|-----------------|--------------------|
| For drives   | Degree of protection of the resistor | Ohmic value at 20 °C/ 68 °F | Average power available at 50 °C/ 122 °F (1) | Quantity required per drive | Reference       | Weight             |
|  |                                      | Ω                           | kW   |                             |                 | kg/lb              |
| <b>Supply voltage: 200...240 V or 380...480 V 50/60 Hz</b>                         |                                      |                             |  |                             |                 |                    |
| ATV930U07M3<br>ATV930U07N4...U15N4<br>ATV950U07N4...U15N4<br>ATV950U07N4E...U15N4E | IP20                                 | 100                         | 0.1  | 1                           | <b>VW3A7730</b> | 1.500/<br>3.307    |
| ATV930U15M3...U22M3  | IP20                                 | 60                          | 0.16   | 1                           | <b>VW3A7731</b> | 2.000/<br>4.409    |
| ATV930U30M3...U40M3  | IP20                                 | 28                          | 0.3  | 1                           | <b>VW3A7732</b> | 3.000/<br>6.614    |
| ATV930U55M3...U75M3  | IP20                                 | 16                          | 1.1  | 1                           | <b>VW3A7733</b> | 4.000/<br>8.818    |
| ATV930D11M3  | IP20                                 | 10                          | 1.1  | 1                           | <b>VW3A7734</b> | 5.500/<br>12.125   |
| ATV930D15M3  | IP20                                 | 8                           | 1.1  | 1                           | <b>VW3A7735</b> | 5.500/<br>12.125   |
| ATV930D18M3...D22M3  | IP23                                 | 5                           | 1.9  | 1                           | <b>VW3A7736</b> | 18.000/<br>39.684  |
| ATV930D30M3...D45M3  | IP23                                 | 2.5                         | 3.2  | 1                           | <b>VW3A7737</b> | 20.000/<br>44.092  |
| ATV930U22N4...U40N4<br>ATV950U22N4...U40N4<br>ATV950U22N4E...U40N4E                | IP20                                 | 100                         | 0.26   | 1                           | <b>VW3A7740</b> | 2.500/<br>5.512    |
| ATV930U55N4...U75N4<br>ATV950U55N4...U75N4<br>ATV950U55N4E...U75N4E                | IP20                                 | 60                          | 0.5  | 1                           | <b>VW3A7741</b> | 4.500/<br>9.921    |
| ATV930D11N4...D15N4<br>ATV950D11N4...D15N4<br>ATV950D11N4E...D15N4E                | IP20                                 | 28                          | 1.1  | 1                           | <b>VW3A7742</b> | 4.000/<br>8.818    |
| ATV930D18N4...D30N4<br>ATV950D18N4...D30N4<br>ATV950D18N4E...D30N4E                | IP20                                 | 16                          | 2.2  | 1                           | <b>VW3A7743</b> | 7.000/<br>15.432   |
| ATV930D37N4...D45N4<br>ATV950D37N4...D45N4<br>ATV950D37N4E...D45N4E                | IP20                                 | 10                          | 3.4  | 1                           | <b>VW3A7744</b> | 11.500/<br>25.353  |
| ATV930D55N4<br>ATV950D55N4<br>ATV950D55N4E   | IP23                                 | 8                           | 3.8  | 1                           | <b>VW3A7745</b> | 23.000/<br>50.706  |
| ATV930D75N4...D90N4<br>ATV950D75N4...D90N4<br>ATV950D75N4E...D90N4E                | IP23                                 | 5                           | 6.9  | 1                           | <b>VW3A7746</b> | 27.000/<br>59.525  |
| ATV930C11N4C...C16N4C  | IP23                                 | 2.5                         | 11   | 1                           | <b>VW3A7747</b> | 43.000/<br>94.799  |
| ATV930D55M3C...D75M3C  | IP23                                 | 1.4                         | 5.1  | 1                           | <b>VW3A7748</b> | 25.000/<br>55.116  |
| ATV930C22N4<br>ATV930C25N4C...C31N4C   | IP23                                 | 1.4                         | 29   | 1                           | <b>VW3A7757</b> | 121.000/<br>69.934 |

(1) Load factor for resistors: The value of the average power that can be dissipated at 50 °C/122 °F from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

- Normal duty: 4 s braking with a 1.35 Tn braking torque for a 40 s cycle
- Heavy duty: 4 s braking with a 1.65 Tn braking torque for a 40 s cycle

# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors

| References for a medium braking cycle (continued) |                                      |                             |  |                             |           |                   |
|---|--------------------------------------|-----------------------------|--|-----------------------------|-----------|-------------------|
| For drives  | Degree of protection of the resistor | Ohmic value at 20 °C/ 68 °F | Average power available at 50 °C/ 122 °F (1) | Quantity required per drive | Reference | Weight            |
|   |                                      | Ω                           | kW   |                             |           | kg/lb             |
| <b>Supply voltage: 500...690 V 50/ 60 Hz</b>      |                                      |                             |  |                             |           |                   |
| ATV930U22Y6                                       | IP20                                 | 100                         | 0.26   | 1                           | VW3A7740  | 2.500/<br>5.511   |
| ATV930U30Y6                                       | IP20                                 | 100                         | 0.26   | 1                           | VW3A7740  | 2.500/<br>5.511   |
| ATV930U40Y6                                       | IP20                                 | 100                         | 0.26   | 1                           | VW3A7740  | 2.500/<br>5.511   |
| ATV930U55Y6                                       | IP20                                 | 60                          | 0.5  | 1                           | VW3A7741  | 3.800/<br>8.377   |
| ATV930U75Y6                                       | IP20                                 | 60                          | 0.5  | 1                           | VW3A7741  | 3.800/<br>8.377   |
| ATV930D11Y6                                       | IP20                                 | 28                          | 0.96   | 1                           | VW3A7742  | 4.200/<br>9.259   |
| ATV930D15Y6                                       | IP20                                 | 28                          | 0.96   | 1                           | VW3A7742  | 4.200/<br>9.259   |
| ATV930D18Y6                                       | IP20                                 | 16                          | 1.9  | 1                           | VW3A7743  | 6.400/<br>14.109  |
| ATV930D22Y6                                       | IP20                                 | 16                          | 1.9  | 1                           | VW3A7743  | 6.400/<br>14.109  |
| ATV930D30Y6                                       | IP20                                 | 16                          | 1.9  | 1                           | VW3A7743  | 6.400/<br>14.109  |
| ATV930D37Y6                                       | IP20                                 | 10                          | 2.9  | 1                           | VW3A7744  | 9.000/<br>19.841  |
| ATV930D45Y6                                       | IP20                                 | 10                          | 2.9  | 1                           | VW3A7744  | 9.000/<br>19.841  |
| ATV930D55Y6                                       | IP23                                 | 8                           | 3.8  | 1                           | VW3A7745  | 25.500/<br>56.217 |
| ATV930D75Y6                                       | IP23                                 | 5                           | 6.9  | 1                           | VW3A7746  | 30.500/<br>67.240 |
| ATV930D90Y6                                       | IP23                                 | 5                           | 6.9  | 1                           | VW3A7746  | 30.500/<br>67.240 |

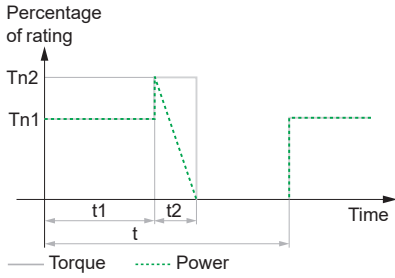
(1) Load factor for resistors: The value of the average power that can be dissipated at 50 °C/122 °F from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

- Normal duty: 4 s braking with a 1.35 T<sub>n</sub> braking torque for a 40 s cycle
- Heavy duty: 4 s braking with a 1.65 T<sub>n</sub> braking torque for a 40 s cycle

# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors



| Severe Cycle               |                           |
|----------------------------|---------------------------|
| $t = 120\text{ s}$         | $t$ : period              |
| $t_1 = 54\text{ s}$        | $T_{n1}$ : braking torque |
| $t_2 = 6\text{ s}$         | $T_{n2}$ : braking torque |
| $T_{n1} = T_n$             | $T_n$ : nominal torque    |
| $T_{n2} = 1.65 \times T_n$ |                           |

| References for a severe braking cycle (hoisting applications)                      |                                      |                             |  |                             |           |                     |
|--|--------------------------------------|-----------------------------|--|-----------------------------|-----------|---------------------|
| For drives   | Degree of protection of the resistor | Ohmic value at 20 °C/ 68 °F | Average power available at 50 °C/ 122 °F (1) | Quantity required per drive | Reference | Weight              |
|  |                                      | Ω                           | kW   |                             |           | kg/lb               |
| <b>Supply voltage: 200...240 V or 380...480 V 50/60 Hz</b>                         |                                      |                             |  |                             |           |                     |
| ATV930U07M3  | IP20                                 | 100                         | 0.26   | 1                           | VW3A7740  | 2.500/<br>5.512     |
| ATV930U15M3  | IP20                                 | 60                          | 0.5  | 1                           | VW3A7741  | 4.500/<br>9.921     |
| ATV930U22M3  | IP20                                 | 60                          | 3.4  | 1                           | VW3A7751  | 10.000/<br>22.046   |
| ATV930U30M3  | IP20                                 | 28                          | 1.1  | 1                           | VW3A7742  | 4.000/<br>8.818     |
| ATV930U55M3  | IP20                                 | 16                          | 2.2  | 1                           | VW3A7743  | 7.000/<br>15.432    |
| ATV930D11M3  | IP20                                 | 10                          | 3.4  | 1                           | VW3A7744  | 11.500/<br>25.353   |
| ATV930D18M3  | IP23                                 | 5                           | 6.9  | 1                           | VW3A7746  | 27.000/<br>59.524   |
| ATV930U07N4...U40N4<br>ATV950U07N4...U40N4<br>ATV950U07N4E...U40N4E                | IP20                                 | 100                         | 1.7  | 1                           | VW3A7750  | 5.500/<br>12.125    |
| ATV930U55N4...U75N4<br>ATV950U55N4...U75N4<br>ATV950U55N4E...U75N4E                | IP20                                 | 60                          | 3.4  | 1                           | VW3A7751  | 10.000/<br>22.046   |
| ATV930U40M3<br>ATV930D11N4...D15N4<br>ATV950D11N4...D15N4<br>ATV950D11N4E...D15N4E | IP23                                 | 28                          | 5.1  | 1                           | VW3A7752  | 25.000/<br>55.116   |
| ATV930U75M3<br>ATV930D18N4...D30N4<br>ATV950D18N4...D30N4<br>ATV950D18N4E...D30N4E | IP23                                 | 16                          | 14   | 1                           | VW3A7753  | 47.000/<br>103.617  |
| ATV930D37N4...D45N4<br>ATV950D37N4...D45N4<br>ATV950D37N4E...D45N4E                | IP23                                 | 10                          | 19   | 1                           | VW3A7754  | 67.000/<br>147.710  |
| ATV930D90N4<br>ATV950D90N4<br>ATV950D90N4E   | IP23                                 | 10                          | 19   | 2                           |           |                     |
| ATV930D15M3<br>ATV930D55N4<br>ATV950D55N4<br>ATV950D55N4E                          | IP23                                 | 8                           | 25   | 1                           | VW3A7755  | 86.000/<br>189.597  |
| ATV930D22M3<br>ATV930D75N4<br>ATV950D75N4<br>ATV950D75N4E                          | IP23                                 | 5                           | 32   | 1                           | VW3A7756  | 126.000/<br>277.782 |
| ATV930D30M3...D45M3<br>ATV930C11N4C...C16N4C                                       | IP23                                 | 5                           | 32   | 2                           |           |                     |
| ATV930C22N4<br>ATV930C25N4C  | IP23                                 | 5                           | 32   | 3                           |           |                     |
| ATV930C31N4C   | IP23                                 | 5                           | 32   | 4                           |           |                     |
| ATV930D55M3C...D75M3C  | IP23                                 | 1.4                         | 29   | 1                           | VW3A7757  | 114.000/<br>251.327 |

(1) Load factor for resistors: The value of the average power that can be dissipated at 50 °C/122 °C from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:  
- Heavy duty: 54 s braking with a 1 Tn braking torque and 6 s braking with a 1.65 Tn braking torque for a 120 s cycle



# Variable speed drives

## Altivar Process ATV900

### Option: Braking resistors

PF151269A



VW3A7755

#### References for a severe braking cycle (hoisting applications) (continued)

| For drives                                   | Degree of protection of the resistor | Ohmic value at 20 °C/ 68 °F | Average power available at 50 °C/ 122 °F (1) | Quantity required per drive | Reference       | Weight              |
|--|--------------------------------------|-----------------------------|--|-----------------------------|-----------------|---------------------|
|  |                                      | Ω                           | kW   |                             |                 | kg/lb               |
| <b>Supply voltage: 500...690 V 50/ 60 Hz</b> |                                      |                             |  |                             |                 |                     |
| ATV930U22Y6                                  | IP20                                 | 100                         | 1.4  | 1                           | <b>VW3A7750</b> | 5.000/<br>11.023    |
| ATV930U30Y6                                  | IP20                                 | 100                         | 1.4  | 1                           | <b>VW3A7750</b> | 5.000/<br>11.023    |
| ATV930U40Y6                                  | IP20                                 | 100                         | 1.4  | 1                           | <b>VW3A7750</b> | 5.000/<br>11.023    |
| ATV930U55Y6                                  | IP20                                 | 60                          | 2.9  | 1                           | <b>VW3A7751</b> | 8.300/<br>18.298    |
| ATV930U75Y6                                  | IP20                                 | 60                          | 2.9  | 1                           | <b>VW3A7751</b> | 8.300/<br>18.298    |
| ATV930D11Y6                                  | IP23                                 | 28                          | 5.1  | 1                           | <b>VW3A7752</b> | 27.000/<br>59.524   |
| ATV930D15Y6                                  | IP23                                 | 28                          | 5.1  | 1                           | <b>VW3A7752</b> | 27.000/<br>59.524   |
| ATV930D18Y6                                  | IP23                                 | 16                          | 14   | 1                           | <b>VW3A7753</b> | 48.500/<br>106.924  |
| ATV930D22Y6                                  | IP23                                 | 16                          | 14   | 1                           | <b>VW3A7753</b> | 48.500/<br>106.924  |
| ATV930D30Y6                                  | IP23                                 | 16                          | 14   | 1                           | <b>VW3A7753</b> | 48.500/<br>106.924  |
| ATV930D37Y6                                  | IP23                                 | 10                          | 19   | 1                           | <b>VW3A7754</b> | 71.000/<br>156.528  |
| ATV930D45Y6                                  | IP23                                 | 10                          | 19   | 1                           | <b>VW3A7754</b> | 71.000/<br>156.528  |
| ATV930D55Y6                                  | IP23                                 | 8                           | 25   | 1                           | <b>VW3A7755</b> | 87.500/<br>192.904  |
| ATV930D75Y6                                  | IP23                                 | 5                           | 32   | 1                           | <b>VW3A7756</b> | 126.000/<br>277.782 |
| ATV930D90Y6                                  | IP23                                 | 10                          | 19   | 2                           | <b>VW3A7754</b> | 71.000/<br>156.528  |

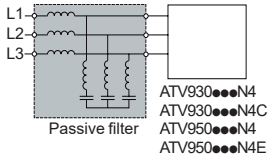
(1) Load factor for resistors: The value of the average power that can be dissipated at 50 °C/122 °C from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

- Heavy duty: 54 s braking with a 1 T<sub>n</sub> braking torque and 6 s braking with a 1.65 T<sub>n</sub> braking torque for a 120 s cycle

# Variable speed drives

## Altivar Process ATV900

### Option: Passive filters



### Presentation

Passive filters are used to obtain total harmonic distortion of less than 10% or 5%.  
Reactive power increases at no load or low load. To help reduce this reactive power, the filter capacitors can be disconnected (see the diagrams on our website [www.schneider-electric.com](http://www.schneider-electric.com)).  
Passive filters provide IP 20 protection.

### Applications

Reduction of current harmonics in order to use drives in the first environment (restricted distribution, domestic applications, sale conditional on the competence of the user and the distributor in terms of reducing current harmonics).



VW3A46106

### Passive filters: 400 V 50 Hz three-phase supply

| Motor rating         |     | For Altivar Process drives                                 | Filter                |                        | Quantity required per drive | Reference (1) | Weight              |
|----------------------|-----|--|-----------------------|------------------------|-----------------------------|---------------|---------------------|
| kW                   | HP  |  | Nominal current input | Nominal current output |                             |               |                     |
| <b>THDI &lt; 10%</b> |     |  |                       |                        |                             |               |                     |
| 0.75                 | 1   | ATV930U07N4<br>ATV950U07N4<br>ATV950U07N4E                 | 6                     | 6.2                    | 1                           | VW3A46101     | 12.000/<br>26.455   |
| 1.5                  | 2   | ATV930U15N4<br>ATV950U15N4<br>ATV950U15N4E                 |                       |                        |                             |               |                     |
| 2.2                  | 3   | ATV930U22N4<br>ATV950U22N4<br>ATV950U22N4E                 |                       |                        |                             |               |                     |
| 3                    | –   | ATV930U30N4<br>ATV950U30N4<br>ATV950U30N4E                 |                       |                        |                             |               |                     |
| 4                    | 5   | ATV930U40N4<br>ATV950U40N4<br>ATV950U40N4E                 | 10                    | 10.4                   | 1                           | VW3A46102     | 13.500/<br>29.762   |
| 5.5                  | 7.5 | ATV930U55N4<br>ATV950U55N4<br>ATV950U55N4E                 |                       |                        |                             |               |                     |
| 7.5                  | 10  | ATV930U75N4<br>ATV950U75N4<br>ATV950U75N4E                 | 14                    | 14.5                   | 1                           | VW3A46103     | 16.300/<br>35.935   |
| 11                   | 15  | ATV930D11N4<br>ATV950D11N4<br>ATV950D11N4E                 | 22                    | 23                     | 1                           | VW3A46104     | 22.000/<br>48.502   |
| 15                   | 20  | ATV930D15N4<br>ATV950D15N4<br>ATV950D15N4E                 | 29                    | 30                     | 1                           | VW3A46105     | 25.000/<br>55.116   |
| 18.5                 | 25  | ATV930D18N4<br>ATV950D18N4<br>ATV950D18N4E                 | 35                    | 37                     | 1                           | VW3A46106     | 37.000/<br>81.571   |
| 22                   | 30  | ATV930D22N4<br>ATV950D22N4<br>ATV950D22N4E                 | 43                    | 45                     | 1                           | VW3A46107     | 39.000/<br>85.980   |
| 30                   | 40  | ATV930D30N4<br>ATV950D30N4<br>ATV950D30N4E                 | 58                    | 60                     | 1                           | VW3A46108     | 44.000/<br>97.003   |
| 37                   | 50  | ATV930D37N4<br>ATV950D37N4<br>ATV950D37N4E                 | 72                    | 75                     | 1                           | VW3A46109     | 56.000/<br>123.459  |
| 45                   | 60  | ATV930D45N4<br>ATV950D45N4<br>ATV950D45N4E                 | 86                    | 90                     | 1                           | VW3A46110     | 62.000/<br>136.686  |
| 55                   | 75  | ATV930D55N4<br>ATV930D55N4C<br>ATV950D55N4<br>ATV950D55N4E | 101                   | 105                    | 1                           | VW3A46111     | 74.000/<br>163.142  |
| 75                   | 100 | ATV930D75N4<br>ATV930D75N4C<br>ATV950D75N4<br>ATV950D75N4E | 144                   | 150                    | 1                           | VW3A46112     | 85.000/<br>187.393  |
| 90                   | 125 | ATV930D90N4<br>ATV930D90N4C<br>ATV950D90N4<br>ATV950D90N4E | 180                   | 187                    | 1                           | VW3A46113     | 102.000/<br>224.871 |

