

# Variable speed drives Altivar Process ATV600

Catalog  
April 2015



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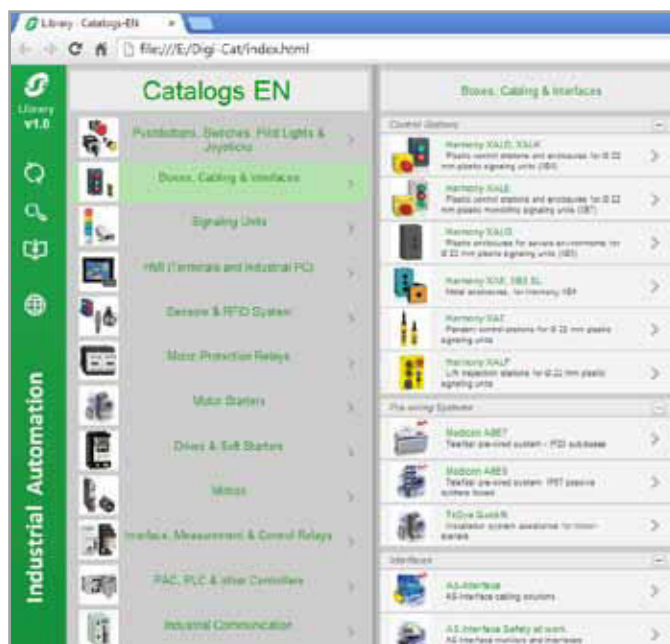
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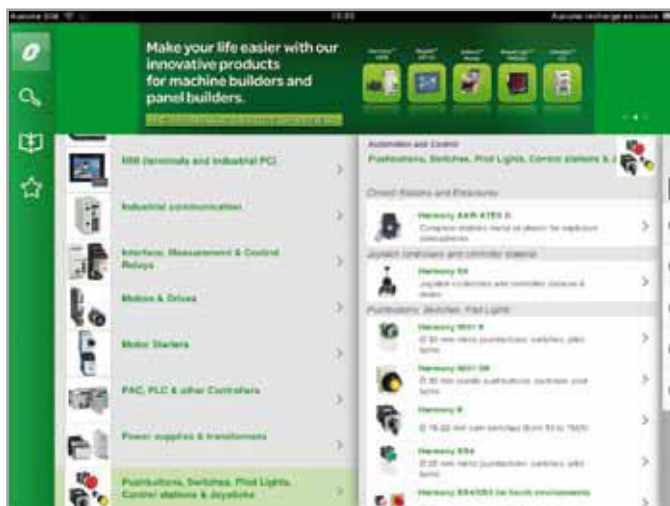
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### Altivar Process

Provides the efficiency you deserve

Wall-mounting drives from 0.75 kW to 160 kW

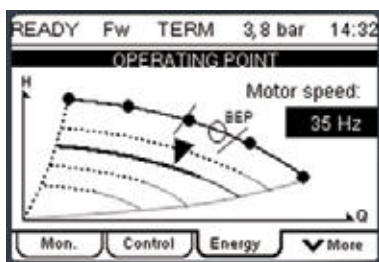
Floor-standing drives from 110 kW to 315 kW

Drive Systems from 110 kW to 800 kW



Altivar Process drives

From basic design to customized offer



Display screen

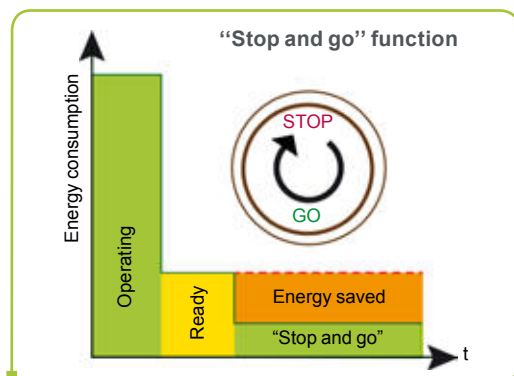
### Business optimization

#### Optimum monitoring of your process

- > Instant reaction if pump efficiency drops thanks to the embedded pump monitoring
- > Notification of critical operating points without additional sensors
- > Process integration with pressure, flow and level control including compensation of flow losses