(1) When used with ATV950U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

# Variable speed drives

## Altivar Process ATV900

Option: Passive filters



VW3A46116

| Passive filters: 400 V 50 Hz three-phase supply |     |                             |                       |                        |                             |           |                     |
|---|-----|-----------------------------|-----------------------|------------------------|-----------------------------|-----------|---------------------|
| Motor rating                                    |     | For Altivar Process drives  | Filter                |                        | Quantity required per drive | Reference | Weight              |
| kW  | HP  |                             | Nominal current input | Nominal current output |                             |           |                     |
|   |     |                             | A                     | A                      |                             |           | kg/<br>lb           |
| <b>THDI &lt; 10% (continued)</b>                |     |                             |                       |                        |                             |           |                     |
| 110   | 150 | ATV930C11N4C                | 217                   | 225                    | 1                           | VW3A46114 | 119.000/<br>262.350 |
| 132   | 200 | ATV930C13N4C                | 252                   | 262                    | 1                           | VW3A46115 | 136.000/<br>299.828 |
| 160   | 250 | ATV930C16N4C                | 304                   | 316                    | 1                           | VW3A46116 | 142.000/<br>313.056 |
| 220   | 350 | ATV930C22N4<br>ATV930C22N4C | 380                   | 395                    | 1                           | VW3A46118 | 185.000/<br>407.855 |
| 250   | 400 | ATV930C25N4C                | 433                   | 450                    | 1                           | VW3A46119 | 203.000/<br>447.538 |
| 315   | 500 | ATV930C31N4C                | 304                   | 316                    | 2                           | VW3A46116 | 142.000/<br>313.056 |

# Variable speed drives

## Altivar Process ATV900

### Option: Passive filters



VW3A46126

| Passive filters: 400 V 50 Hz three-phase supply |     |  |                       |                        |                             |               |                     |
|---|-----|--|-----------------------|------------------------|-----------------------------|---------------|---------------------|
| Motor rating                                    |     | For Altivar Process drives                                 | Filter                |                        | Quantity required per drive | Reference (1) | Weight              |
| kW  | HP  |  | Nominal current input | Nominal current output |                             |               |                     |
|   |     |  | A                     | A                      |                             |               | kg/lb               |
| <b>THDI &lt; 5%</b>                             |     |  |                       |                        |                             |               |                     |
| 0.75  | 1   | ATV930U07N4<br>ATV950U07N4<br>ATV950U07N4E                 | 6                     | 6.2                    | 1                           | VW3A46120     | 16.000/<br>35.274   |
| 1.5   | 2   | ATV930U15N4<br>ATV950U15N4<br>ATV950U15N4E                 |                       |                        |                             |               |                     |
| 2.2   | 3   | ATV930U22N4<br>ATV950U22N4<br>ATV950U22N4E                 |                       |                        |                             |               |                     |
| 3   | –   | ATV930U30N4<br>ATV950U30N4<br>ATV950U30N4E                 |                       |                        |                             |               |                     |
| 4   | 5   | ATV930U40N4<br>ATV950U40N4<br>ATV950U40N4E                 | 10                    | 10.4                   | 1                           | VW3A46121     | 18.000/<br>39.683   |
| 5.5   | 7.5 | ATV930U55N4<br>ATV950U55N4<br>ATV950U55N4E                 |                       |                        |                             |               |                     |
| 7.5   | 10  | ATV930U75N4<br>ATV950U75N4<br>ATV950U75N4E                 | 14                    | 14.5                   | 1                           | VW3A46122     | 20.000/<br>44.092   |
| 11  | 15  | ATV930D11N4<br>ATV950D11N4<br>ATV950D11N4E                 | 22                    | 23                     | 1                           | VW3A46123     | 30.000/<br>66.139   |
| 15  | 20  | ATV930D15N4<br>ATV950D15N4<br>ATV950D15N4E                 | 29                    | 30                     | 1                           | VW3A46124     | 34.000/<br>74.957   |
| 18.5  | 25  | ATV930D18N4<br>ATV950D18N4<br>ATV950D18N4E                 | 35                    | 37                     | 1                           | VW3A46125     | 53.000/<br>116.845  |
| 22  | 30  | ATV930D22N4<br>ATV950D22N4<br>ATV950D22N4E                 | 43                    | 45                     | 1                           | VW3A46126     | 58.000/<br>127.868  |
| 30  | 40  | ATV930D30N4<br>ATV950D30N4<br>ATV950D30N4E                 | 58                    | 60                     | 1                           | VW3A46127     | 76.000/<br>167.551  |
| 37  | 50  | ATV930D37N4<br>ATV950D37N4<br>ATV950D37N4E                 | 72                    | 75                     | 1                           | VW3A46128     | 98.000/<br>216.053  |
| 45  | 60  | ATV930D45N4<br>ATV950D45N4<br>ATV950D45N4E                 | 86                    | 90                     | 1                           | VW3A46129     | 104.000/<br>229.281 |
| 55  | 75  | ATV930D55N4<br>ATV930D55N4C<br>ATV950D55N4<br>ATV950D55N4E | 101                   | 105                    | 1                           | VW3A46130     | 106.000/<br>233.690 |
| 75  | 100 | ATV930D75N4<br>ATV930D75N4C<br>ATV950D75N4<br>ATV950D75N4E | 144                   | 150                    | 1                           | VW3A46131     | 126.000/<br>277.782 |
| 90  | 125 | ATV930D90N4<br>ATV930D90N4C<br>ATV950D90N4<br>ATV950D90N4E | 180                   | 187                    | 1                           | VW3A46132     | 135.000/<br>297.623 |

(1) When used with ATV950U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

## Variable speed drives

## Altivar Process ATV900

## Option: Passive filters



VW3A46135

## Passive filters: 400 V 50 Hz three-phase supply

| Motor rating                    |     | For Altivar<br>Process drives | Filter                   |        | Quantity<br>required<br>per drive | Reference | Weight              |
|---------------------------------|-----|-------------------------------|--------------------------|--------|-----------------------------------|-----------|---------------------|
| kW                              | HP  |                               | Nominal current<br>input | output |                                   |           |                     |
|                                 |     |                               | A                        | A      |                                   |           | kg/<br>lb           |
| <b>THDI &lt; 5% (continued)</b> |     |                               |                          |        |                                   |           |                     |
| 110                             | 150 | ATV930C11N4C                  | 217                      | 225    | 1                                 | VW3A46133 | 172.000/<br>379.195 |
| 132                             | 200 | ATV930C13N4C                  | 252                      | 262    | 1                                 | VW3A46134 | 206.000/<br>454.152 |
| 160                             | 250 | ATV930C16N4C                  | 304                      | 316    | 1                                 | VW3A46135 | 221.000/<br>487.221 |
| 220                             | 350 | ATV930C22N4<br>ATV930C22N4C   | 380                      | 395    | 1                                 | VW3A46137 | 265.000/<br>584.225 |
| 250                             | 400 | ATV930C25N4C                  | 433                      | 450    | 1                                 | VW3A46138 | 272.000/<br>599.657 |
| 315                             | 500 | ATV930C31N4C                  | 304                      | 316    | 2                                 | VW3A46135 | 221.000/<br>487.222 |



# Variable speed drives

## Altivar Process ATV900

### Option: Passive filters



VW3A46144

| Passive filters: 460 V 60 Hz three-phase supply |     |  |                 |        |                             |               |                     |
|---|-----|--|-----------------|--------|-----------------------------|---------------|---------------------|
| Motor rating                                    |     | For Altivar Process drives                                 | Filter          |        | Quantity required per drive | Reference (1) | Weight              |
| kW  | HP  |  | Nominal current |        |                             |               |                     |
|   |     |  | input           | output |                             |               |                     |
|   |     | A  | A               |        |                             | kg/lb         |                     |
| <b>THDI &lt; 10%</b>                            |     |  |                 |        |                             |               |                     |
| 0.75  | 1   | ATV930U07N4<br>ATV950U07N4<br>ATV950U07N4E                 | 6               | 6.2    | 1                           | VW3A46139     | 12.000/<br>26.455   |
| 1.5   | 2   | ATV930U15N4<br>ATV950U15N4<br>ATV950U15N4E                 |                 |        |                             |               |                     |
| 2.2   | 3   | ATV930U22N4<br>ATV950U22N4<br>ATV950U22N4E                 |                 |        |                             |               |                     |
| 3   | –   | ATV930U30N4<br>ATV950U30N4<br>ATV950U30N4E                 |                 |        |                             |               |                     |
| 4   | 5   | ATV930U40N4<br>ATV950U40N4<br>ATV950U40N4E                 | 10              | 10.4   | 1                           | VW3A46140     | 13.500/<br>29.762   |
| 5.5   | 7.5 | ATV930U55N4<br>ATV950U55N4<br>ATV950U55N4E                 |                 |        |                             |               |                     |
| 7.5   | 10  | ATV930U75N4<br>ATV950U75N4<br>ATV950U75N4E                 | 14              | 14.5   | 1                           | VW3A46141     | 16.300/<br>35.935   |
| 11  | 15  | ATV930D11N4<br>ATV950D11N4<br>ATV950D11N4E                 | 19              | 19.5   | 1                           | VW3A46142     | 22.000/<br>48.502   |
| 15  | 20  | ATV930D15N4<br>ATV950D15N4<br>ATV950D15N4E                 | 25              | 26     | 1                           | VW3A46143     | 23.000/<br>50.706   |
| 18.5  | 25  | ATV930D18N4<br>ATV950D18N4<br>ATV950D18N4E                 | 31              | 32     | 1                           | VW3A46144     | 33.000/<br>72.752   |
| 22  | 30  | ATV930D22N4<br>ATV950D22N4<br>ATV950D22N4E                 | 36              | 37     | 1                           | VW3A46145     | 37.000/<br>81.571   |
| 30  | 40  | ATV930D30N4<br>ATV950D30N4<br>ATV950D30N4E                 | 48              | 50     | 1                           | VW3A46146     | 39.000/<br>85.980   |
| 37  | 50  | ATV930D37N4<br>ATV950D37N4<br>ATV950D37N4E                 | 60              | 62     | 1                           | VW3A46147     | 43.000/<br>94.799   |
| 45  | 60  | ATV930D45N4<br>ATV950D45N4<br>ATV950D45N4E                 | 73              | 76     | 1                           | VW3A46148     | 55.000/<br>121.254  |
| 55  | 75  | ATV930D55N4<br>ATV930D55N4C<br>ATV950D55N4<br>ATV950D55N4E | 95              | 99     | 1                           | VW3A46149     | 62.000/<br>136.686  |
| 75  | 100 | ATV930D75N4<br>ATV930D75N4C<br>ATV950D75N4<br>ATV950D75N4E | 118             | 122    | 1                           | VW3A46150     | 74.000/<br>163.142  |
| 90  | 125 | ATV930D90N4<br>ATV930D90N4C<br>ATV950D90N4<br>ATV950D90N4E | 154             | 160    | 1                           | VW3A46151     | 85.000/<br>187.393  |
| 110   | 150 | ATV930C11N4C   | 183             | 190    | 1                           | VW3A46152     | 102.000/<br>224.871 |
| 132   | 200 | ATV930C13N4C   | 231             | 240    | 1                           | VW3A46153     | 119.000/<br>262.350 |
| 160   | 250 | ATV930C16N4C   | 291             | 302.5  | 1                           | VW3A46154     | 142.000/<br>313.056 |
| 220   | 350 | ATV930C22N4<br>ATV930C22N4C                                | 355             | 369    | 1                           | VW3A46155     | 162.000/<br>357.149 |
| 250   | 400 | ATV930C25N4C   | 436             | 450    | 2                           | VW3A46157     | 205.000/<br>451.948 |
| 315   | 500 | ATV930C31N4C   | 231             | 240    | 2                           | VW3A46153     | 119.000/<br>262.350 |

(1) When used with ATV950U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

## Variable speed drives

## Altivar Process ATV900

## Option: Passive filters



VW3A46164

## Passive filters: 460 V 60 Hz three-phase supply

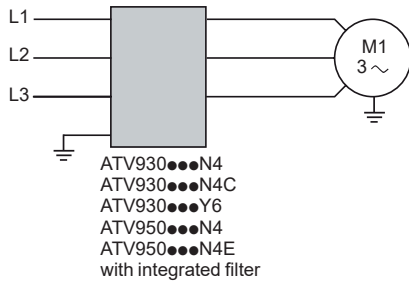
| Motor rating        | For Altivar Process drives | Filter   | Nominal current |        | Quantity required per drive | Reference (1) | Weight              |
|---------------------|----------------------------|--|-----------------|--------|-----------------------------|---------------|---------------------|
|                     |                            |  | input           | output |                             |               |                     |
| kW                  | HP                         |  | A               | A      |                             |               | kg/lb               |
| <b>THDI &lt; 5%</b> |                            |  |                 |        |                             |               |                     |
| 0.75                | 1                          | ATV930U07N4<br>ATV950U07N4<br>ATV950U07N4E                 | 6               | 6.2    | 1                           | VW3A46158     | 16.000/<br>35.274   |
| 1.5                 | 2                          | ATV930U15N4<br>ATV950U15N4<br>ATV950U15N4E                 |                 |        |                             |               |                     |
| 2.2                 | 3                          | ATV930U22N4<br>ATV950U22N4<br>ATV950U22N4E                 |                 |        |                             |               |                     |
| 3                   | –                          | ATV930U30N4<br>ATV950U30N4<br>ATV950U30N4E                 |                 |        |                             |               |                     |
| 4                   | 5                          | ATV930U40N4<br>ATV950U40N4<br>ATV950U40N4E                 | 10              | 10.4   | 1                           | VW3A46159     | 18.000/<br>39.683   |
| 5.5                 | 7.5                        | ATV930U55N4<br>ATV950U55N4<br>ATV950U55N4E                 |                 |        |                             |               |                     |
| 7.5                 | 10                         | ATV930U75N4<br>ATV950U75N4<br>ATV950U75N4E                 | 14              | 14.5   | 1                           | VW3A46160     | 20.000/<br>44.092   |
| 11                  | 15                         | ATV930D11N4<br>ATV950D11N4<br>ATV950D11N4E                 | 19              | 19.5   | 1                           | VW3A46161     | 30.000/<br>66.139   |
| 15                  | 20                         | ATV930D15N4<br>ATV950D15N4<br>ATV950D15N4E                 | 25              | 26     | 1                           | VW3A46162     | 34.000/<br>74.957   |
| 18.5                | 25                         | ATV930D18N4<br>ATV950D18N4<br>ATV950D18N4E                 | 31              | 32     | 1                           | VW3A46163     | 52.000/<br>114.640  |
| 22                  | 30                         | ATV930D22N4<br>ATV950D22N4<br>ATV950D22N4E                 | 36              | 37     | 1                           | VW3A46164     | 53.000/<br>116.845  |
| 30                  | 40                         | ATV930D30N4<br>ATV950D30N4<br>ATV950D30N4E                 | 48              | 50     | 1                           | VW3A46165     | 57.000/<br>125.663  |
| 37                  | 50                         | ATV930D37N4<br>ATV950D37N4<br>ATV950D37N4E                 | 60              | 62     | 1                           | VW3A46166     | 75.000/<br>165.347  |
| 45                  | 60                         | ATV930D45N4<br>ATV950D45N4<br>ATV950D45N4E                 | 73              | 76     | 1                           | VW3A46167     | 97.000/<br>213.848  |
| 55                  | 75                         | ATV930D55N4<br>ATV930D55N4C<br>ATV950D55N4<br>ATV950D55N4E | 95              | 99     | 1                           | VW3A46168     | 104.000/<br>229.281 |
| 75                  | 100                        | ATV930D75N4<br>ATV930D75N4C<br>ATV950D75N4<br>ATV950D75N4E | 118             | 122    | 1                           | VW3A46169     | 106.000/<br>233.690 |
| 90                  | 125                        | ATV930D90N4<br>ATV930D90N4C<br>ATV950D90N4<br>ATV950D90N4E | 154             | 160    | 1                           | VW3A46170     | 126.000/<br>277.782 |
| 110                 | 150                        | ATV930C11N4C   | 183             | 190    | 1                           | VW3A46171     | 135.000/<br>297.624 |
| 132                 | 200                        | ATV930C13N4C   | 231             | 240    | 1                           | VW3A46172     | 170.000/<br>374.786 |
| 160                 | 250                        | ATV930C16N4C   | 291             | 316    | 1                           | VW3A46173     | 221.000/<br>487.221 |
| 220                 | 350                        | ATV930C22N4<br>ATV930C22N4C                                | 355             | 369    | 1                           | VW3A46174     | 229.000/<br>504.859 |
| 250                 | 400                        | ATV930C25N4C   | 436             | 450    | 1                           | VW3A46176     | 270.000/<br>595.248 |
| 315                 | 500                        | ATV930C31N4C   | 231             | 240    | 2                           | VW3A46172     | 170.000/<br>374.786 |

(1) When used with ATV950U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

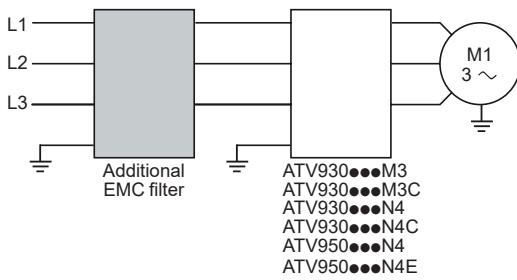
# Variable speed drives

## Altivar Process ATV900

### EMC filters



Altivar Process drive with integrated EMC filter



Altivar Process drive with additional EMC filter

#### Integrated EMC filters

Altivar Process drives (except ATV930...M3/M3C) have integrated radio interference input filters in accordance with the EMC standard for variable speed electrical power drive "products" IEC/EN 61800-3, edition 2, category C2 or C3 in environment 1 or 2, and to comply with the European EMC (electromagnetic compatibility) directive.

The integrated EMC filter runs off the leakage current to ground. The leakage current can be reduced by disconnecting the filter capacitors (please refer to the installation guide on our website [www.schneider-electric.com](http://www.schneider-electric.com)). In this configuration, the product does not comply with the European EMC directive.

| For drives   | Maximum length of shielded cable (1) acc. to |                            |
|--|--|----------------------------|
|  | IEC/EN 61800-3 category C2                   | IEC/EN 61800-3 category C3 |
|  | m  | m                          |
| <b>Three-phase supply voltage: 380...480 V IP 21</b> |  |                            |
| ATV930U07N4... D45N4                                 | 50   | 150                        |
| ATV930D55N4/N4C...D90N4/N4C                          | –  | 150                        |
| ATV930C11N4C...C16N4C                                |  |                            |
| ATV930C22N4  | –  | 50                         |
| ATV930C22N4C...C31N4C                                |  |                            |
| <b>Three-phase supply voltage: 380...480 V IP 55</b> |  |                            |
| ATV950U07N4/N4E...D45N4/N4E                          | 50   | 150                        |
| ATV950D55N4/N4E...D90N4/N4E                          | –  | 150                        |
| <b>Three-phase supply voltage: 500...690 V IP 00</b> |  |                            |
| ATV930U22Y6...D90Y6                                  | –  | 25                         |

#### Additional EMC input filters

Additional EMC input filters can be used to meet more stringent requirements and are designed to reduce conducted emissions on the line supply below the limits of standard IEC/EN 61800-3 category C1, C2 or C3.

#### Use according to the type of line supply

Use of these additional filters is only possible on TN (neutral connection) and TT (grounded neutral) type systems.