#### The energy-saving drive solution

- > Up to 60% energy saving when on standby due to the innovative "Stop & Go" operation without additional costs
- > Smart control of the internal fans depending on operation
- > Optimum energy efficiency over the whole life cycle
- > Data logging and graphic display of the power consumption



### 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.



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



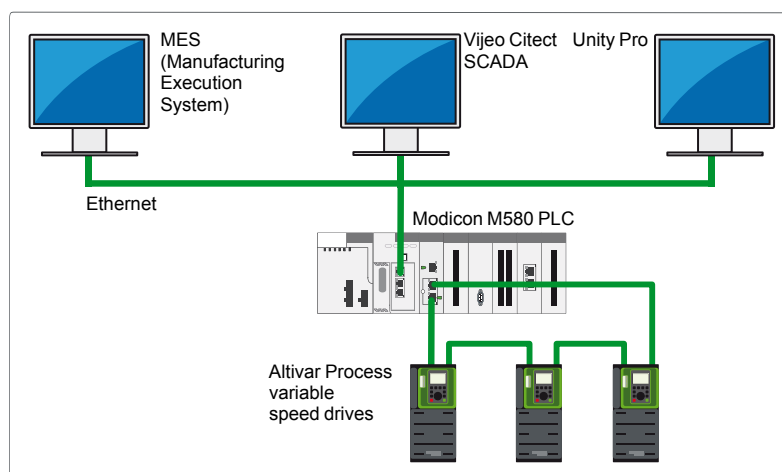
**FDT Technology:** an  
international standard  
with broad acceptance  
in the automation  
industry



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

|                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Market segments                                                                                                                                                              |  | <ul style="list-style-type: none"> <li>■ Water &amp; wastewater</li> <li>■ Oil &amp; gas</li> <li>■ Mining, minerals &amp; metals</li> <li>■ Food &amp; beverage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Mounting type</b><br><b>Degree of protection</b><br><b>Power range for 50...60 Hz line supply</b><br><b>Drive</b><br><b>Functions</b>                                     |  | <b>Wall mounting</b><br><b>IP 21/UL Type 1</b><br><b>0.75...75/1...100</b><br><b>–</b><br><b>0.75...160/1...250</b><br><b>0.1...500 Hz</b><br><b>Standard constant torque, variable standard torque, optimized torque mode</b><br><b>PM (Permanent Magnet) motor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| <b>Three-phase: 200...240 V (kW/HP)</b><br><b>Three-phase: 380...440 V (kW)</b><br><b>Three-phase: 380...480 V (kW/HP)</b><br><b>Output frequency</b><br><b>Control type</b> |  | <b>Floor standing</b><br><b>IP 21</b><br><b>–</b><br><b>110...315</b><br><b>–</b><br><b>PM (Permanent Magnet) motor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| <b>Asynchronous motor</b><br><b>Synchronous motor</b>                                                                                                                        |  | <ul style="list-style-type: none"> <li>■ Accurate measurement for monitoring system energy consumption (deviation &lt; 5%)</li> <li>■ Installation energy drift detection</li> <li>■ Embedded Ethernet with direct access to system configuration and monitoring</li> <li>■ Integration of actual pump curves to optimize the system operating point</li> <li>■ Optimized pump monitoring based on actual operating point</li> <li>■ Sensorless estimated flow rate</li> <li>■ Measurements expressed in working units (e.g.: m³/h, kWh/m³)</li> <li>■ Limitation of overvoltage at the motor terminals</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 and preventive maintenance tracking functions (e.g.: temperatures with PT100/1000 probe, fan monitoring)</li> </ul> |  |
| <b>Advanced functions</b>                                                                                                                                                    |  | <b>1: STO (Safe Torque Off) SIL3</b><br><b>16</b><br><b>3: Configurable as voltage (0...10 V) or current (0-20 mA/4-20 mA), including 2 for probes (PTC, PT100, PT1000 or KTY84)</b><br><b>6</b><br><b>2: Configurable as voltage (0...10 V) or current (0-20 mA)</b><br><b>3</b><br><b>2: For safety function STO</b><br><b>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</b><br><b>6: Voltage 24 V --- (positive or negative logic)</b><br><b>2: Assignable</b><br><b>3: NO contacts</b>                                                                                                                                                                                                                                                                                                                                                |  |
| <b>Integrated safety function</b><br><b>Number of preset speeds</b>                                                                                                          |  | <b>Modbus/TCP, Modbus serial link</b><br><b>EtherNet/IP and Modbus/TCP Dual port, ProfiNet, CANopen RJ45 Daisy Chain, Sub-D and screw terminals, Profibus DP V1 and DeviceNet</b><br><b>Graphic display terminal, embedded web server, DTM (Device Type Manager), SoMove software</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| <b>Number of integrated I/O</b><br><b>Analog inputs</b><br><b>Digital inputs</b><br><b>Analog outputs</b><br><b>Relay outputs</b><br><b>Safety function inputs</b>           |  | <b>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</b><br><b>EN/IEC 61800-3, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 60721-3, IEC 61508</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <b>I/O expansion modules (optional)</b><br><b>Analog inputs</b><br><b>Digital inputs</b><br><b>Digital outputs</b>                                                           |  | <b>ATV630●●●●●</b><br><b>18</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>Relay output module (optional)</b><br><b>Relay outputs</b>                                                                                                                |  | <b>ATV630●●●●●F</b><br><b>20</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| <b>Communication</b><br><b>Integrated</b><br><b>Option modules</b>                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>Configuration and runtime tools</b>                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>Standards and certifications</b>                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>References</b>                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>Page</b>                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>■ Water &amp; wastewater</li> <li>■ Oil &amp; gas</li> <li>■ Mining, minerals &amp; metals</li> <li>■ Food &amp; beverage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                     |                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                 |
| Wall mounting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Wall mounting                                                                       | Floor standing                                                                                     |
| IP 55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | IP 55 with Vario disconnect switch                                                  | IP 54                                                                                              |
| –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     | –                                                                                                  |
| –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     | 110...315                                                                                          |
| 0.75...90/1...125                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     | –                                                                                                  |
| 0.1...500 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                     |                                                                                                    |
| Standard constant torque, variable standard torque, optimized torque mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |                                                                                                    |
| PM (Permanent Magnet) motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                     |                                                                                                    |
| <ul style="list-style-type: none"> <li>■ Accurate measurement for monitoring system energy consumption (deviation &lt; 5%)</li> <li>■ Installation energy drift detection</li> <li>■ Embedded Ethernet with direct access to system configuration and monitoring</li> <li>■ Integration of actual pump curves to optimize the system operating point</li> <li>■ Optimized pump monitoring based on actual operating point</li> <li>■ Sensorless estimated flow rate</li> <li>■ Measurements expressed in working units (e.g.: m³/h, kWh/m³)</li> <li>■ Limitation of overvoltage at the motor terminals</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 and preventive maintenance tracking functions (e.g.: Temperatures with PT100/1000 probe, fan monitoring)</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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                     |                                                                                                    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |                                                                                                    |
| 2: Configurable as voltage (0...10 V) or current (0-20 mA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                     |                                                                                                    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |                                                                                                    |
| 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 --- (positive or negative logic)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                     |                                                                                                    |
| 2: Assignable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                     |                                                                                                    |
| 3: NO contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                     |                                                                                                    |
| Modbus/TCP, Modbus serial link                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                     |                                                                                                    |
| EtherNet/IP and Modbus/TCP Dual port, ProfiNet, CANopen Daisy Chain RJ45, Sub-D and screw terminals, Profibus DP V1 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | EN/IEC 61800-3, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 60721-3, IEC 61508 |
| <b>ATV650●●●●●</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>ATV650●●●●●E</b>                                                                 | <b>ATV650●●●●●F</b>                                                                                |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 22                                                                                  | 23                                                                                                 |