Standard IEC/EN 61800-3, appendix D2.1, states that on IT systems (isolated or impedance grounded neutral), filters can cause permanent insulation monitors to operate in a random manner.

If a machine needs to be installed on an IT system, one solution is to insert an isolation transformer and connect the machine locally to a TN or TT system.

#### References

| For drives   | Maximum length of shielded cable (1) |                                |                                | In  | If   | Reference | Weight            |
|--|--------------------------------------|--------------------------------|--------------------------------|-----|------|-----------|-------------------|
|  | IEC/EN 61800-3 category C1 (3)       | IEC/EN 61800-3 category C2 (3) | IEC/EN 61800-3 category C3 (3) |     |      |           |                   |
|  | m                                    | m                              | m                              | A   | mA   |           | kg/<br>lb         |
| <b>Three-phase supply voltage: 200...240 V 50 Hz</b> |                                      |                                |                                |     |      |           |                   |
| ATV930U07M3...U15M3                                  | 50                                   | 150                            | 300                            | 8   | 7.6  | VW3A4701  | 2.000/<br>4.409   |
| ATV930U22M3...U30M3                                  | 50                                   | 150                            | 300                            | 15  | 7.6  | VW3A4702  | 2.400/<br>5.291   |
| ATV930U40M3...U75M3                                  | 50                                   | 150                            | 300                            | 35  | 7.6  | VW3A4703  | 4.100/<br>9.039   |
| ATV930D11M3  | 50                                   | 150                            | 300                            | 50  | 7.6  | VW3A4704  | 5.200/<br>11.464  |
| ATV930D15M3  | 50                                   | 150                            | 300                            | 70  | 13.9 | VW3A4705  | 6.100/<br>13.448  |
| ATV930D18M3...D22M3                                  | 50                                   | 150                            | 300                            | 100 | 13.9 | VW3A4706  | 6.500/<br>14.330  |
| ATV930D30M3...D37M3                                  | 50                                   | 150                            | 300                            | 160 | 13.9 | VW3A4707  | 8.500/<br>18.739  |
| ATV930D30M3C...D37M3C                                |                                      |                                |                                |     |      |           |                   |
| ATV930D45M3  | 50                                   | 150                            | 300                            | 200 | 13.9 | VW3A4708  | 9.500/<br>20.944  |
| ATV930D45M3C   |                                      |                                |                                |     |      |           |                   |
| ATV930D55M3C   | 50                                   | 150                            | 300                            | 240 | 27.8 | VW3A4709  | 15.000/<br>33.069 |
| ATV930D75M3C   | 50                                   | 150                            | 300                            | 305 | 27.8 | VW3A4710  | 17.000/<br>37.479 |

(1) The maximum lengths are given as examples only, as they vary depending on the stray capacitance of the motors and the cables used. If motors are connected in parallel, it is the total length of all cables that should be taken into account.

(2) Nominal filter current.

(3) Values given depend on the nominal switching frequency of the drive. This frequency depends on the drive rating.

# Variable speed drives

## Altivar Process ATV900: EMC filters

### Option: Additional EMC input filters



VW3A4703



VW3A4411

#### Additional EMC input filters (continued)

##### References (continued)

| For drives   | Maximum length of shielded cable<br>(1) (2) |   |   | In<br>(4) | If   | Reference<br>(5) | Weight            |
|--|---|---|---|-----------|------|------------------|-------------------|
|  | IEC/EN<br>61800-3<br>category<br>C1 (3)     | IEC/EN<br>61800-3<br>category<br>C2 (3) | IEC/EN<br>61800-3<br>category<br>C3 (3) |           |      |                  |                   |
|  | m   | m                                       | m                                       | A         | mA   |                  | kg/<br>lb         |
| <b>Three-phase supply voltage: 380...480 V 50 Hz</b>   |   |   |   |           |      |                  |                   |
| ATV930U07N4...U22N4<br>ATV950U07N4...U22N4<br>ATV950U07N4E...U22N4E                          | 50  | 150                                     | 300                                     | 8         | 7.6  | VW3A4701         | 2.000/<br>4.409   |
| ATV930U30N4...U55N4<br>ATV950U30N4...U55N4<br>ATV950U30N4E...U55N4E                          | 50  | 150                                     | 300                                     | 15        | 7.6  | VW3A4702         | 2.400/<br>5.291   |
| ATV930U75N4...D15N4<br>ATV950U75N4...D15N4<br>ATV950U75N4E...D15N4E                          | 50  | 150                                     | 300                                     | 35        | 7.6  | VW3A4703         | 4.100/<br>9.039   |
| ATV930D18N4...D22N4<br>ATV950D18N4...D22N4<br>ATV950D18N4E...D22N4E                          | 50  | 150                                     | 300                                     | 50        | 7.6  | VW3A4704         | 5.200/<br>11.464  |
| ATV930D30N4<br>ATV950D30N4<br>ATV950D30N4E   | 50  | 150                                     | 300                                     | 70        | 13.9 | VW3A4705         | 6.100/<br>13.448  |
| ATV930D37N4...D45N4<br>ATV950D37N4...D45N4<br>ATV950D37N4E...D45N4E                          | 50  | 150                                     | 300                                     | 100       | 13.9 | VW3A4706         | 6.500/<br>14.330  |
| ATV930D55N4<br>ATV930D55N4C<br>ATV950D55N4<br>ATV950D55N4E                                   | 50  | 150                                     | 300                                     | 160       | 13.9 | VW3A4707         | 8.500/<br>18.739  |
| ATV930D75N4...D90N4<br>ATV930D75N4C...D90N4C<br>ATV950D75N4...D90N4<br>ATV950D75N4E...D90N4E | 50  | 150                                     | 300                                     | 200       | 13.9 | VW3A4708         | 9.500/<br>20.944  |
| ATV930C11N4C<br>ATV930C13N4C   | –   | 150                                     | 300                                     | 240       | 27.8 | VW3A4709         | 15.000/<br>33.069 |
| ATV930C16N4C   | –   | 150                                     | 300                                     | 305       | 27.8 | VW3A4710         | 17.000/<br>37.479 |
| ATV930C22N4<br>ATV930C22N4C...C31N4C   | 50  | 300                                     | –                                       | 546       | 599  | VW3A4411         | 25.000/<br>55.116 |

#### IP 21 protection kit for IP 20 filters

Additional input filters provide IP 20 protection as standard. This kit can be used to provide IP 21 or UL type 1 protection.

| Description                                     | For filters | Reference | Weight<br>kg/<br>lb |
|---|-------------|-----------|---------------------|
| Mechanical kit including cover and cable clamps | VW3A4701    | VW3A47901 | 0.200/<br>0.441     |
|   | VW3A4702    | VW3A47902 | 0.300/<br>0.661     |
|   | VW3A4703    | VW3A47903 | 0.400/<br>0.882     |
|   | VW3A4704    | VW3A47904 | 0.500/<br>1.102     |
|   | VW3A4705    | VW3A47905 | 0.900/<br>1.984     |
|   | VW3A4706    | VW3A47906 | 1.000/<br>2.205     |
|   | VW3A4707    | VW3A47907 | 1.500/<br>3.307     |
|   | VW3A4708    | VW3A47908 | 2.000/<br>4.409     |

(1) The maximum lengths are given as examples only, as they vary depending on the stray capacitance of the motors and the cables used. If motors are connected in parallel, it is the total length of all cables that should be taken into account.

(2) The associations of EMC filters with ATV900U07N4/N4E...D22N4/N4E, ATV930C22N4 and ATV930C22N4C...C31N4C drives are also compliant with the IEC/EN 61800-3 category C1 standard with a 50 m shielded cable length.

(3) Values given depend on the nominal switching frequency of the drive. This frequency depends on the drive rating.

(4) Nominal filter current.

(5) When used with ATV950U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

## Variable speed drives

### Altivar Process ATV900: reduction of current harmonics

Option: AC line chokes

PFI4210



VW3A4556

#### Line chokes

A line choke can be used to reduce harmonic distortion of the current produced by the drive.

The choke values are defined for a voltage drop between phases of 3% and 5% of the nominal supply voltage. Values higher than this will cause loss of torque.

Line chokes allow ATV930U22Y6...D90Y6 drives to be used in applications requiring a harmonic level of THDI 48%.

Chokes must be installed upstream of the drive.

#### References

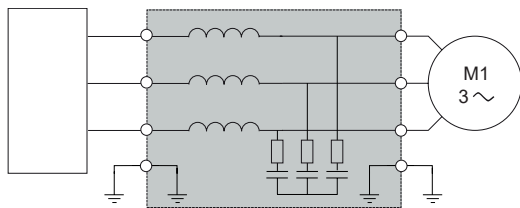
| For drives  | Line Supply Isc | Line chokes      |                 |        | Reference       | Weight            |
|---|-----------------|------------------|-----------------|--------|-----------------|-------------------|
|   |                 | Inductance value | Nominal Current | Losses |                 |                   |
|   | kA              | mH               | A               | W      |                 | kg/<br>lb         |
| <b>Three-phase supply voltage: 500...690 V 50/60 Hz</b> |                 |                  |                 |        |                 |                   |
| ATV930U22Y6...40Y6                                      | 22              | 10               | 4               | 45     | <b>VW3A4551</b> | 1.500/<br>2.204   |
| ATV930U55Y6...75Y6                                      | 22              | 4                | 10              | 65     | <b>VW3A4552</b> | 3.000/<br>6.613   |
| ATV930D11Y6...15Y6                                      | 22              | 2                | 16              | 75     | <b>VW3A4553</b> | 3.500/<br>7.716   |
| ATV930D18Y6...22Y6                                      | 22              | 1                | 30              | 90     | <b>VW3A4554</b> | 6.000/<br>13.227  |
| ATV930D30Y6...45Y6                                      | 22              | 0.5              | 60              | 94     | <b>VW3A4555</b> | 11.000/<br>24.250 |
| ATV930D55Y6...90Y6                                      | 22              | 0.3              | 100             | 260    | <b>VW3A4556</b> | 16.000/<br>35.274 |



# Variable speed drives

## Altivar Process ATV900: Output filters

### Option: dv/dt filters



ATV930●●●M3  
ATV930●●●M3C  
ATV930●●●N4  
ATV930●●●N4C  
ATV950●●●N4  
ATV950●●●N4E

dv/dt filter

Altivar Process drive with dv/dt filter

### Presentation

Altivar Process drives with supply voltage of 200...240 V and 380...480 V operate with the following maximum motor cable lengths: 150 m/492 ft for shielded cables and 300 m/984 ft for unshielded cables.

For supply voltage of 500...690 V maximum motor cable lengths are: 10 m/32 ft for shielded cables and 20 m/65 ft for unshielded cables.

To limit the impact of dv/dt and overvoltages in the motor, it is recommended, for cables longer than 50 m/164 ft, that you check the motor insulation type and add an output filter if necessary.

For further information, please consult the An Improved Approach for Connecting VSD and Electric Motors White Paper available on our website [www.schneider-electric.com](http://www.schneider-electric.com).

Output filters are used to limit dv/dt at the motor terminals to 500 V/μs maximum for supply voltages up to 480 V, to 750 V/μs maximum for supply voltage of 500 V and to 1000 V/μs maximum for supply voltage of 690 V.

Output filters are designed to limit overvoltages at the motor terminals to less than:

- 800 V with a shielded cable 0 to 50 m (0 to 164 ft) long, with a 400 V supply voltage
- 1,000 V with a shielded cable 50 to 150 m (164 to 492 ft) long, with a 400 V supply voltage
- 1,500 V with a shielded cable 150 to 300 m (492 to 984 ft) long, with a 400 V supply voltage (up to 500 m (1,640 ft) with an unshielded cable)
- 1,300 V with 500 V supply voltage, cable length depending on the dv/dt filter combination
- 1,600 V with 690 V supply voltage, cable length depending on the dv/dt filter combination

The performance of dv/dt filters will be affected if the maximum cable lengths are exceeded. For an application with several motors connected in parallel, the cable length must include all cabling. If a cable longer than that recommended is used, the dv/dt filters may overheat.

The switching frequency must be under 8 kHz.

### dv/dt output filters

| For drives                                     | Maximum length of motor cable   |                    | Degree of protection | In (3) | Reference | Weight            |
|--|---------------------------------|--------------------|----------------------|--------|-----------|-------------------|
|  | Maximum switching frequency (1) | Shielded cable (2) |                      |        |           |                   |
|  | kHz                             | m/ft               | IP                   | A      |           | kg/lb             |
| <b>Three-phase supply voltage: 200...240 V</b> |                                 |                    |                      |        |           |                   |
| ATV930U07M3                                    | 4                               | 300/<br>984        | 20                   | 6      | VW3A5301  | 11.000/<br>24.251 |
| ATV930U15M3...U30M3                            | 4                               | 300/<br>984        | 20                   | 15     | VW3A5302  | 12.000/<br>26.455 |
| ATV930U40M3                                    | 4                               | 300/<br>984        | 20                   | 25     | VW3A5303  | 12.000/<br>26.455 |
| ATV930U55M3...D11M3                            | 4                               | 300/<br>984        | 20                   | 50     | VW3A5304  | 18.000/<br>39.683 |
| ATV930D15M3...D22M3                            | 4                               | 300/<br>984        | 20                   | 95     | VW3A5305  | 19.000/<br>41.888 |
| ATV930D30M3...D45M3                            | 2.5                             | 300/<br>984        | 00                   | 180    | VW3A5306  | 22.000/<br>48.502 |
| ATV930D30M3C...D45M3C                          |                                 |                    |                      |        |           |                   |
| ATV930D55M3C...D75M3C                          | 2.5                             | 300/<br>984        | 00                   | 305    | VW3A5307  | 40.000/<br>88.185 |

(1) The filters are designed to operate in a switching frequency range of between 2 and 8 kHz.

(2) Values given depend on the nominal switching frequency of the drive. This frequency depends on the drive rating. These cable lengths are given as examples only as they can vary depending on the application. They correspond to motors conforming to IEC 6034-25 and NEMA MG1/31.2006.

(3) Nominal filter current.

# Variable speed drives

## Altivar Process ATV900: Output filters

### Option: dv/dt filters

PF14036EA



VW3A5304

| dv/dt output filters (continued)   |                                 |                              |                          |        |                     |                    |
|--|---------------------------------|------------------------------|--------------------------|--------|---------------------|--------------------|
| For drives   | Maximum length of motor cable   |                              | Degree of protection (3) | In (4) | Reference (4)       | Weight             |
|  | Maximum switching frequency (1) | Shielded cable frequency (2) |                          |        |                     |                    |
|  | kHz                             | m/ft                         | IP                       | A      |                     | kg/lb              |
| <b>Three-phase supply voltage: 380...480 V</b>   |                                 |                              |                          |        |                     |                    |
| ATV930U07N4...U22N4<br>ATV950U07N4...U22N4<br>ATV950U07N4E...U22N4E                          | 4                               | 300/<br>984                  | 20                       | 6      | <b>VW3A5301</b>     | 11.000/<br>24.251  |
| ATV930U30N4...U55N4<br>ATV950U30N4...U55N4<br>ATV950U30N4E...U55N4E                          | 4                               | 300/<br>984                  | 20                       | 15     | <b>VW3A5302</b>     | 12.000/<br>26.455  |
| ATV930U75N4...D11N4<br>ATV950U75N4...D11N4<br>ATV950U75N4E...D11N4E                          | 4                               | 300/<br>984                  | 20                       | 25     | <b>VW3A5303</b>     | 12.000/<br>26.455  |
| ATV930D15N4...D22N4<br>ATV950D15N4...D22N4<br>ATV950D15N4E...D22N4E                          | 4                               | 300/<br>984                  | 20                       | 50     | <b>VW3A5304</b>     | 18.000/<br>39.683  |
| ATV930D30N4...D45N4<br>ATV950D30N4...D45N4<br>ATV950D30N4E...D45N4E                          | 4                               | 300/<br>984                  | 20                       | 95     | <b>VW3A5305</b>     | 19.000/<br>41.888  |
| ATV930D55N4...D90N4<br>ATV930D55N4C...D90N4C<br>ATV950D55N4...D90N4<br>ATV950D55N4E...D90N4E | 2.5                             | 300/<br>984                  | 00                       | 180    | <b>VW3A5306</b>     | 22.000/<br>48.502  |
| ATV930C11N4C...C16N4C  | 2.5                             | 300/<br>984                  | 00                       | 305    | <b>VW3A5307</b>     | 40.000/<br>88.185  |
| ATV930C22N4<br>ATV930C22N4C  | 2.5                             | 250/<br>820                  | 00                       | 481    | <b>VW3A5106</b>     | 58.000/<br>127.868 |
| ATV930C25N4C...C31N4C  | 2.5                             | 200/<br>656                  | 00                       | 759    | <b>VW3A5107</b>     | 93.000/<br>205.030 |
| <b>Three-phase supply voltage: 500...690 V</b>   |                                 |                              |                          |        |                     |                    |
| ATV930U22Y6...U55Y6  | 6                               | 50/<br>164                   | 00                       | 90     | <b>VW3A5103</b>     | 10.000/<br>22.046  |
| ATV930U75Y6,<br>ATV930D11Y6  | 6                               | 50/<br>164                   | 00                       | 90     | <b>VW3A5103</b>     | 10.000/<br>22.046  |
|  | 6                               | 100/<br>328                  | 00                       | 215    | <b>VW3A5104</b>     | 15.500/<br>34.171  |
| ATV930D15Y6...30Y6   | 2.5                             | 50/<br>164                   | 00                       | 90     | <b>VW3A5103</b>     | 10.000/<br>22.046  |
|  | 2.5                             | 70/<br>230                   | 00                       | 90     | <b>2 x VW3A5103</b> | 20.000/<br>44.001  |
|  | 4                               | 35/<br>213                   | 00                       | 90     |                     |                    |
|  | 4                               | 150/<br>492                  | 00                       | 215    | <b>VW3A5104</b>     | 15.500/<br>34.171  |
|  | 6                               | 100/<br>328                  | 00                       | 215    |                     |                    |
|  | 6                               | 150/<br>492                  | 00                       | 215    | <b>2 x VW3A5104</b> | 31.000/<br>68.342  |
| ATV930D37Y6...D90Y6  | 4                               | 100/<br>328                  | 00                       | 215    | <b>VW3A5104</b>     | 15.500/<br>34.171  |
|  | 4                               | 150/<br>492                  | 00                       | 215    | <b>2 x VW3A5104</b> | 31.000/<br>68.342  |

(1) The filters are designed to operate in a switching frequency range of between 2 and 8 kHz.

(2) Values given depend on the nominal switching frequency of the drive. This frequency depends on the drive rating. These cable lengths are given as examples only as they can vary depending on the application. They correspond to motors conforming to IEC 6034-25 and NEMA MG1/31.2006.

(3) Nominal filter current.

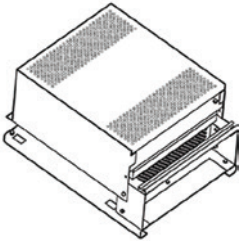
(4) When used with **ATV950U07N4/N4E...D90N4/N4E** drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

## Variable speed drives

## Altivar Process ATV900: Output filters

Option: dv/dt filters

PF152807



VW3A9612

## IP 20 protection kit for IP 00 filters

| Description                                     | For dv/dt filters    | Reference | Weight<br>kg/<br>lb |
|---|----------------------|-----------|---------------------|
| Mechanical kit including cover and cable clamps | VW3A5104             | VW3A9612  | –                   |
|   | VW3A5106<br>VW3A5107 | VW3A9613  | –                   |

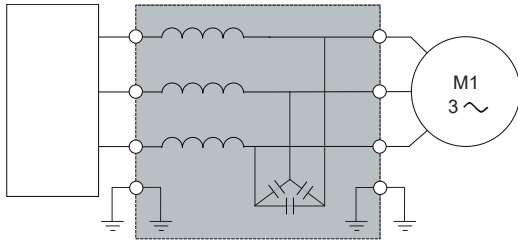
## IP 21 protection kit for IP 20 filters

| Description                                     | For dv/dt filters                | Reference | Weight<br>kg/<br>lb |
|---|----------------------------------|-----------|---------------------|
| Mechanical kit including cover and cable clamps | VW3A5301<br>VW3A5302<br>VW3A5303 | VW3A53902 | 1.300/<br>2.866     |
|   | VW3A5304                         | VW3A53903 | 1.700/<br>3.748     |
|   | VW3A5305                         | VW3A53905 | 3.200/<br>7.055     |

# Variable speed drives

## Altivar Process ATV900: Output filters

### Option: Sinus filters



ATV930●●●M3  
ATV930●●●M3C  
ATV930●●●N4  
ATV930●●●N4C  
ATV930●●●Y6  
ATV950●●●N4  
ATV950●●●N4E

Sinus filter

Altivar Process drive with sinus filter

### Presentation

Sinus filters allow Altivar Process drives to operate with long motor cables:

- 500 m (1,640 ft) with a shielded cable
- 1,000 m (3,280 ft) with an unshielded cable

The minimum switching frequency at which sinus filters can operate is 4 kHz. This is the default value when the sinus filter function is activated on the variable speed drive (please refer to the programming guide on our website [www.schneider-electric.com](http://www.schneider-electric.com)).

The output frequency must be less than 100 Hz.

At 100% load, the voltage drop is less than 8% with output frequency 50 Hz and switching frequency 4 kHz.

### Applications

For applications requiring:

- Long cable runs
- Motors connected in parallel
- Submersible pumps sensitive to dv/dt
- An intermediate transformer between the drive and the motor

### Sinus filters

| For drives                                     | Nominal current<br>A | Degree of protection<br>IP | Reference<br>(1) | Weight<br>kg/<br>lb |
|--|----------------------|----------------------------|------------------|---------------------|
| <b>Three-phase supply voltage: 200...240 V</b> |                      |                            |                  |                     |
| ATV930U07M3                                    | 6                    | 20                         | <b>VW3A5401</b>  | 10.000/<br>22.046   |
| ATV930U15M3...U30M3                            | 15                   | 20                         | <b>VW3A5402</b>  | 13.500/<br>29.762   |
| ATV930U40M3                                    | 25                   | 20                         | <b>VW3A5403</b>  | 20.000/<br>44.092   |
| ATV930U55M3...D11M3                            | 50                   | 20                         | <b>VW3A5404</b>  | 35.000/<br>77.162   |
| ATV930D15M3...D22M3                            | 95                   | 20                         | <b>VW3A5405</b>  | 60.000/<br>132.277  |
| ATV930D30M3...D45M3<br>ATV930D30M3C...D45M3C   | 180                  | 00                         | <b>VW3A5406</b>  | 90.000/<br>198.416  |
| ATV930D75M3C (2)                               | 305                  | 00                         | <b>VW3A5407</b>  | 134.000/<br>295.419 |

(1) The filters are designed to operate in a switching frequency range of between 4 and 8 kHz.

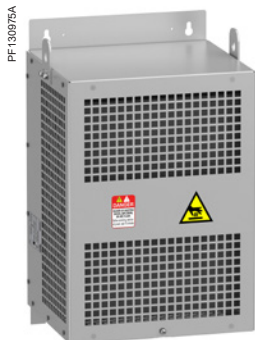
(2) In "Normal duty", apply a derating of Pn-1 to the drive nominal power with a minimum switching frequency of 4 kHz.

For example: An ATV930D75M3C drive with sinus filter can be used on a 55 kW motor.

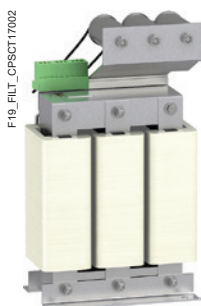
## Variable speed drives

## Altivar Process ATV900: Output filters

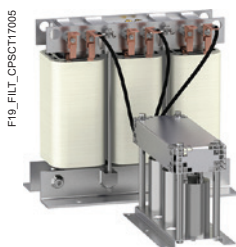
## Option: Sinus filters



VW3A5404



VW3A5216



VW3A5219

## Sinus filters (continued)

| For drives   | Maximum length of unshielded motor cable | Nominal current | Degree of protection | Reference (1) (2) | Weight              |
|--|--|-----------------|----------------------|-------------------|---------------------|
|  |  |                 |                      |                   |                     |
| <b>Three-phase supply voltage: 380...480 V</b>   |  |                 |                      |                   |                     |
| ATV930U07N4...U22N4<br>ATV950U07N4...U22N4<br>ATV950U07N4E...U22N4E                          | 1000/<br>3.280                           | 6               | 20                   | <b>VW3A5401</b>   | 10.000/<br>22.046   |
| ATV930U30N4...U55N4<br>ATV950U30N4...U55N4<br>ATV950U30N4E...U55N4E                          | 1000/<br>3.280                           | 15              | 20                   | <b>VW3A5402</b>   | 13.500/<br>29.762   |
| ATV930U75N4...D11N4<br>ATV950U75N4...D11N4<br>ATV950U75N4E...D11N4E                          | 1000/<br>3.280                           | 25              | 20                   | <b>VW3A5403</b>   | 20.000/<br>44.092   |
| ATV930D15N4...D22N4<br>ATV950D15N4...D22N4<br>ATV950D15N4E...D22N4E                          | 1000/<br>3.280                           | 50              | 20                   | <b>VW3A5404</b>   | 35.000/<br>77.162   |
| ATV930D30N4...D45N4<br>ATV950D30N4...D45N4<br>ATV950D30N4E...D45N4E                          | 1000/<br>3.280                           | 95              | 20                   | <b>VW3A5405</b>   | 60.000/<br>132.277  |
| ATV930D55N4...D90N4<br>ATV930D55N4C...D90N4C<br>ATV950D55N4...D90N4<br>ATV950D55N4E...D90N4E | 1000/<br>3.280                           | 180             | 00                   | <b>VW3A5406</b>   | 90.000/<br>198.416  |
| ATV930C13N4C...C16N4C (3)  | 1000/<br>3.280                           | 305             | 00                   | <b>VW3A5407</b>   | 134.000/<br>295.419 |
| ATV930C22N4 (3)<br>ATV930C22N4C (3)  | 1000/<br>3.280                           | 400             | 00                   | <b>VW3A5209</b>   | 190.000/<br>418.878 |
| ATV930C25N4C...C31N4C (3)  | 1000/<br>3.280                           | 600             | 00                   | <b>VW3A5210</b>   | 260.000/<br>573.202 |

## Three-phase supply voltage: 500...690 V

|                     |               |     |    |                 |                     |
|---------------------|---------------|-----|----|-----------------|---------------------|
| ATV930U22Y6...U75Y6 | 500/<br>1.640 | 13  | 20 | <b>VW3A5215</b> | 13.500/<br>29.762   |
| ATV930D11Y6...D22Y6 | 500/<br>1.640 | 28  | 20 | <b>VW3A5216</b> | 25.400/<br>55.997   |
| ATV930D30Y6...D37Y6 | 500/<br>1.640 | 45  | 20 | <b>VW3A5217</b> | 38.000/<br>83.776   |
| ATV930D45Y6...D55Y6 | 750/<br>2.460 | 75  | 20 | <b>VW3A5218</b> | 75.000/<br>165.347  |
| ATV930D75Y6...D90Y6 | 750/<br>2.460 | 115 | 20 | <b>VW3A5219</b> | 106.000/<br>233.690 |

## IP 21 protection kit for IP 20 filters

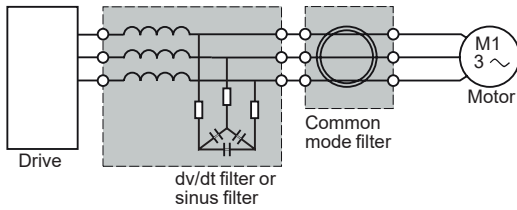
| Description  | For sinus filter | Reference        | Weight<br>kg/<br>lb |
|--|------------------|------------------|---------------------|
| <b>Mechanical kit including cover and cable clamps</b> | <b>VW3A5401</b>  | <b>VW3A53901</b> | 1.000/<br>2.205     |
|  | <b>VW3A5402</b>  | <b>VW3A53902</b> | 1.300/<br>2.866     |
|  | <b>VW3A5403</b>  | <b>VW3A53903</b> | 2.700/<br>5.952     |
|  | <b>VW3A5404</b>  | <b>VW3A53904</b> | 3.200/<br>7.055     |
|  | <b>VW3A5405</b>  | <b>VW3A53904</b> | 3.200/<br>7.055     |

- (1) The filters are designed to operate in a switching frequency range of between 4 and 8 kHz.  
 (2) When used with **ATV950U07N4/N4E...D90N4/N4E** drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.  
 (3) In "Normal Duty", apply a derating of Pn-1 to the drive nominal power with a minimum switching frequency of 4 kHz. For example:  
 An **ATV930C13N4C** drive with sinus filter can be used on a 110 kW motor.  
 An **ATV930C16N4C** drive with sinus filter can be used on a 132 kW motor.

# Variable speed drives

## Altivar Process ATV900: Output filters

### Option: Common mode filters



Altivar Process ATV900 drive with common mode filter

### Presentation

Sinus filters or dv/dt filters reduce the overvoltage across windings and high frequency currents in differential mode. But they have no effect on the common mode current between phases and the cable shielding, and between the windings and the stator/rotor of the motor.

Common mode filters bring several benefits:

- Reduction of RFI (Radio Frequency Interference) of the motor cable and improvement of the effectiveness of the EMC filter for conducted emissions
- Reduction of the high frequency currents circulating in the bearings of the motor and prevention of their damage.

It is possible to use the common mode filter at the output terminals of the drive, the dv/dt filter, or the sinus filter.

**Note:** The selection of a common mode configuration depends on the type and length of motor cable. An abnormal increase of the temperature indicates a possible saturation. Additional filters shall be used to avoid it.

### Common mode filters

| For drives                                   | Maximum length of unshielded cable |                     |                       |                         |
|--|------------------------------------|---------------------|-----------------------|-------------------------|
|  | 150 m/<br>492.12 ft                | 300 m/<br>984.25 ft | 500 m/<br>1,640.42 ft | 1,000 m/<br>3,280.83 ft |
| ATV930U07M3...U40M3                          | VW3A5501                           | VW3A5502            | 2 x VW3A5501          | VW3A5501 + VW3A5502     |
| ATV930U55M3                                  | VW3A5501                           | VW3A5502            | VW3A5501 + VW3A5502   | 2 x VW3A5502            |
| ATV930U75M3...D11M3                          | VW3A5503                           | VW3A5504            | 2 x VW3A5503          | VW3A5503 + VW3A5504     |
| ATV930D15M3...D22M3                          | VW3A5503                           | VW3A5504            | VW3A5503 + VW3A5504   | 2 x VW3A5504            |
| ATV930D30M3...D45M3<br>ATV930D30M3C...D45M3C | VW3A5503                           | VW3A5504            | VW3A5503 + VW3A5504   | 2 x VW3A5504            |
| ATV930D55M3C...D75M3C                        | VW3A5505                           | VW3A5506            | VW3A5505 + VW3A5506   | VW3A5506                |

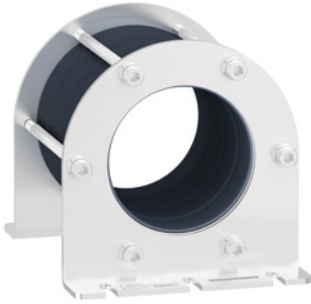


# Variable speed drives

## Altivar Process ATV900: Output filters

### Option: Common mode filters

PF130952A



VW3A5503

#### Common mode filters (continued)

| For drives   | Maximum length of unshielded cable |                     |                        |                         |
|--|------------------------------------|---------------------|------------------------|-------------------------|
|  | 150 m/<br>492.12 ft                | 300 m/<br>984.25 ft | 500 m/<br>1,640.42 ft  | 1,000 m/<br>3,280.83 ft |
| ATV930U07N4...U40N4<br>ATV950U07N4...U40N4<br>ATV950U07N4E...U40N4E                          | VW3A5501                           | VW3A5502            | 2 x VW3A5501           | VW3A5501 +<br>VW3A5502  |
| ATV930U55N4<br>ATV950U55N4<br>ATV950U55N4E   | VW3A5501                           | VW3A5502            | VW3A5501 +<br>VW3A5502 | VW3A5501 +<br>VW3A5502  |
| ATV930U75N4...D11N4<br>ATV950U75N4...D11N4<br>ATV950U75N4E...D11N4E                          | VW3A5501                           | VW3A5502            | VW3A5501 +<br>VW3A5502 | 2 x VW3A5502            |
| ATV930D15N4...D22N4<br>ATV950D15N4...D22N4<br>ATV950D15N4E...D22N4E                          | VW3A5503                           | VW3A5504            | 2 x VW3A5503           | VW3A5503 +<br>VW3A5504  |
| ATV930D30N4...D90N4<br>ATV930D55N4C...D90N4C<br>ATV950D30N4...D90N4<br>ATV950D30N4E...D90N4E | VW3A5503                           | VW3A5504            | VW3A5503 +<br>VW3A5504 | 2 x VW3A5504            |
| ATV930C11N4C...C16N4C  | VW3A5505                           | VW3A5506            | 2 x VW3A5505           | 2 x VW3A5506            |

| For drives   | Maximum length of shielded cable |                        |                       |
|--|----------------------------------|------------------------|-----------------------|
|  | 150 m/<br>492.12 ft              | 300 m/<br>984.25 ft    | 500 m/<br>1,640.42 ft |
| ATV930U07N4...U40N4<br>ATV950U07N4...U40N4<br>ATV950U07N4E...U40N4E                          | VW3A5501                         | VW3A5502               | 2 x VW3A5501          |
| ATV930U55N4<br>ATV950U55N4<br>ATV950U55N4E   | VW3A5502                         | 2 x VW3A5501           | 2 x VW3A5502          |
| ATV930U75N4...D11N4<br>ATV950U75N4...D11N4<br>ATV950U75N4E...D11N4E                          | VW3A5502                         | 2 x VW3A5501           | 2 x VW3A5502          |
| ATV930D15N4...D22N4<br>ATV950D15N4...D22N4<br>ATV950D15N4E...D22N4E                          | VW3A5503                         | 2 x VW3A5503           | VW3A5503 + VW3A5504   |
| ATV930D30N4...D90N4<br>ATV930D55N4C...D90N4C<br>ATV950D30N4...D90N4<br>ATV950D30N4E...D90N4E | VW3A5504                         | VW3A5503 +<br>VW3A5504 | 2 x VW3A5504          |
| ATV930C11N4C   | VW3A5505                         | VW3A5506               | VW3A5505 + VW3A5506   |
| ATV930C13N4C...C16N4C  | VW3A5506                         | 2 x VW3A5505           | 2 x VW3A5506          |

**Applications**

Circuit breaker/contactor/drive combinations help to ensure continuity of service in the installation.

The type of circuit breaker/contactor coordination selected can reduce maintenance costs in the event of a short-circuit on the drive input by minimizing the time required to make the necessary repairs and the cost of replacement equipment. The suggested combinations provide coordination according to the drive rating.

The drive controls the motor, provides a monitoring function against short-circuits between the drive and the motor, and helps protect the motor cable against overloads. Overload monitoring is provided by the drive's motor thermal monitoring function if this has been enabled. Otherwise, an external monitoring device such as a probe or thermal overload relay should be provided.

The circuit breaker helps protect the drive's power cables against short-circuits.

**IEC standard motor starters**

| Motor   | Drive     | Circuit breaker |                          |                 | Line contactor    |           |
|---|-----------|-----------------|--------------------------|-----------------|-------------------|-----------|
| Power (1)   | Reference | Reference (2)   | Rating                   | I <sub>rm</sub> | Reference (3) (4) |           |
| kW  | HP        |                 | A                        | A               |                   |           |
| <b>Three-phase supply voltage: 200...240 V 50/60 Hz</b> |           |                 |                          |                 |                   |           |
| 0.75  | 1         | ATV930U07M3     | GV2L08                   | 4               | 51                | LC1D09●●  |
| 1.5   | 2         | ATV930U15M3     | GV2L10                   | 6.3             | 78                | LC1D09●●  |
| 2.2   | 3         | ATV930U22M3     | GV2L14                   | 10              | 138               | LC1D09●●  |
| 3   | –         | ATV930U30M3     | GV2L16                   | 14              | 170               | LC1D18●●  |
| 4   | 5         | ATV930U40M3     | GV2L20                   | 18              | 223               | LC1D18●●  |
| 5.5   | 7.5       | ATV930U55M3     | GV2L22                   | 25              | 327               | LC1D25●●  |
| 7.5   | 10        | ATV930U75M3     | GV2L32                   | 32              | 448               | LC1D40A●● |
| 11  | 15        | ATV930D11M3     | GV3L40                   | 40              | 560               | LC1D40A●● |
| 15  | 20        | ATV930D15M3     | GV3L65                   | 65              | 910               | LC1D65A●● |
| 18.5  | 25        | ATV930D18M3     | NS80HMA                  | 80              | 1000              | LC1D65A●● |
| 22  | 30        | ATV930D22M3     | NS80HMA                  | 80              | 1000              | LC1D80●●  |
| 30  | 40        | ATV930D30M3     | NSX100●MA100             | 100             | 1300              | LC1D95●●  |
| 30  | 40        | ATV930D30M3C    | NSX100●MA100             | 100             | 1300              | LC1D95●●  |
| 37  | 50        | ATV930D37M3     | NSX160●MA150             | 150             | 1500              | LC1D115●● |
| 37  | 50        | ATV930D37M3C    | NSX160●MA150             | 150             | 1500              | LC1D115●● |
| 45  | 60        | ATV930D45M3     | NSX160●MA150             | 150             | 1500              | LC1D150●● |
| 45  | 60        | ATV930D45M3C    | NSX160●MA150             | 150             | 1500              | LC1D150●● |
| 55  | 75        | ATV930D55M3C    | NSX250●MA220             | 220             | 2420              | LC1F185●● |
| 75  | 100       | ATV930D75M3C    | NSX400● Micrologic 1.3-M | 320             | 3500              | LC1F265●● |

(1) Standard power ratings for 230 V 50/60 Hz 4-pole motors.

The values expressed in HP conform to the NEC (National Electrical Code).

(2) For references to be completed, replace the dot with the letter corresponding to the breaking performance of the circuit breaker (F, N, H, S or L).

Breaking capacity of circuit breakers according to standard IEC 60947-2:

| Circuit breaker          | I <sub>cu</sub> (kA) for 200...240 V | I <sub>cu</sub> (kA) for 200...240 V |    |     |     |     |     |
|--------------------------|--------------------------------------|--------------------------------------|----|-----|-----|-----|-----|
|                          |                                      | F                                    | N  | H   | S   | F   | L   |
| GV2L08...L20             | >100                                 | –                                    | –  | –   | –   | –   | –   |
| GV2L22...L32             | 50                                   | –                                    | –  | –   | –   | –   | –   |
| GV3L40...L65             | 100                                  | –                                    | –  | –   | –   | –   | –   |
| NS80HMA                  | 100                                  | –                                    | –  | –   | –   | –   | –   |
| NSX100●MA100             | –                                    | 85                                   | 90 | 100 | 120 | 150 | 150 |
| NSX160●MA150             | –                                    | 85                                   | 90 | 100 | 120 | 150 | 150 |
| NSX250●MA220             | –                                    | 85                                   | 90 | 100 | 120 | 150 | 150 |
| NSX400● Micrologic 1.3-M | –                                    | 40                                   | 85 | 100 | 120 | 150 | 150 |

(3) Composition of contactors:

LC1D09...D150: 3 poles + 1 NO auxiliary contact + 1 NC auxiliary contact

LC1F185...F265: 3 poles

To add auxiliary contacts or other accessories, please refer to the "Motor-starter solutions - Control and protection components" catalog.