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

|                                        |                  |                                                                                                                                                                                   |                                                                                                                                         |
|----------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Market segments                        |                  | <div><div></div>Water &amp; wastewater</div> <div><div></div>Oil &amp; gas</div> <div><div></div>Mining, minerals &amp; metals</div> <div><div></div>Food &amp; beverage</div>    |                                                                                                                                         |
|                                        |                  |                                                                                                 |                                                                                                                                         |
| Power range for 50...60 Hz line supply |                  | Three-phase: 380...415 V (kW)                                                                                                                                                     |                                                                                                                                         |
| Main characteristics                   |                  | 90...800                                                                                                                                                                          |                                                                                                                                         |
| Variants                               |                  | Compact Drive Systems with an integrated line reactor to reduce the current harmonics THDI < 48%                                                                                  |                                                                                                                                         |
| Degree of protection                   |                  | Compact standard offer<br>Modular with integrated options (ETO)<br>User-definable on request (Full ETO)                                                                           |                                                                                                                                         |
| Drive                                  | Output frequency |                                                                                                                                                                                   | IP 23<br>IP 54 with separate air flows as an option                                                                                     |
|                                        | Type of control  | Asynchronous motor                                                                                                                                                                | 0.1...500 Hz                                                                                                                            |
|                                        |                  | Synchronous motor                                                                                                                                                                 | Constant load torque standard<br>Variable load torque standard<br>Load-dependent mode<br><br>PM (permanent magnet) motor                |
| Communication                          | Integrated       |                                                                                                                                                                                   | Modbus/TCP<br>Modbus serial link<br>Ethernet                                                                                            |
|                                        | As an option     |                                                                                                                                                                                   | EtherNet/IP and Modbus/TCP Dual port<br>PROFINET<br>CANopen RJ45 Daisy Chain, SUB-D9 and screw terminals<br>Profibus DP V1<br>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                          |                  | ATV660●●●Q4X1                                                                                                                                                                     |                                                                                                                                         |
| Page                                   |                  | 58                                                                                                                                                                                |                                                                                                                                         |

|                                                                                                                                                                                   |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ■ Water & wastewater                                                                                                                                                              |  |
| ■ Oil & gas                                                                                                                                                                       |  |
| ■ Mining, minerals & metals                                                                                                                                                       |  |
| ■ Food & beverage                                                                                                                                                                 |  |
|                                                                                               |  |
| 90...800                                                                                                                                                                          |  |
| Low Harmonic Drive Systems with active mains rectifier to reduce the current harmonics<br>THDI < 5%                                                                               |  |
| Low Harmonic standard offer<br>Modular with integrated options (ETO)<br>User-definable on request (Full ETO)                                                                      |  |
| IP 23<br>IP 54 with separate air flows as an option                                                                                                                               |  |
| 0.1...500 Hz                                                                                                                                                                      |  |
| Constant load torque standard<br>Variable load torque standard<br>Load-dependent mode                                                                                             |  |
| PM (permanent magnet) motor                                                                                                                                                       |  |
| Modbus/TCP<br>Modbus serial link<br>Ethernet                                                                                                                                      |  |
| EtherNet/IP and Modbus/TCP Dual port<br>PROFINET<br>CANopen RJ45 Daisy Chain, SUB-D9 and screw terminals<br>Profibus DP V1<br>DeviceNet                                           |  |
| 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 |  |
| ATV680●●●Q4X1                                                                                                                                                                     |  |
| 62                                                                                                                                                                                |  |



More technical information on [www.schneider-electric.com](http://www.schneider-electric.com)



More technical information on [www.schneider-electric.com](http://www.schneider-electric.com)



Altivar Process range

### Process

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

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



### Water & wastewater applications

- Pumping
- Drilling
- Suction
- Dosing
- Odor control
- Ventilation
- Gas compression
- Sludge removal

### Use

- Pumping station and storage tank
- Irrigation
- Treatment plant
- Desalination plant
- Storage and booster station
- Housing
- Wastewater lift station
- Wastewater treatment
- Discharge back into the environment, land application



### Process (continued)

#### 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

- Pumps:
  - Submersible
  - Hydraulic
  - Pipeline
  - Reverse flow
  - Water injection
  - Kerosene
- Regasification compressors
- Refining:
  - Fans
  - Compressors



#### Mining, minerals & metals applications

- Flotation and thickening
- Rinsing and filtration
- Mine shaft pumping
- Preheater fan
- Waste gas evacuation
- Cooling fan
- Separator for vertical roller mill
- Storage and loading
- Water supply
- Pumping
- Drying fans