(4) Replace ●● with the control circuit voltage code indicated in the table below:

|               | Volts ~                | 24 | 48 | 110 | 220 | 230 | 240 |
|---------------|------------------------|----|----|-----|-----|-----|-----|
| LC1D09...D150 | 50 Hz                  | B5 | E5 | F5  | M5  | P5  | U5  |
|               | 60 Hz                  | B6 | E6 | F6  | M6  | –   | U6  |
|               | 50/60 Hz               | B7 | E7 | F7  | M7  | P7  | U7  |
| LC1F185       | 50 Hz (LX1 coil)       | B5 | E5 | F5  | M5  | P5  | U5  |
|               | 60 Hz (LX1 coil)       | –  | E6 | F6  | M6  | –   | U6  |
|               | 40...400 Hz (LX9 coil) | –  | E7 | F7  | M7  | P7  | U7  |
| LC1F265       | 40...400 Hz (LX1 coil) | B7 | E7 | F7  | M7  | P7  | U7  |

For other voltages available between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Center.



GV3L40

+



LC1D40A●●

+



ATV930D11M3

# Variable speed drives

## Altivar Process ATV900

### Motor starters

### Supply voltage 380...415 V



NSX100FMA100

+



LC1D80●●

+



ATV930D45N4

### IEC standard motor starters

| Motor<br>Power (1)<br>kW                                | Drive<br>Reference<br>HP | Circuit breaker |                          |                      | Line contactor    |           |
|---|--------------------------|-----------------|--------------------------|----------------------|-------------------|-----------|
|   |                          | Reference (2)   | Rating<br>A              | I <sub>rm</sub><br>A | Reference (3) (4) |           |
| <b>Three-phase supply voltage: 380...415 V 50/60 Hz</b> |                          |                 |                          |                      |                   |           |
| 0.75  | 1                        | ATV930U07N4     | GV2L07                   | 2.5                  | 33.5              | LC1D09●●  |
| 1.5   | 2                        | ATV930U15N4     | GV2L08                   | 4                    | 51                | LC1D09●●  |
| 2.2   | 3                        | ATV930U22N4     | GV2L10                   | 6.3                  | 78                | LC1D09●●  |
| 3   | –                        | ATV930U30N4     | GV2L14                   | 10                   | 138               | LC1D09●●  |
| 4   | 5                        | ATV930U40N4     | GV2L14                   | 10                   | 138               | LC1D09●●  |
| 5.5   | 7.5                      | ATV930U55N4     | GV2L16                   | 14                   | 170               | LC1D18●●  |
| 7.5   | 10                       | ATV930U75N4     | GV2L20                   | 18                   | 223               | LC1D18●●  |
| 11  | 15                       | ATV930D11N4     | GV2L22                   | 25                   | 327               | LC1D25●●  |
| 15  | 20                       | ATV930D15N4     | GV3L32                   | 32                   | 448               | LC1D25●●  |
| 18.5  | 25                       | ATV930D18N4     | GV3L40                   | 40                   | 560               | LC1D40A●● |
| 22  | 30                       | ATV930D22N4     | GV3L50                   | 50                   | 700               | LC1D50A●● |
| 30  | 40                       | ATV930D30N4     | GV3L65                   | 65                   | 910               | LC1D50A●● |
| 37  | 50                       | ATV930D37N4     | NS80HMA                  | 80                   | 1000              | LC1D65A●● |
| 45  | 60                       | ATV930D45N4     | NSX100●MA100             | 100                  | 1300              | LC1D80●●  |
| 55  | 75                       | ATV930D55N4     | NSX160●MA150             | 150                  | 1500              | LC1D115●● |
| 55  | 75                       | ATV930D55N4C    | NSX160●MA150             | 150                  | 1500              | LC1D115●● |
| 75  | 100                      | ATV930D75N4     | NSX160●MA150             | 150                  | 1500              | LC1D115●● |
| 75  | 100                      | ATV930D75N4C    | NSX160●MA150             | 150                  | 1500              | LC1D115●● |
| 90  | 125                      | ATV930D90N4     | NSX250●MA220             | 220                  | 2420              | LC1F185●● |
| 90  | 125                      | ATV930D90N4C    | NSX250●MA220             | 220                  | 2420              | LC1F185●● |
| 110   | 150                      | ATV930C11N4C    | NSX250●MA220             | 220                  | 2860              | LC1F185●● |
| 132   | 200                      | ATV930C13N4C    | NSX400● Micrologic 1.3-M | 320                  | 3500              | LC1F265●● |
| 160   | 250                      | ATV930C16N4C    | NSX400● Micrologic 1.3-M | 320                  | 4000              | LC1F265●● |
| 220   | 350                      | ATV930C22N4     | NSX630● Micrologic 1.3-M | 500                  | 3000              | LC1F400●● |
| 220   | 350                      | ATV930C22N4C    | NSX630● Micrologic 1.3-M | 500                  | 3000              | LC1F400●● |
| 250   | 400                      | ATV930C25N4C    | NSX630● Micrologic 1.3-M | 500                  | 3000              | LC1F500●● |
| 315   | 500                      | ATV930C31N4C    | NS800L Micrologic 2 or 5 | 800                  | 1600              | LC1F630●● |

(1) Standard power ratings for 400 V 50/60 Hz 4-pole motors.

The values expressed in HP conform to the NEC (National Electrical Code).

(2) For references to be completed, replace the dot with the letter corresponding to the breaking performance of the circuit breaker (F, N, H, S or L). Breaking capacity of circuit breakers according to standard IEC 60947-2:

| Circuit breaker          | I <sub>cu</sub> (kA) for 380...415 V | Icu (kA) for 380...415 V |    |    |     |     |
|--------------------------|--------------------------------------|--------------------------|----|----|-----|-----|
|                          |                                      | F                        | N  | H  | S   | L   |
| GV2L07...L14             | 100                                  | –                        | –  | –  | –   | –   |
| GV2L16...L22             | 50                                   | –                        | –  | –  | –   | –   |
| GV3L32...L65             | 50                                   | –                        | –  | –  | –   | –   |
| NS80HMA                  | 70                                   | –                        | –  | –  | –   | –   |
| NSX100●MA100             | –                                    | 36                       | 50 | 70 | 100 | 150 |
| NSX160●MA150             | –                                    | 36                       | 50 | 70 | 100 | 150 |
| NSX250●MA220             | –                                    | 36                       | 50 | 70 | 100 | 150 |
| NSX400●, NSX630●         | –                                    | 36                       | 50 | 70 | 100 | 150 |
| NS800L Micrologic 2 or 5 | –                                    | –                        | –  | –  | –   | 150 |

(3) Composition of contactors:

LC1D09...D115: 3 poles + 1 NO auxiliary contact + 1 NC auxiliary contact

LC1F185...F265: 3 poles

To add auxiliary contacts or other accessories, please refer to the "Motor-starter solutions - Control and protection components" catalog.

(4) Replace ●● with the control circuit voltage code indicated in the table below:

|                | Volts ~                | Control circuit voltage code |    |     |     |     |     |
|----------------|------------------------|------------------------------|----|-----|-----|-----|-----|
|                |                        | 24                           | 48 | 110 | 220 | 230 | 240 |
| LC1D09...D115  | 50 Hz                  | B5                           | E5 | F5  | M5  | P5  | U5  |
|                | 60 Hz                  | B6                           | E6 | F6  | M6  | –   | U6  |
|                | 50/60 Hz               | B7                           | E7 | F7  | M7  | P7  | U7  |
| LC1F185        | 50 Hz (LX1 coil)       | B5                           | E5 | F5  | M5  | P5  | U5  |
|                | 60 Hz (LX1 coil)       | –                            | E6 | F6  | M6  | –   | U6  |
|                | 40...400 Hz (LX9 coil) | –                            | E7 | F7  | M7  | P7  | U7  |
| LC1F265        | 40...400 Hz (LX1 coil) | B7                           | E7 | F7  | M7  | P7  | U7  |
| LC1F400...F800 | 40...400 Hz (LX1 coil) | –                            | E7 | F7  | M7  | P7  | U7  |

For other voltages available between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Center.

# Combinations for customer assembly (continued) Variable speed drives

## Altivar Process ATV900 Motor starters Supply voltage 380...415 V



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| IEC standard motor starters                             |           |                 |              |                 |                       |           |
|---|-----------|-----------------|--------------|-----------------|-----------------------|-----------|
| Motor   | Drive     | Circuit breaker |              |                 | Line contactor        |           |
| Power (1)   | Reference | Reference (2)   | Rating       | I <sub>rm</sub> | Reference (3) (4) (5) |           |
| kW  | HP        |                 | A            | A               |                       |           |
| <b>Three-phase supply voltage: 380...415 V 50/60 Hz</b> |           |                 |              |                 |                       |           |
| 0.75  | 1         | ATV950U07N4/N4E | GV2L07       | 2.5             | 33.5                  | LC1D09●●  |
| 1.5   | 2         | ATV950U15N4/N4E | GV2L08       | 4               | 51                    | LC1D09●●  |
| 2.2   | 3         | ATV950U22N4/N4E | GV2L10       | 6.3             | 78                    | LC1D09●●  |
| 3   | –         | ATV950U30N4/N4E | GV2L14       | 10              | 138                   | LC1D09●●  |
| 4   | 5         | ATV950U40N4/N4E | GV2L14       | 10              | 138                   | LC1D09●●  |
| 5.5   | 7.5       | ATV950U55N4/N4E | GV2L16       | 14              | 170                   | LC1D18●●  |
| 7.5   | 10        | ATV950U75N4/N4E | GV2L20       | 18              | 223                   | LC1D18●●  |
| 11  | 15        | ATV950D11N4/N4E | GV2L22       | 25              | 327                   | LC1D25●●  |
| 15  | 20        | ATV950D15N4/N4E | GV3L32       | 32              | 448                   | LC1D25●●  |
| 18.5  | 25        | ATV950D18N4/N4E | GV3L40       | 40              | 560                   | LC1D40A●● |
| 22  | 30        | ATV950D22N4/N4E | GV3L50       | 50              | 700                   | LC1D50A●● |
| 30  | 40        | ATV950D30N4/N4E | GV3L65       | 65              | 910                   | LC1D50A●● |
| 37  | 50        | ATV950D37N4/N4E | NS80HMA      | 80              | 1000                  | LC1D65A●● |
| 45  | 60        | ATV950D45N4/N4E | NSX100●MA100 | 100             | 1300                  | LC1D80●●  |
| 55  | 75        | ATV950D55N4/N4E | NSX160●MA150 | 150             | 1500                  | LC1D115●● |
| 75  | 100       | ATV950D75N4/N4E | NSX160●MA150 | 150             | 1500                  | LC1D115●● |
| 90  | 125       | ATV950D90N4/N4E | NSX250●MA220 | 220             | 2420                  | LC1F185●● |

(1) Standard power ratings for 400 V 50/60 Hz 4-pole motors.  
 The values expressed in HP conform to the NEC (National Electrical Code).  
 (2) For references to be completed, replace the dot with the letter corresponding to the breaking performance of the circuit breaker (F, N, H, S or L).  
 Breaking capacity of circuit breakers according to standard IEC 60947-2:

| Circuit breaker | I <sub>cu</sub> (kA) for 380...415 V |    |    |    |     |  |
|-----------------|--------------------------------------|----|----|----|-----|--|
|                 | F                                    | N  | H  | S  | L   |  |
| GV2L07...L14    | 100                                  | –  | –  | –  | –   |  |
| GV2L16...L22    | 50                                   | –  | –  | –  | –   |  |
| GV3L32...L65    | 50                                   | –  | –  | –  | –   |  |
| NS80HMA         | 70                                   | –  | –  | –  | –   |  |
| NSX100●MA100    | –                                    | 36 | 50 | 70 | 150 |  |
| NSX160●MA150    | –                                    | 36 | 50 | 70 | 150 |  |
| NSX250●MA220    | –                                    | 36 | 50 | 70 | 150 |  |

(3) Composition of contactors:  
 LC1D09...D115: 3 poles + 1 NO auxiliary contact + 1 NC auxiliary contact  
 LC1F185: 3 poles  
 To add auxiliary contacts or other accessories, please refer to the "Motor-starter solutions - Control and protection components" catalog.

(4) Replace ●● with the control circuit voltage code indicated in the table below:

|         | Volts ~                | 24            | 48    | 110 | 220 | 230 | 240 |
|---------|------------------------|---------------|-------|-----|-----|-----|-----|
|         |                        | LC1D09...D115 | 50 Hz | B5  | E5  | F5  | M5  |
|         | 60 Hz                  | B6            | E6    | F6  | M6  | –   | U6  |
|         | 50/60 Hz               | B7            | E7    | F7  | M7  | P7  | U7  |
| LC1F185 | 50 Hz (LX1 coil)       | B5            | E5    | F5  | M5  | P5  | U5  |
|         | 60 Hz (LX1 coil)       | –             | E6    | F6  | M6  | –   | U6  |
|         | 40...400 Hz (LX9 coil) | –             | E7    | F7  | M7  | P7  | U7  |

For other voltages available between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Center.  
 (5) When used with ATV950U07N4/N4E...D90N4/N4E drives, the motor starters must be installed in a separate enclosure to maintain IP 55 protection for the installation.

# Combinations for customer assembly (continued)

## Variable speed drives Altivar Process ATV900 Motor starters Supply voltage 440 V



GV2L08

+



LC1D09●●

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ATV930U15N4

### IEC standard motor starters

| Motor Power (1)                                   | Drive Reference | Circuit breaker Reference (2) | Rating                   | I <sub>rm</sub> | Line contactor Reference (3) (4) |           |
|---|-----------------|-------------------------------|--------------------------|-----------------|----------------------------------|-----------|
| kW  | HP              |                               | A                        | A               |                                  |           |
| <b>Three-phase supply voltage: 440 V 50/60 Hz</b> |                 |                               |                          |                 |                                  |           |
| 0.75  | 1               | ATV930U07N4                   | GV2L07                   | 2.5             | 33.5                             | LC1D09●●  |
| 1.5   | 2               | ATV930U15N4                   | GV2L08                   | 4               | 51                               | LC1D09●●  |
| 2.2   | 3               | ATV930U22N4                   | GV2L10                   | 6.3             | 78                               | LC1D09●●  |
| 3   | –               | ATV930U30N4                   | GV2L10                   | 6.3             | 78                               | LC1D09●●  |
| 4   | 5               | ATV930U40N4                   | GV2L14                   | 10              | 138                              | LC1D09●●  |
| 5.5   | 7.5             | ATV930U55N4                   | GV2L16                   | 14              | 170                              | LC1D18●●  |
| 7.5   | 10              | ATV930U75N4                   | GV2L16                   | 14              | 170                              | LC1D18●●  |
| 11  | 15              | ATV930D11N4                   | GV2L22                   | 25              | 327                              | LC1D25●●  |
| 15  | 20              | ATV930D15N4                   | GV3L32                   | 32              | 448                              | LC1D25●●  |
| 18.5  | 25              | ATV930D18N4                   | GV3L40                   | 40              | 560                              | LC1D40A●● |
| 22  | 30              | ATV930D22N4                   | GV3L50                   | 50              | 700                              | LC1D50A●● |
| 30  | 40              | ATV930D30N4                   | GV3L65                   | 65              | 910                              | LC1D50A●● |
| 37  | 50              | ATV930D37N4                   | GV3L65                   | 65              | 910                              | LC1D65A●● |
| 45  | 60              | ATV930D45N4                   | NS80HMA                  | 80              | 1000                             | LC1D80●●  |
| 55  | 75              | ATV930D55N4C                  | NSX100●MA100             | 100             | 1040                             | LC1D95●●  |
| 75  | 100             | ATV930D75N4C                  | NSX160●MA150             | 150             | 1500                             | LC1D115●● |
| 90  | 125             | ATV930D90N4C                  | NSX250●MA220             | 150             | 1500                             | LC1D115●● |
| 110   | 150             | ATV930C11N4C                  | NSX250●MA220             | 220             | 2420                             | LC1F185●● |
| 132   | 200             | ATV930C13N4C                  | NSX250●MA220             | 220             | 2420                             | LC1F185●● |
| 160   | 250             | ATV930C16N4C                  | NSX400● Micrologic 1.3-M | 320             | 3500                             | LC1F265●● |
| 220   | 350             | ATV930C22N4                   | NSX630● Micrologic 1.3-M | 500             | 3000                             | LC1F400●● |
| 220   | 350             | ATV930C22N4C                  | NSX630● Micrologic 1.3-M | 500             | 3000                             | LC1F400●● |
| 250   | 400             | ATV930C25N4C                  | NSX630● Micrologic 1.3-M | 500             | 3000                             | LC1F500●● |
| 315   | 500             | ATV930C31N4C                  | NS800L Micrologic 2 or 5 | 800             | 1600                             | LC1F630●● |

(1) Standard power ratings for 400 V 50/60 Hz 4-pole motors.

The values expressed in HP conform to the NEC (National Electrical Code).

(2) For references to be completed, replace the dot with the letter corresponding to the breaking performance of the circuit breaker (F, N, H, S or L).

Breaking capacity of circuit breakers according to standard IEC 60947-2:

| Circuit breaker          | I <sub>cu</sub> (kA) for 440 V |    |    |    |    |     |
|--------------------------|--------------------------------|----|----|----|----|-----|
|                          | F                              | N  | H  | S  | L  |     |
| GV2L07...L10             | >100                           | –  | –  | –  | –  |     |
| GV2L14...L22             | 50                             | –  | –  | –  | –  |     |
| GV3L32...L65             | 50                             | –  | –  | –  | –  |     |
| NS80HMA                  | 65                             | –  | –  | –  | –  |     |
| NSX100●MA100             | –                              | 35 | 50 | 65 | 90 | 130 |
| NSX160●MA150             | –                              | 35 | 50 | 65 | 90 | 130 |
| NSX250●MA220             | –                              | 35 | 50 | 65 | 90 | 130 |
| NSX400● Micrologic 1.3-M | –                              | 30 | 42 | 65 | 90 | 130 |
| NSX630●                  | –                              | 30 | 42 | 65 | 90 | 130 |
| NS800L Micrologic 2 or 5 | –                              | –  | –  | –  | –  | 130 |

(3) Composition of contactors:

LC1D09...D115: 3 poles + 1 NO auxiliary contact + 1 NC auxiliary contact

To add auxiliary contacts or other accessories, please refer to the "Motor-starter solutions - Control and protection components" catalog.

(4) Replace ●● with the control circuit voltage code indicated in the table below:

|               | Volts ~                | 24 | 48 | 110 | 220 | 230 | 240 |
|---------------|------------------------|----|----|-----|-----|-----|-----|
| LC1D09...D115 | 50 Hz                  | B5 | E5 | F5  | M5  | P5  | U5  |
|               | 60 Hz                  | B6 | E6 | F6  | M6  | –   | U6  |
|               | 50/60 Hz               | B7 | E7 | F7  | M7  | P7  | U7  |
| LC1F185       | 50 Hz (LX1 coil)       | B5 | E5 | F5  | M5  | P5  | U5  |
|               | 60 Hz (LX1 coil)       | –  | E6 | F6  | M6  | –   | U6  |
|               | 40...400 Hz (LX9 coil) | –  | E7 | F7  | M7  | P7  | U7  |
| LC1F265       | 40...400 Hz (LX1 coil) | B7 | E7 | F7  | M7  | P7  | U7  |
| LC1F400...800 | 40...400 Hz (LX1 coil) | –  | E7 | F7  | M7  | P7  | U7  |

For other voltages available between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Center.

# Combinations for customer assembly (continued) Variable speed drives

## Altivar Process ATV900

### Motor starters

### Supply voltage 440 V



+



+



### IEC standard motor starters

| Motor   | Drive     | Circuit breaker |              |                 | Line contactor        |           |
|---|-----------|-----------------|--------------|-----------------|-----------------------|-----------|
| Power (1)   | Reference | Reference (2)   | Rating       | I <sub>rm</sub> | Reference (3) (4) (5) |           |
| kW  | HP        |                 | A            | A               |                       |           |
| <b>Three-phase supply voltage: 440 V 50/60 Hz</b> |           |                 |              |                 |                       |           |
| 0.75  | 1         | ATV950U07N4/N4E | GV2L07       | 2.5             | 33.5                  | LC1D09●●  |
| 1.5   | 2         | ATV950U15N4/N4E | GV2L08       | 4               | 51                    | LC1D09●●  |
| 2.2   | 3         | ATV950U22N4/N4E | GV2L10       | 6.3             | 78                    | LC1D09●●  |
| 3   | –         | ATV950U30N4/N4E | GV2L10       | 6.3             | 78                    | LC1D09●●  |
| 4   | 5         | ATV950U40N4/N4E | GV2L14       | 10              | 138                   | LC1D09●●  |
| 5.5   | 7.5       | ATV950U55N4/N4E | GV2L16       | 14              | 170                   | LC1D18●●  |
| 7.5   | 10        | ATV950U75N4/N4E | GV2L16       | 14              | 170                   | LC1D18●●  |
| 11  | 15        | ATV950D11N4/N4E | GV2L22       | 25              | 327                   | LC1D25●●  |
| 15  | 20        | ATV950D15N4/N4E | GV3L32       | 32              | 448                   | LC1D25●●  |
| 18.5  | 25        | ATV950D18N4/N4E | GV3L40       | 40              | 560                   | LC1D40A●● |
| 22  | 30        | ATV950D22N4/N4E | GV3L50       | 50              | 700                   | LC1D50A●● |
| 30  | 40        | ATV950D30N4/N4E | GV3L65       | 65              | 910                   | LC1D50A●● |
| 37  | 50        | ATV950D37N4/N4E | GV3L65       | 65              | 910                   | LC1D65A●● |
| 45  | 60        | ATV950D45N4/N4E | NS80HMA      | 80              | 1000                  | LC1D80●●  |
| 55  | 75        | ATV950D55N4/N4E | NSX100●MA100 | 100             | 1040                  | LC1D95●●  |
| 75  | 100       | ATV950D75N4/N4E | NSX160●MA150 | 150             | 1500                  | LC1D115●● |
| 90  | 125       | ATV950D90N4/N4E | NSX250●MA220 | 150             | 1500                  | LC1D115●● |

(1) Standard power ratings for 400 V 50/60 Hz 4-pole motors.

The values expressed in HP conform to the NEC (National Electrical Code).

(2) For references to be completed, replace the dot with the letter corresponding to the breaking performance of the circuit breaker (F, N, H, S or L).

Breaking capacity of circuit breakers according to standard IEC 60947-2:

| Circuit breaker | I <sub>cu</sub> (kA) for 440 V |    |    |    |    |     |
|-----------------|--------------------------------|----|----|----|----|-----|
|                 | F                              | N  | H  | S  | L  |     |
| GV2L07...L10    | >100                           | –  | –  | –  | –  |     |
| GV2L14...L22    | 50                             | –  | –  | –  | –  |     |
| GV3L32...L65    | 50                             | –  | –  | –  | –  |     |
| NS80HMA         | 65                             | –  | –  | –  | –  |     |
| NSX100●MA100    | –                              | 35 | 50 | 65 | 90 | 130 |
| NSX160●MA150    | –                              | 35 | 50 | 65 | 90 | 130 |
| NSX250●MA220    | –                              | 35 | 50 | 65 | 90 | 130 |

(3) Composition of contactors:

LC1D09...D115: 3 poles + 1 NO auxiliary contact + 1 NC auxiliary contact

To add auxiliary contacts or other accessories, please refer to the "Motor-starter solutions - Control and protection components" catalog.

(4) Replace ●● with the control circuit voltage code indicated in the table below:

|               | Volts ~  | 24 | 48 | 110 | 220 | 230 | 240 |
|---------------|----------|----|----|-----|-----|-----|-----|
| LC1D09...D115 | 50 Hz    | B5 | E5 | F5  | M5  | P5  | U5  |
|               | 60 Hz    | B6 | E6 | F6  | M6  | –   | U6  |
|               | 50/60 Hz | B7 | E7 | F7  | M7  | P7  | U7  |

For other voltages available between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Center.

(5) When used with ATV950U07N4/N4E...D90N4/N4E drives, the motor starters must be installed in a separate enclosure to maintain IP 55 protection for the installation.



# Combinations for customer assembly (continued)

## Variable speed drives Altivar Process ATV900 Motor starters Supply voltage 500...690 V



GV2L10

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LC1D09●●

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ATV930U22Y6

### IEC standard motor starters

| Motor Power                                       |     | Drive Reference | Circuit breaker Reference (1) | Rating A | I <sub>rm</sub> A | Line contactor Reference |
|---|-----|-----------------|-------------------------------|----------|-------------------|--------------------------|
| kW  | HP  |                 |                               |          |                   |                          |
| <b>Three-phase supply voltage: 500 V 50/60 Hz</b> |     |                 |                               |          |                   |                          |
| 1.5   | 2   | ATV930U22Y6     | GV2L10                        | 6.3      | 78                | LC1D09●●                 |
| 2.2   | 3   | ATV930U30Y6     | GV2L10                        | 6.3      | 78                | LC1D09●●                 |
| 3   | –   | ATV930U40Y6     | GV2L14                        | 10       | 138               | LC1D18●●                 |
| 4   | 5   | ATV930U55Y6     | GV2L14                        | 10       | 138               | LC1D18●●                 |
| 5.5   | 7.5 | ATV930U75Y6     | GV2L16                        | 14       | 170               | LC1D25●●                 |
| 7.5   | 10  | ATV930D11Y6     | GV2L20                        | 18       | 223               | LC1D25●●                 |
| 11  | 15  | ATV930D15Y6     | GV2L22                        | 25       | 327               | LC1D40A●●                |
| 15  | 20  | ATV930D18Y6     | GV3L25                        | 25       | 350               | LC1D40A●●                |
| 18.5  | 25  | ATV930D22Y6     | GV3L32                        | 32       | 448               | LC1D40A●●                |
| 22  | 30  | ATV930D30Y6     | GV3L40                        | 40       | 560               | LC1D40A●●                |
| 30  | 40  | ATV930D37Y6     | GV3L50                        | 50       | 700               | LC1D50A●●                |
| 37  | 50  | ATV930D45Y6     | GV3L65                        | 65       | 910               | LC1D65A●●                |
| 45  | 60  | ATV930D55Y6     | NSX100●MA100                  | 100      | 1,100             | LC1D80●●                 |
| 55  | 75  | ATV930D75Y6     | NSX100●MA100                  | 100      | 1,100             | LC1D80●●                 |
| 75  | 100 | ATV930D90Y6     | NSX160●MA150                  | 150      | 1,500             | LC1D150●●                |
| <b>Three-phase supply voltage: 690 V 50/60 Hz</b> |     |                 |                               |          |                   |                          |
| 2.2   | 3   | ATV930U22Y6     | GV2L08                        | 6.3      | 78                | LC1D09●●                 |
| 3   | –   | ATV930U30Y6     | GV2L10                        | 10       | 138               | LC1D09●●                 |
| 4   | 5   | ATV930U40Y6     | GV2L14                        | 10       | 138               | LC1D18●●                 |
| 5.5   | 7.5 | ATV930U55Y6     | GV2L14                        | 14       | 170               | LC1D18●●                 |
| 7.5   | 10  | ATV930U75Y6     | GV2L16                        | 18       | 223               | LC1D18●●                 |
| 11  | 15  | ATV930D11Y6     | GV2L20                        | 25       | 327               | LC1D18●●                 |
| 15  | 20  | ATV930D15Y6     | GV2L22                        | 25       | 327               | LC1D25●●                 |
| 18.5  | 25  | ATV930D18Y6     | GV3L25                        | 32       | 416               | LC1D40A●●                |
| 22  | 30  | ATV930D22Y6     | GV3L32                        | 40       | 560               | LC1D40A●●                |
| 30  | 40  | ATV930D30Y6     | GV3L40                        | 50       | 700               | LC1D40A●●                |
| 37  | 50  | ATV930D37Y6     | GV3L50                        | 65       | 910               | LC1D50A●●                |
| 45  | 60  | ATV930D45Y6     | GV3L65                        | 100      | 1,100             | LC1D65A●●                |
| 55  | 75  | ATV930D55Y6     | NSX100●MA100                  | 100      | 1,100             | LC1D80●●                 |
| 75  | 100 | ATV930D75Y6     | NSX100●MA100                  | 150      | 1,500             | LC1D80●●                 |
| 90  | 125 | ATV930D90Y6     | NSX250●MA150                  | 150      | 1,500             | LC1D150●●                |

(1) For references to be completed, replace ● with the letter corresponding to the breaking performance of the circuit breaker (H, HB1 or HB2).

| Circuit breaker | Supply voltage (V) | I <sub>cu</sub> (kA) for 440 V | Breaking performance |     |     |
|-----------------|--------------------|--------------------------------|----------------------|-----|-----|
|                 |                    |                                | H                    | HB1 | HB2 |
| GV2L07...L10    | 500                | >100                           | –                    | –   | –   |
|                 | 690                | 4                              | –                    | –   | –   |
| GV2L14...L22    | 500                | 10                             | –                    | –   | –   |
|                 | 690                | 4                              | –                    | –   | –   |
| GV2L25...L32    | 500                | 12                             | –                    | –   | –   |
|                 | 690                | 4                              | –                    | –   | –   |
| GV3L40...L66    | 500                | 12                             | –                    | –   | –   |
|                 | 690                | 5                              | –                    | –   | –   |
| NSX100●MA100    | 500                | –                              | 50                   | 85  | 100 |
|                 | 690                | –                              | –                    | 75  | 100 |
| NSX160●MA150    | 500                | –                              | 50                   | –   | –   |
|                 | 690                | –                              | –                    | –   | –   |
| NSX250●MA220    | 500                | –                              | 35                   | 85  | 100 |
|                 | 690                | –                              | –                    | 75  | 100 |

# Variable speed drives

## Altivar Process ATV900

IP 21 drives: 200...240 V and 380...480 V



### 200...240 V IP 21/UL Type 1 drives

#### Overall dimensions

| Drives      | W x H x D         |                       |
|-------------|-------------------|-----------------------|
|             | mm                | in.                   |
| ATV930U07M3 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U15M3 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U22M3 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U30M3 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U40M3 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U55M3 | 171 x 409 x 236   | 6.73 x 16.10 x 9.29   |
| ATV930U75M3 | 211 x 545.9 x 235 | 8.31 x 21.49 x 9.25   |
| ATV930D11M3 | 211 x 545.9 x 235 | 8.31 x 21.49 x 9.25   |
| ATV930D15M3 | 226 x 673 x 274   | 8.90 x 26.50 x 10.79  |
| ATV930D18M3 | 226 x 673 x 274   | 8.90 x 26.50 x 10.79  |
| ATV930D22M3 | 226 x 673 x 274   | 8.90 x 26.50 x 10.79  |
| ATV930D30M3 | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D37M3 | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D45M3 | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |

### 200...240 V IP 21/UL Type 1 drives without braking unit

#### Overall dimensions

| Drives                                  | W x H x D         |                       |
|---|-------------------|-----------------------|
|   | mm                | in.                   |
| ATV930D30M3C                            | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D37M3C                            | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D45M3C                            | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D55M3C                            | 320 x 852 x 393   | 12.60 x 33.54 x 15.47 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1,157 x 393 | 12.60 x 45.55 x 15.47 |
| ATV930D75M3C                            | 320 x 852 x 393   | 12.60 x 33.54 x 15.47 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1,157 x 393 | 12.60 x 45.55 x 15.47 |

### 380...480 V IP 21/UL Type 1 drives

#### Overall dimensions

| Drives      | W x H x D         |                       |
|-------------|-------------------|-----------------------|
|             | mm                | in.                   |
| ATV930U07N4 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U15N4 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U22N4 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U30N4 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U40N4 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U55N4 | 144 x 350 x 206   | 5.67 x 13.78 x 8.11   |
| ATV930U75N4 | 171 x 409 x 236   | 6.73 x 16.10 x 9.29   |
| ATV930D11N4 | 171 x 409 x 236   | 6.73 x 16.10 x 9.29   |
| ATV930D15N4 | 211 x 545.9 x 235 | 8.31 x 21.49 x 9.25   |
| ATV930D18N4 | 211 x 545.9 x 235 | 8.31 x 21.49 x 9.25   |
| ATV930D22N4 | 211 x 545.9 x 235 | 8.31 x 21.49 x 9.25   |
| ATV930D30N4 | 226 x 673 x 274   | 8.90 x 26.50 x 10.79  |
| ATV930D37N4 | 226 x 673 x 274   | 8.90 x 26.50 x 10.79  |
| ATV930D45N4 | 226 x 673 x 274   | 8.90 x 26.50 x 10.79  |
| ATV930D55N4 | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D75N4 | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D90N4 | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930C22N4 | 440 x 1195 x 380  | 17.32 x 47.04 x 14.96 |

With kit for IP 21/UL Type 1 conformity (1)

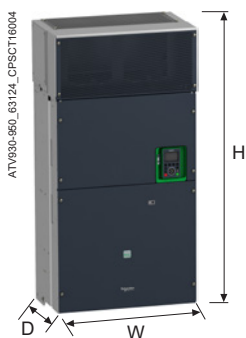
(1) For further information, please contact our Customer Care Center.

# Variable speed drives

## Altivar Process ATV900

IP 21 drives: 380...480 V, 380...440 V and

IP 00 drives: 500...690 V



### 380...480 V IP 21/UL Type 1 drives without braking unit

#### Overall dimensions

| Drives                                      | W x H x D         |                       |
|---|-------------------|-----------------------|
|   | mm                | in.                   |
| ATV930D55N4C                                | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D75N4C                                | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930D90N4C                                | 290 x 922 x 325.5 | 11.42 x 36.30 x 12.81 |
| ATV930C11N4C                                | 320 x 852 x 393   | 12.60 x 33.54 x 15.47 |
| With kit for IP 21/UL Type 1 conformity (1) |                   |                       |
| ATV930C13N4C                                | 320 x 852 x 393   | 12.60 x 33.54 x 15.47 |
| With kit for IP 21/UL Type 1 conformity (1) |                   |                       |
| ATV930C16N4C                                | 320 x 852 x 393   | 12.60 x 33.54 x 15.47 |
| With kit for IP 21/UL Type 1 conformity (1) |                   |                       |
| ATV930C22N4C                                | 440 x 1195 x 380  | 17.32 x 47.04 x 14.96 |
| With kit for IP 21/UL Type 1 conformity (1) |                   |                       |
| ATV930C25N4C                                | 598 x 1195 x 380  | 23.54 x 47.04 x 14.96 |
| With kit for IP 21/UL Type 1 conformity (1) |                   |                       |
| ATV930C31N4C                                | 598 x 1195 x 380  | 23.54 x 47.04 x 14.96 |
| With kit for IP 21/UL Type 1 conformity (1) |                   |                       |

### 500...690 V IP 00 drives

#### Overall dimensions

| Drives                                  | W x H x D       |                       |
|---|-----------------|-----------------------|
|   | mm              | in.                   |
| ATV930U22Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930U30Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930U40Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930U55Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930U75Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930D11Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930D15Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930D18Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930D22Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930D30Y6                             | 246 x 420 x 242 | 9.68 x 16.5 x 9.52    |
| With kit for IP 20/UL Type 1 conformity | 246 x 567 x 242 | 9.68 x 22.32 x 9.52   |
| ATV930D37Y6                             | 331 x 630 x 297 | 13.03 x 24.80 x 11.69 |
| With kit for IP 20/UL Type 1 conformity | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| ATV930D45Y6                             | 331 x 630 x 297 | 13.03 x 24.80 x 11.69 |
| With kit for IP 20/UL Type 1 conformity | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| ATV930D55Y6                             | 331 x 630 x 297 | 13.03 x 24.80 x 11.69 |
| With kit for IP 20/UL Type 1 conformity | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| ATV930D75Y6                             | 331 x 630 x 297 | 13.03 x 24.80 x 11.69 |
| With kit for IP 20/UL Type 1 conformity | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| ATV930D90Y6                             | 331 x 630 x 297 | 13.03 x 24.80 x 11.69 |
| With kit for IP 20/UL Type 1 conformity | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |

### Floor-standing 380...440 V IP 21 drives

#### Overall dimensions

| Drives       | W x H x D (2)     |                       |
|--------------|-------------------|-----------------------|
|              | mm                | in.                   |
| ATV930C11N4F | 400 x 2,150 x 642 | 15.75 x 84.65 x 25.28 |
| ATV930C13N4F | 400 x 2,150 x 642 | 15.75 x 84.65 x 25.28 |
| ATV930C16N4F | 400 x 2,150 x 642 | 15.75 x 84.65 x 25.28 |
| ATV930C20N4F | 600 x 2,150 x 642 | 23.62 x 84.65 x 25.28 |
| ATV930C25N4F | 600 x 2,150 x 642 | 23.62 x 84.65 x 25.28 |
| ATV930C31N4F | 600 x 2,150 x 642 | 23.62 x 84.65 x 25.28 |

(1) For further information, please contact our Customer Care Center.

(2) The total depth includes a door handle of 42 mm/1.65 in.

# Variable speed drives

## Altivar Process ATV900

IP 55 drives: 380...480 V and IP 54 drives: 380...440 V



### 380...480 V IP 55 drives

| Overall dimensions |                   |                       |
|--------------------|-------------------|-----------------------|
| Drives             | W x H x D         |                       |
|                    | mm                | in.                   |
| ATV950U07N4        | 264 x 678 x 272   | 10.39 x 26.69 x 10.71 |
| ATV950U15N4        | 264 x 678 x 272   | 10.39 x 26.69 x 10.71 |
| ATV950U22N4        | 264 x 678 x 272   | 10.39 x 26.69 x 10.71 |
| ATV950U30N4        | 264 x 678 x 272   | 10.39 x 26.69 x 10.71 |
| ATV950U40N4        | 264 x 678 x 272   | 10.39 x 26.69 x 10.71 |
| ATV950U55N4        | 264 x 678 x 272   | 10.39 x 26.69 x 10.71 |
| ATV950U75N4        | 264 x 678 x 299   | 10.39 x 26.69 x 11.77 |
| ATV950D11N4        | 264 x 678 x 299   | 10.39 x 26.69 x 11.77 |
| ATV950D15N4        | 264 x 678 x 299   | 10.39 x 26.69 x 11.77 |
| ATV950D18N4        | 264 x 678 x 299   | 10.39 x 26.69 x 11.77 |
| ATV950D22N4        | 264 x 678 x 299   | 10.39 x 26.69 x 11.77 |
| ATV950D30N4        | 290 x 910 x 340   | 11.42 x 35.83 x 13.39 |
| ATV950D37N4        | 290 x 910 x 340   | 11.42 x 35.83 x 13.39 |
| ATV950D45N4        | 290 x 910 x 340   | 11.42 x 35.83 x 13.39 |
| ATV950D55N4        | 345 x 1,250 x 375 | 13.58 x 49.21 x 14.76 |
| ATV950D75N4        | 345 x 1,250 x 375 | 13.58 x 49.21 x 14.76 |
| ATV950D90N4        | 345 x 1,250 x 375 | 13.58 x 49.21 x 14.76 |

### 380...480 V IP 55 drives with Vario disconnect switch

| Drives       | W x H x D (1)     |                       |
|--------------|-------------------|-----------------------|
|              | mm                | in.                   |
| ATV950U07N4E | 264 x 678 x 300   | 10.39 x 26.69 x 11.81 |
| ATV950U15N4E | 264 x 678 x 300   | 10.39 x 26.69 x 11.81 |
| ATV950U22N4E | 264 x 678 x 300   | 10.39 x 26.69 x 11.81 |
| ATV950U30N4E | 264 x 678 x 300   | 10.39 x 26.69 x 11.81 |
| ATV950U40N4E | 264 x 678 x 300   | 10.39 x 26.69 x 11.81 |
| ATV950U55N4E | 264 x 678 x 330   | 10.39 x 26.69 x 12.99 |
| ATV950U75N4E | 264 x 678 x 330   | 10.39 x 26.69 x 12.99 |
| ATV950D11N4E | 264 x 678 x 330   | 10.39 x 26.69 x 12.99 |
| ATV950D15N4E | 264 x 678 x 330   | 10.39 x 26.69 x 12.99 |
| ATV950D18N4E | 264 x 678 x 330   | 10.39 x 26.69 x 12.99 |
| ATV950D22N4E | 264 x 678 x 330   | 10.39 x 26.69 x 12.99 |
| ATV950D30N4E | 290 x 910 x 401   | 11.42 x 35.83 x 15.79 |
| ATV950D37N4E | 290 x 910 x 401   | 11.42 x 35.83 x 15.79 |
| ATV950D45N4E | 290 x 910 x 401   | 11.42 x 35.83 x 15.79 |
| ATV950D55N4E | 345 x 1,250 x 436 | 13.58 x 49.21 x 17.17 |
| ATV950D75N4E | 345 x 1,250 x 436 | 13.58 x 49.21 x 17.17 |
| ATV950D90N4E | 345 x 1,250 x 436 | 13.58 x 49.21 x 17.17 |

### Floor-standing 380...440 V IP 54 drives

| Overall dimensions |                   |                       |
|--------------------|-------------------|-----------------------|
| Drives             | W x H x D (2)     |                       |
|                    | mm                | in.                   |
| ATV950C11N4F       | 400 x 2,350 x 664 | 15.75 x 92.52 x 26.14 |
| ATV950C13N4F       | 400 x 2,350 x 664 | 15.75 x 92.52 x 26.14 |
| ATV950C16N4F       | 400 x 2,350 x 664 | 15.75 x 92.52 x 26.14 |
| ATV950C20N4F       | 600 x 2,350 x 664 | 23.62 x 92.52 x 26.14 |
| ATV950C25N4F       | 600 x 2,350 x 664 | 23.62 x 92.52 x 26.14 |
| ATV950C31N4F       | 600 x 2,350 x 664 | 23.62 x 92.52 x 26.14 |

(1) The total depth includes a door handle of 64 mm/2.54 in.

(2) The total depth includes a door handle of 64 mm/2.54 in. The total height includes a plinth of 200 mm/7.87 in.

# Variable speed drives

## Altivar Process ATV900

### IP 23 Drive Systems: 380...415 V



#### 380...415 V Compact IP 23 Drive Systems

##### Overall dimensions

| Drives        | W x H x D (1)       |                       |
|---------------|---------------------|-----------------------|
|               | mm                  | in.                   |
| ATV960C11Q4X1 | 400 x 2,150 x 664   | 15.75 x 84.65 x 26.14 |
| ATV960C13Q4X1 | 400 x 2,150 x 664   | 15.75 x 84.65 x 26.14 |
| ATV960C16Q4X1 | 400 x 2,150 x 664   | 15.75 x 84.65 x 26.14 |
| ATV960C20Q4X1 | 600 x 2,150 x 664   | 23.62 x 84.65 x 26.14 |
| ATV960C25Q4X1 | 600 x 2,150 x 664   | 23.62 x 84.65 x 26.14 |
| ATV960C31Q4X1 | 600 x 2,150 x 664   | 23.62 x 84.65 x 26.14 |
| ATV960C35Q4X1 | 800 x 2,150 x 664   | 31.50 x 84.65 x 26.14 |
| ATV960C40Q4X1 | 800 x 2,150 x 664   | 31.50 x 84.65 x 26.14 |
| ATV960C45Q4X1 | 800 x 2,150 x 664   | 31.50 x 84.65 x 26.14 |
| ATV960C50Q4X1 | 800 x 2,150 x 664   | 31.50 x 84.65 x 26.14 |
| ATV960C56Q4X1 | 1,200 x 2,150 x 664 | 47.24 x 84.65 x 26.14 |
| ATV960C63Q4X1 | 1,200 x 2,150 x 664 | 47.24 x 84.65 x 26.14 |
| ATV960C71Q4X1 | 1,400 x 2,150 x 664 | 55.12 x 84.65 x 26.14 |
| ATV960C80Q4X1 | 1,400 x 2,150 x 664 | 55.12 x 84.65 x 26.14 |

#### 380...415 V Regenerative IP 23 Drive Systems

##### Overall dimensions

| Drives        | W x H x D (1)       |                        |
|---------------|---------------------|------------------------|
|               | mm                  | in.                    |
| ATV980C11Q4X1 | 600 x 2,150 x 664   | 23.62 x 84.65 x 26.14  |
| ATV980C13Q4X1 | 600 x 2,150 x 664   | 23.62 x 84.65 x 26.14  |
| ATV980C16Q4X1 | 600 x 2,150 x 664   | 23.62 x 84.65 x 26.14  |
| ATV980C20Q4X1 | 1,000 x 2,150 x 664 | 39.37 x 84.65 x 23.62  |
| ATV980C25Q4X1 | 1,000 x 2,150 x 664 | 39.37 x 84.65 x 26.14  |
| ATV980C31Q4X1 | 1,000 x 2,150 x 664 | 39.37 x 84.65 x 26.14  |
| ATV980C35Q4X1 | 1,600 x 2,150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV980C40Q4X1 | 1,600 x 2,150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV980C45Q4X1 | 1,600 x 2,150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV980C50Q4X1 | 1,600 x 2,150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV980C56Q4X1 | 2,000 x 2,150 x 664 | 78.74 x 84.65 x 26.14  |
| ATV980C63Q4X1 | 2,000 x 2,150 x 664 | 78.74 x 84.65 x 26.14  |
| ATV980C71Q4X1 | 2,600 x 2,150 x 664 | 102.36 x 84.65 x 26.14 |
| ATV980C80Q4X1 | 2,600 x 2,150 x 664 | 102.36 x 84.65 x 26.14 |

(1) The total depth includes a door handle of 64 mm/2.54 in. The dimensions can differ depending on the chosen options. For further information, please contact our Customer Care Center.

# Variable speed drives

## Altivar Process ATV900

### Braking units and braking resistors

| Braking units      |                  |                       |
|--------------------|------------------|-----------------------|
| Overall dimensions |                  |                       |
| Braking units      | W x H x D        |                       |
|                    | mm               | in.                   |
| VW3A7101           | 103 x 1190 x 380 | 4.035 x 46.85 x 14.96 |
| VW3A7102           | 310 x 1150 x 380 | 12.20 x 45.27 x 14.96 |
| VW3A7105           | 216 x 658 x 303  | 8.50 x 25.91 x 11.93  |
| VW3A7106           | 216 x 658 x 303  | 8.50 x 25.91 x 11.93  |

| Braking resistors  |                     |                       |
|--------------------|---------------------|-----------------------|
| Overall dimensions |                     |                       |
| Braking resistors  | W x H x D           |                       |
|                    | mm                  | in.                   |
| VW3A7730           | 105 x 295 x 100     | 4.13 x 11.61 x 3.94   |
| VW3A7731           | 105 x 345 x 100     | 4.13 x 13.58 x 3.94   |
| VW3A7732           | 175 x 345 x 100     | 6.89 x 13.58 x 3.94   |
| VW3A7733           | 190 x 570 x 180     | 7.48 x 22.44 x 7.09   |
| VW3A7734           | 250 x 490 x 180     | 9.84 x 19.29 x 7.09   |
| VW3A7735           | 250 x 490 x 180     | 9.84 x 19.29 x 7.09   |
| VW3A7736           | 485 x 410 x 485     | 19.09 x 16.14 x 19.09 |
| VW3A7737           | 485 x 410 x 485     | 19.09 x 16.14 x 19.09 |
| VW3A7738           | 485 x 410 x 445     | 19.09 x 16.14 x 17.52 |
| VW3A7740           | 105 x 465 x 100     | 4.13 x 18.31 x 3.94   |
| VW3A7741           | 175 x 465 x 100     | 6.89 x 18.31 x 3.94   |
| VW3A7742           | 190 x 570 x 180     | 7.48 x 22.44 x 7.09   |
| VW3A7743           | 290 x 570 x 180     | 11.42 x 22.44 x 7.09  |
| VW3A7744           | 450 x 490 x 180     | 17.72 x 19.29 x 7.09  |
| VW3A7745           | 485 x 610 x 485     | 19.09 x 24.02 x 19.09 |
| VW3A7746           | 485 x 610 x 485     | 19.09 x 24.02 x 19.09 |
| VW3A7747           | 485 x 1020 x 485    | 19.09 x 40.16 x 19.09 |
| VW3A7748           | 485 x 610 x 485     | 19.09 x 24.02 x 19.09 |
| VW3A7750           | 290 x 570 x 180     | 11.42 x 22.44 x 7.09  |
| VW3A7751           | 390 x 570 x 180     | 15.35 x 22.44 x 7.09  |
| VW3A7752           | 485 x 610 x 485     | 19.09 x 24.02 x 19.09 |
| VW3A7753           | 485 x 1,020 x 605   | 19.09 x 40.16 x 23.82 |
| VW3A7754           | 485 x 820 x 1,035   | 19.09 x 32.28 x 40.75 |
| VW3A7755           | 485 x 1,020 x 1,035 | 19.09 x 40.16 x 40.75 |
| VW3A7756           | 485 x 1,020 x 1,285 | 19.09 x 40.16 x 50.59 |
| VW3A7757           | 485 x 1,020 x 1,285 | 19.09 x 40.16 x 50.59 |



# Variable speed drives

## Altivar Process ATV900

### Passive filters

| Passive filters: 400 V 50 Hz three-phase supply |                      |                       |
|---|----------------------|-----------------------|
| Overall dimensions                              |                      |                       |
| Passive filters                                 | W x H x D            |                       |
|   | mm                   | in.                   |
| VW3A46101                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46102                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46103                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46104                                       | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46105                                       | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46106                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46107                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46108                                       | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46109                                       | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46110                                       | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46111                                       | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46112                                       | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46113                                       | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46114                                       | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46115                                       | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46116                                       | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46118                                       | 420 x 800 x 448.5    | 16.54 x 31.50 x 17.66 |
| VW3A46119                                       | 420 x 800 x 510      | 16.54 x 31.50 x 20.00 |
| VW3A46120                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46121                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46122                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46123                                       | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46124                                       | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46125                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46126                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46127                                       | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46128                                       | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46129                                       | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46130                                       | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46131                                       | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46132                                       | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46133                                       | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46134                                       | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46135                                       | 468 x 900.06 x 510   | 18.42 x 35.43 x 20    |
| VW3A46137                                       | 420 x 800 x 510      | 16.54 x 31.50 x 20.00 |
| VW3A46138                                       | 420 x 800 x 510      | 16.54 x 31.50 x 20.00 |
| VW3A46139                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46140                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46141                                       | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46142                                       | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46143                                       | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46144                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46145                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46146                                       | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46147                                       | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46148                                       | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46149                                       | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46150                                       | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |

# Variable speed drives

## Altivar Process ATV900

### Passive filters, EMC filters

#### Passive filters: 460 V 60 Hz three-phase supply

| Overall dimensions |                      |                       |
|--------------------|----------------------|-----------------------|
| Passive filters    | W x H x D            |                       |
|                    | mm                   | in.                   |
| VW3A46151          | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46152          | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46153          | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46154          | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46155          | 420 x 800 x 448.5    | 16.54 x 31.50 x 17.66 |
| VW3A46157          | 420 x 800 x 510      | 16.54 x 31.50 x 20.00 |
| VW3A46158          | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46159          | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46160          | 190 x 332.11 x 205.5 | 7.48 x 13.08 x 8.09   |
| VW3A46161          | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46162          | 232 x 436.11 x 247.5 | 9.13 x 17.17 x 9.74   |
| VW3A46163          | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46164          | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46165          | 378 x 594.08 x 242   | 14.88 x 23.39 x 9.53  |
| VW3A46166          | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46167          | 378 x 623.6 x 333    | 14.88 x 24.55 x 13.11 |
| VW3A46168          | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46169          | 418 x 736.8 x 333    | 16.46 x 29.01 x 13.11 |
| VW3A46170          | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46171          | 418 x 767.6 x 400    | 16.46 x 30.22 x 15.75 |
| VW3A46172          | 468 x 900.06 x 448.5 | 18.42 x 35.43 x 17.66 |
| VW3A46173          | 468 x 900.06 x 510   | 18.42 x 35.43 x 20.00 |
| VW3A46174          | 420 x 800 x 510      | 16.54 x 31.50 x 20.00 |
| VW3A46176          | 420 x 800 x 510      | 16.54 x 31.50 x 20.00 |

#### Additional EMC input filters

| Overall dimensions |                 |                      |
|--------------------|-----------------|----------------------|
| EMC filters        | W x H x D       |                      |
|                    | mm              | in.                  |
| VW3A4411           | 800 x 261 x 139 | 31.49 x 10.27 x 5.47 |
| VW3A4701           | 75 x 220 x 130  | 2.95 x 8.66 x 5.12   |
| VW3A4702           | 75 x 240 x 140  | 2.95 x 9.45 x 5.51   |
| VW3A4703           | 80 x 302 x 155  | 3.15 x 11.89 x 6.10  |
| VW3A4704           | 90 x 283 x 165  | 3.54 x 11.14 x 6.50  |
| VW3A4705           | 100 x 328 x 175 | 3.94 x 12.91 x 6.89  |
| VW3A4706           | 120 x 340 x 180 | 4.72 x 13.39 x 7.09  |
| VW3A4707           | 130 x 395 x 240 | 5.12 x 15.55 x 9.45  |
| VW3A4708           | 200 x 455 x 320 | 7.87 x 17.91 x 12.60 |
| VW3A4709           | 260 x 520 x 117 | 10.24 x 20.47 x 4.61 |
| VW3A4710           | 260 x 520 x 117 | 10.24 x 20.47 x 4.61 |

## Variable speed drives

### Altivar Process ATV900

dv/dt filters, AC chokes, sinus filters and common mode filters

| dv/dt filters      |                 |                      |
|--------------------|-----------------|----------------------|
| Overall dimensions |                 |                      |
| dv/dt filters      | W x H x D       |                      |
|                    | mm              | in.                  |
| VW3A5103           | 234 x 226 x 126 | 9.21 x 9.21 x 4.96   |
| VW3A5104           | 170 x 250 x 100 | 6.69 x 9.84 x 3.94   |
| VW3A5106           | 245 x 250 x 139 | 9.65 x 9.84 x 7.87   |
| VW3A5107           | 320 x 250 x 220 | 12.60 x 9.84 x 8.66  |
| VW3A5301           | 285 x 530 x 215 | 10.79 x 20.33 x 8.17 |
| VW3A5302           | 285 x 530 x 215 | 10.79 x 20.33 x 8.17 |
| VW3A5303           | 285 x 530 x 215 | 10.79 x 20.33 x 8.17 |
| VW3A5304           | 300 x 560 x 245 | 11.44 x 21.32 x 9.35 |
| VW3A5305           | 300 x 610 x 245 | 11.44 x 23.09 x 9.35 |
| VW3A5306           | 380 x 325 x 235 | 14.57 x 8.82 x 12.43 |
| VW3A5307           | 420 x 350 x 270 | 15.75 x 9.72 x 13.41 |

| AC Chokes          |                 |                     |
|--------------------|-----------------|---------------------|
| Overall dimensions |                 |                     |
| AC Chokes          | W x H x D       |                     |
|                    | mm              | in.                 |
| VW3A4551           | 100 x 35 x 60   | 3.93 x 1.37 x 2.36  |
| VW3A4552           | 130 x 55 x 90   | 5.11 x 2.16 x 3.54  |
| VW3A4553           | 130 x 55 x 90   | 5.11 x 2.16 x 3.54  |
| VW3A4554           | 155 x 170 x 135 | 6.10 x 6.69 x 5.31  |
| VW3A4555           | 180 x 210 x 165 | 7.08 x 8.26 x 6.49  |
| VW3A4556           | 270 x 210 x 180 | 10.62 x 8.26 x 7.08 |

| Sinus filters      |                 |                       |
|--------------------|-----------------|-----------------------|
| Overall dimensions |                 |                       |
| Sinus filters      | W x H x D       |                       |
|                    | mm              | in.                   |
| VW3A5209           | 480 x 340 x 600 | 18.9 x 13.38 x 23.62  |
| VW3A5210           | 480 x 370 x 710 | 18.9 x 14.57 x 27.95  |
| VW3A5401           | 210 x 455 x 210 | 8.03 x 17.32 x 7.91   |
| VW3A5402           | 210 x 455 x 210 | 8.03 x 17.32 x 7.91   |
| VW3A5403           | 280 x 530 x 215 | 10.79 x 20.33 x 8.17  |
| VW3A5404           | 300 x 560 x 245 | 11.46 x 21.32 x 9.35  |
| VW3A5405           | 375 x 760 x 280 | 14.59 x 29.00 x 10.75 |
| VW3A5406           | 430 x 325 x 495 | 16.54 x 12.56 x 18.92 |
| VW3A5407           | 460 x 370 x 565 | 17.72 x 14.19 x 21.59 |
| VW3A5215           | 246 x 420 x 242 | 9.68 x 16.53 x 9.52   |
| VW3A5216           | 171 x 409 x 233 | 6.73 x 16.10 x 9.17   |
| VW3A5217           | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| VW3A5218           | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| VW3A5219           | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| VW3A5215           | 246 x 420 x 242 | 9.68 x 16.53 x 9.52   |
| VW3A5216           | 171 x 409 x 233 | 6.73 x 16.10 x 9.17   |
| VW3A5217           | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| VW3A5218           | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |
| VW3A5219           | 331 x 822 x 297 | 13.03 x 32.36 x 11.69 |

| Common mode filters |                     |                     |
|---------------------|---------------------|---------------------|
| Overall dimensions  |                     |                     |
| Common mode filters | W x H x D           |                     |
|                     | mm                  | in.                 |
| VW3A5501            | 66 x 119.2 x 66     | 2.60 x 4.69 x 2.60  |
| VW3A5502            | 66 x 163.8 x 66     | 2.60 x 6.45 x 2.60  |
| VW3A5503            | 127.5 x 161 x 127.5 | 5.02 x 6.34 x 5.02  |
| VW3A5504            | 127.5 x 210 x 127.5 | 5.02 x 8.27 x 5.02  |
| VW3A5505            | 191 x 197 x 196     | 7.52 x 7.76 x 7.72  |
| VW3A5506            | 191 x 256 x 196     | 7.52 x 10.08 x 7.72 |

# Variable speed drives

## Altivar Process

A whole world of services for your drives by Schneider Electric



### Presentation

Schneider Electric offers an extensive range of support services to help ensure the reliability of your installation in the long term, control your maintenance costs, and keep your process running at peak performance for maximum efficiency. Altivar Process has been designed in harmony with a whole range of services offered by Schneider Electric.

|   |  |  |                            |
|---|--|--|----------------------------|
| <b>A worldwide network, 24/7:</b> <ul style="list-style-type: none"> <li>400 highly qualified and certified experts</li> <li>Field service engineers, online experts</li> </ul> |  | <b>A digital world of services:</b> <ul style="list-style-type: none"> <li>Schneider Electric Customer Care app</li> <li>Remote technical support</li> </ul>                       |                            |
| People  |  |  | Digitized support material |
| Spare parts   |  |  | Service provisions         |
| <b>A dedicated supply chain:</b> <ul style="list-style-type: none"> <li>All the spare parts you need</li> <li>Designed and manufactured by Schneider Electric</li> </ul>        |  | <b>An optimal life cycle model:</b> <ul style="list-style-type: none"> <li>Spare parts management, exchange and repairs</li> <li>Extended warranties, maintenance plans</li> </ul> |                            |

### Schneider Electric drive maintenance expert certification

A worldwide network, 24/7:

- 400 highly qualified and certified experts
- Our field service engineers follow a proven drives certification program designed to support you with maximum expertise and efficiency.
- They use a range of professional tools and software to provide fast, in-depth diagnostics and repairs.

|          | Repair centers  | Low voltage (LV) drives field service engineers | Medium voltage (MV) drives field service engineers |
|----------|---|---|--|
| Module A | LV drive safety training  |   | MV drive safety training                           |
| Module B | Technical training for LV drives  |   | Technical training for MV drives                   |
| Module C | Repair center audit   | Skills assessment                               | On-site start-up                                   |
| Module D | Certification procedure   |   |  |
| Module E | Registration in Schneider Electric's international directory of Drives skills |   |  |
| Module F | Re-certification every 2 years  |   |  |

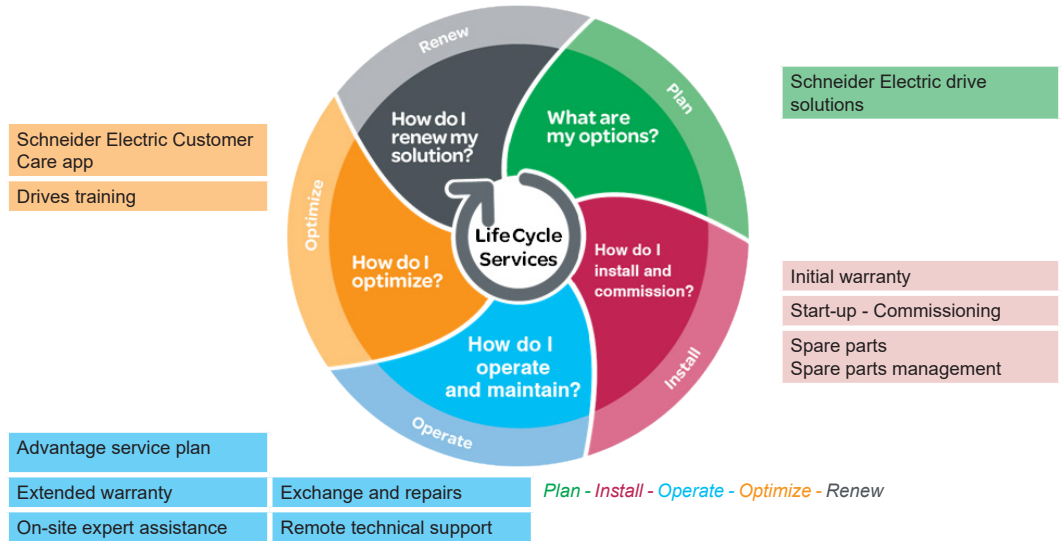
# Variable speed drives

## Altivar Process

A whole world of services for your drives by Schneider Electric

### Drives support and services offer by Schneider Electric

Schneider Electric has developed a generic services offer to assist you throughout the life cycle of your product. From the planning stage right through to renewal, whether for standard or critical operations, you will find the solution you need in our set of standardized offers.



| The offer                            | Contact, How to order                                | Description  |
|--------------------------------------|--|--|
| Schneider Electric drive solutions   | Contact your local Customer Care Center              | Our Schneider Electric experts can help you design your installation, offering whatever type of assistance you need from technical support to turnkey solutions.   |
| Start-up - Commissioning             | Contact your local Customer Care Center              | Our team of experts are specialists in installation commissioning and start-up whatever the conditions and for any application. This will extend your warranty period by an extra 6 months.  |
| Spare parts - Spare parts management | Contact your local Customer Care Center              | Our spare parts are available for the lifetime of your equipment. They are designed and manufactured to the same high quality standards as our products. They are available via a dedicated supply chain for emergency shipments. Our team can help you identify critical parts and define the right level of stock required. Whether stored in your premises (on-site) or in a central store (off-site), it is reassuring to know that critical spare parts are available 24/7. |
| Exchange and repairs                 | Contact your local Customer Care Center              | Schneider Electric offers high-quality repair services via a global network of certified repair centers and certified field service engineers to cover any need: repairs in Schneider Electric repair centers, exchanges with refurbished products, or on-site repairs (Schneider Electric intervention on your premises).   |
| Remote technical support             | Contact your local Customer Care Center              | Direct priority access to our experts to help you solve any technical difficulties. Our experts have extensive field experience and have fully mastered the technologies implemented. A simple phone conversation or on-line chat is usually sufficient to help you find the optimal solution and can help keep your costs down by avoiding on-site intervention.  |
| On-site technical support            | Contact your local Customer Care Center              | Our field service engineers can support your maintenance staff in their everyday operations, or engage when requested in the event of an emergency.  |
| Extended warranty                    | Contact your local Customer Care Center              | Spare parts and repairs performed by Schneider Electric experts on duty.   |
| Advantage service plan               | Contact your local Customer Care Center              | The Advantage Service plan combines the Preventive Maintenance program (annual visit for inspection, checks, and replacement of worn parts) with the extended warranty (covering spare parts and repairs), plus remote technical support.  |
| Drives training                      | Contact your local Customer Care Center              | A comprehensive suite of training courses to master your Altivar Process drive at any stage in the life cycle of your installation.  |
| mySchneider Customer Care app        | Download from the Apple Store® or Google Play Store™ | Free download from the Apple Store® or Google Play Store™. Immediate access to Schneider Electric Customer Care Centers, product documentation, FAQs, Cloud services, etc. and plenty of other services yet to come.   |

|              |    |              |    |                |    |              |    |
|--------------|----|--------------|----|----------------|----|--------------|----|
| <b>4</b>     |    |              |    |                |    |              |    |
| 490NTC00005  | 42 | ATV930D90Y6  | 23 | ATV950U75N4    | 21 | VW3A4553     | 62 |
| 490NTC00005U | 42 | ATV930U07M3  | 14 | ATV950U75N4E   | 22 | VW3A4554     | 62 |
| 490NTC00015  | 42 |              | 18 |                |    | VW3A4555     | 62 |
| 490NTC00015U | 42 | ATV930U07N4  | 14 | <b>L</b>       |    | VW3A4556     | 62 |
| 490NTW00002  | 42 |              | 19 | LU9AD7         | 45 | VW3A4701     | 60 |
| 490NTW00002U | 42 | ATV930U15M3  | 18 | LU9GC3         | 29 | VW3A4702     | 60 |
| 490NTW00005  | 42 | ATV930U15N4  | 19 |                | 42 |              | 61 |
| 490NTW00005U | 42 | ATV930U22M3  | 18 | <b>N</b>       |    | VW3A4703     | 60 |
| 490NTW00012  | 42 | ATV930U22N4  | 19 | NSYAEFPFPTD    | 27 | VW3A4704     | 60 |
| 490NTW00012U | 42 | ATV930U22Y6  | 14 | NSYCAF223      | 26 | VW3A4705     | 60 |
|              |    |              | 23 | NSYCAF291      | 26 | VW3A4706     | 60 |
|              |    | ATV930U30M3  | 18 | NSYPTDS1       | 27 | VW3A4707     | 60 |
|              |    | ATV930U30N4  | 19 | NSYPTDS2       | 27 | VW3A4708     | 60 |
|              |    | ATV930U30Y6  | 23 | NSYPTDS3       | 27 | VW3A4709     | 60 |
|              |    | ATV930U40M3  | 18 | NSYPTDS4       | 27 | VW3A4710     | 60 |
|              |    | ATV930U40N4  | 19 | NSYPTDS5       | 27 |              | 61 |
|              |    | ATV930U40Y6  | 23 |                |    | VW3A5103     | 64 |
|              |    | ATV930U55M3  | 18 | <b>T</b>       |    | VW3A5104     | 64 |
|              |    | ATV930U55N4  | 19 | TCSCAR01NM120  | 44 | VW3A5106     | 64 |
|              |    | ATV930U55Y6  | 23 | TCSCAR013M120  | 43 | VW3A5107     | 64 |
|              |    | ATV930U75M3  | 18 | TCSEGWB13FA0   | 28 | VW3A5209     | 67 |
|              |    | ATV930U75N4  | 19 | TCSXCNAMUM3P   | 29 | VW3A5210     | 67 |
|              |    | ATV930U75Y6  | 23 | TSXCANCA50     | 43 | VW3A5215     | 67 |
|              |    | ATV950C11N4F | 14 | TSXCANCA100    | 43 | VW3A5216     | 67 |
|              |    |              | 25 | TSXCANCA300    | 43 | VW3A5217     | 67 |
|              |    | ATV950C13N4F | 25 | TSXCANCADD1    | 44 | VW3A5218     | 67 |
|              |    | ATV950C16N4F | 25 | TSXCANCADD03   | 44 | VW3A5219     | 67 |
|              |    | ATV950C20N4F | 25 | TSXCANCB50     | 43 | VW3A5301     | 63 |
|              |    | ATV950C25N4F | 25 | TSXCANCB100    | 43 | VW3A5302     | 63 |
|              |    | ATV930C31N4C | 20 | TSXCANCB300    | 43 | VW3A5303     | 63 |
|              |    | ATV930C31N4F | 24 | TSXCANCBDD3    | 44 | VW3A5304     | 63 |
|              |    | ATV930D11M3  | 18 | TSXCANCBDD5    | 44 |              | 64 |
|              |    | ATV930D11N4  | 19 | TSXCANCD50     | 43 | VW3A5305     | 63 |
|              |    | ATV930D11Y6  | 23 | TSXCANCD100    | 43 | VW3A5306     | 63 |
|              |    | ATV930D15M3  | 18 | TSXCANCD300    | 43 | VW3A5307     | 63 |
|              |    | ATV930D15N4  | 19 | TSXCANKCDF180T | 43 | VW3A5401     | 66 |
|              |    | ATV930D15Y6  | 23 | TSXCANTDM4     | 44 | VW3A5402     | 66 |
|              |    | ATV930D18M3  | 18 |                |    | VW3A5403     | 66 |
|              |    | ATV930D18N4  | 19 | <b>V</b>       |    | VW3A5404     | 66 |
|              |    | ATV930D18Y6  | 23 | VW3A1104R10    | 29 | VW3A5405     | 66 |
|              |    | ATV930D22M3  | 18 | VW3A1104R30    | 29 | VW3A5406     | 66 |
|              |    | ATV930D22N4  | 19 | VW3A1104R50    | 29 | VW3A5407     | 66 |
|              |    | ATV930D22Y6  | 23 | VW3A1104R100   | 29 | VW3A7101     | 46 |
|              |    | ATV930D30M3  | 18 | VW3A1111       | 28 | VW3A7105     | 46 |
|              |    | ATV930D30M3C | 14 | VW3A1112       | 29 | VW3A7106     | 46 |
|              |    |              | 18 | VW3A1115       | 29 | VW3A7730     | 48 |
|              |    | ATV930D30N4  | 19 | VW3A1116       | 29 |              | 49 |
|              |    | ATV930D30Y6  | 23 | VW3A3203       | 39 | VW3A7731     | 48 |
|              |    | ATV930D37M3  | 18 | VW3A3204       | 39 |              | 49 |
|              |    | ATV930D37M3C | 18 | VW3A3420       | 38 | VW3A7732     | 48 |
|              |    | ATV930D37N4  | 19 | VW3A3422       | 38 |              | 49 |
|              |    | ATV930D37Y6  | 23 | VW3A3423       | 38 | VW3A7733     | 48 |
|              |    | ATV930D45M3  | 18 | VW3A3424       | 38 |              | 49 |
|              |    | ATV930D45M3C | 18 | VW3A3601       | 45 | VW3A7734     | 48 |
|              |    | ATV930D45N4  | 19 | VW3A3607       | 45 |              | 49 |
|              |    | ATV930D45Y6  | 23 | VW3A3608       | 43 | VW3A7735     | 48 |
|              |    | ATV930D55M3C | 18 | VW3A3609       | 45 |              | 50 |
|              |    | ATV930D55N4  | 19 | VW3A3618       | 43 | VW3A7736     | 48 |
|              |    | ATV930D55N4C | 14 | VW3A3627       | 45 |              | 49 |
|              |    |              | 20 | VW3A3628       | 44 | VW3A7737     | 48 |
|              |    | ATV930D55Y6  | 23 | VW3A4411       | 61 |              | 50 |
|              |    | ATV930D75M3C | 18 | VW3A4551       | 62 | VW3A7738     | 48 |
|              |    | ATV930D75N4  | 19 | VW3A4552       | 62 | VW3A7740     | 50 |
|              |    | ATV930D75N4C | 20 |                |    |              | 51 |
|              |    | ATV930D75Y6  | 23 |                |    | VW3A7741     | 50 |
|              |    | ATV930D90N4  | 19 |                |    |              | 51 |
|              |    | ATV930D90N4C | 20 |                |    | VW3A7742     | 50 |
|              |    |              |    |                |    |              | 51 |
|              |    |              |    |                |    | VW3A7743     | 50 |
|              |    |              |    |                |    |              | 51 |
|              |    |              |    |                |    | VW3A7744     | 50 |
|              |    |              |    |                |    |              | 51 |
|              |    |              |    |                |    | VW3A7745     | 50 |
|              |    |              |    |                |    |              | 51 |
|              |    |              |    |                |    | VW3A7746     | 50 |
|              |    |              |    |                |    |              | 51 |
|              |    |              |    |                |    | VW3A7747     | 50 |
|              |    |              |    |                |    |              | 51 |
|              |    |              |    |                |    | VW3A7748     | 48 |
|              |    |              |    |                |    |              | 50 |
|              |    |              |    |                |    | VW3A7750     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7751     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7752     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7753     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7754     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7755     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7756     | 52 |
|              |    |              |    |                |    |              | 53 |
|              |    |              |    |                |    | VW3A7757     | 50 |
|              |    |              |    |                |    |              | 52 |
|              |    |              |    |                |    | VW3A8306R03  | 29 |
|              |    |              |    |                |    |              | 42 |
|              |    |              |    |                |    | VW3A8306R10  | 29 |
|              |    |              |    |                |    |              | 42 |
|              |    |              |    |                |    | VW3A8306R30  | 29 |
|              |    |              |    |                |    |              | 42 |
|              |    |              |    |                |    | VW3A8306RC   | 29 |
|              |    |              |    |                |    |              | 42 |
|              |    |              |    |                |    | VW3A8306TF03 | 29 |
|              |    |              |    |                |    |              | 42 |
|              |    |              |    |                |    | VW3A8306TF10 | 29 |
|              |    |              |    |                |    |              | 42 |
|              |    |              |    |                |    | VW3A9112     | 27 |
|              |    |              |    |                |    | VW3A9113     | 27 |
|              |    |              |    |                |    | VW3A9114     | 27 |



|           |    |              |    |
|-----------|----|--------------|----|
| VW3A9212  | 27 | VW3A46157    | 58 |
| VW3A9213  | 27 | VW3A46158    | 59 |
| VW3A9214  | 27 | VW3A46159    | 59 |
| VW3A9513  | 27 | VW3A46160    | 59 |
| VW3A9514  | 27 | VW3A46161    | 59 |
| VW3A9515  | 27 | VW3A46162    | 59 |
| VW3A9612  | 65 | VW3A46163    | 59 |
| VW3A9613  | 65 | VW3A46164    | 59 |
| VW3A9704  | 27 | VW3A46165    | 59 |
| VW3A9705  | 27 | VW3A46166    | 59 |
| VW3A9706  | 27 | VW3A46167    | 59 |
| VW3A46101 | 54 | VW3A46168    | 59 |
| VW3A46102 | 54 | VW3A46169    | 59 |
| VW3A46103 | 54 | VW3A46170    | 59 |
| VW3A46104 | 54 | VW3A46171    | 59 |
| VW3A46105 | 54 | VW3A46172    | 59 |
| VW3A46106 | 54 | VW3A46173    | 59 |
| VW3A46107 | 54 | VW3A46174    | 59 |
| VW3A46108 | 54 | VW3A46176    | 59 |
| VW3A46109 | 54 | VW3A47901    | 61 |
| VW3A46110 | 54 | VW3A47902    | 61 |
| VW3A46111 | 54 | VW3A47903    | 61 |
| VW3A46112 | 54 | VW3A47904    | 61 |
| VW3A46113 | 54 | VW3A47905    | 61 |
| VW3A46114 | 55 | VW3A47906    | 61 |
| VW3A46115 | 55 | VW3A47907    | 61 |
| VW3A46116 | 55 | VW3A47908    | 61 |
| VW3A46118 | 55 | VW3A53901    | 67 |
| VW3A46119 | 55 | VW3A53902    | 65 |
| VW3A46120 | 56 |              | 67 |
| VW3A46121 | 56 | VW3A53903    | 65 |
| VW3A46122 | 56 |              | 67 |
| VW3A46123 | 56 | VW3A53904    | 67 |
| VW3A46124 | 56 | VW3A53905    | 65 |
| VW3A46125 | 56 | VW3A95116    | 27 |
| VW3A46126 | 56 | VW3CANCARR1  | 43 |
| VW3A46127 | 56 | VW3CANCARR03 | 43 |
| VW3A46128 | 56 | VW3CANTAP2   | 44 |
| VW3A46129 | 56 | VW3M4701     | 38 |
| VW3A46130 | 56 | VX5VP50A001  | 26 |
| VW3A46131 | 56 | VX5VP50BC001 | 26 |
| VW3A46132 | 56 | VX5VPM001    | 26 |
| VW3A46133 | 57 | VX5VPM002    | 26 |
| VW3A46134 | 57 | VX5VPS1001   | 26 |
| VW3A46135 | 57 | VX5VPS2001   | 26 |
| VW3A46137 | 57 | VX5VPS3001   | 26 |
| VW3A46138 | 57 | VX5VPS3002   | 26 |
| VW3A46139 | 58 | VX5VPS4001   | 26 |
| VW3A46140 | 58 | VX5VPS5001   | 26 |
| VW3A46141 | 58 | VX5VPS5002   | 26 |
| VW3A46142 | 58 | VX5VPS6001   | 26 |
| VW3A46143 | 58 | VZ3V1212     | 26 |
| VW3A46144 | 58 | VZ3V1213     | 26 |
| VW3A46145 | 58 |              |    |
| VW3A46146 | 58 | <b>Z</b>     |    |
| VW3A46147 | 58 | ZB5AZ905     | 29 |
| VW3A46148 | 58 |              |    |
| VW3A46149 | 58 |              |    |
| VW3A46150 | 58 |              |    |
| VW3A46151 | 58 |              |    |
| VW3A46152 | 58 |              |    |
| VW3A46153 | 58 |              |    |
| VW3A46154 | 58 |              |    |
| VW3A46155 | 58 |              |    |

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