#### Use

- Conveyors
- Grinders
- Mixers
- Pumps



#### Food & beverage applications

- Pumping
- Drying fans

#### Use

- Conveyors
- Mixers
- Centrifuges
- Pumps



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 communication 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 21/UL Type 1 from 0.75 kW/1 HP to 110 kW/150 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 severe 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 in high-power ranges with minimum dimensions for easy, optimized integration in an electrical room with a standard or severe environment

### Floor-standing high-power drives

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

- The drive power and control modules
- Semiconductor protection fuses
- Line chokes to limit THDI levels
- A filter to 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

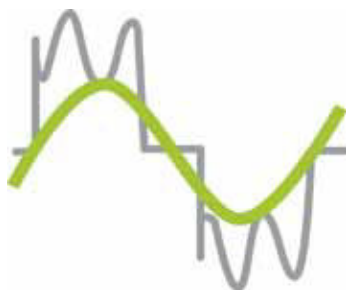
Altivar Process drives can also be supplied as Engineered Drive System variants from 110 kW to 1500 kW, developed by Schneider Electric based on customer specifications.

### Rugged

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

- Ambient operating temperature
- wall-mounting drives:
  - IP 21 : - 15...+ 50 °C/+ 5...122 °F as standard  
+ 50...60 °C/+ 122...140 °F with derating
  - IP 55 : - 15...+ 40 °C/+ 5...104 °F as standard  
+ 40...50 °C/+ 104...122 °F with derating
  - a patented flange-mounting kit for evacuating outside the enclosure in which it is mounted the heat dissipation from the power section (see page 23)
- 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
  - Mechanical class 3S3 conforming to IEC/EN 60721
  - Electronic cards with protective coating
- Protection to suit requirements:
  - IP 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

**THDI  $\leq 48\%$  for 80...100% load**  
with Altivar Process



Altivar Process drive THDI

### General presentation of the offer (continued)

#### 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
- Low harmonic offer compatible with standard IEEE 519

In addition, thanks to the “stop and go” function, the Altivar Process drive can reduce its power consumption by up to 60% during system stop phases by disabling some functions automatically (the power section, fans, backlighting, etc). On a system restart request, the Altivar Process drive takes less than 2 seconds to restart the motor.

Integrated as standard, the “stop and go” function can be activated and deactivated in the drive parameters.

#### 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)

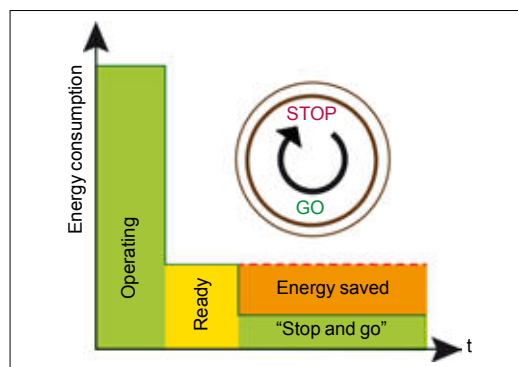
Compliance with electromagnetic compatibility requirements has been incorporated into the design of the drive, which simplifies installation and provides an economical means of helping to ensure equipment meets CE marking requirements.

Altivar Process drives have a category C2 or C3 EMC filter, except ATV630U07M3...D75M3 models which can take an additional filter to meet more stringent requirements (see page 44).

#### Installation/Maintenance

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

- Products, systems or integrated in iMCC
- IP 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
- Asynchronous or synchronous drive in open loop for 0.1...500 Hz output frequency
- Special motors: Submersible and tapered rotor motors
- 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



“Stop and go” function

(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.

### Integrated functions

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

#### Advanced functions

- Accurate measurement for monitoring system energy consumption (deviation < 5%)
- Installation energy drift detection
- Embedded Ethernet with direct access to system configuration and monitoring
- Integration of actual pump curves to optimize the system operating point
- Optimized pump monitoring based on actual operating point
- Sensorless estimated flow rate
- Measurements expressed in working units (e.g.: m<sup>3</sup>/h, kWh/m<sup>3</sup>)
- Limitation of overvoltage at the motor terminals
- Contextual access to technical documentation through dynamic QR code
- Continuous and historical real-time measurements with customizable dashboards
- Predictive and preventive maintenance tracking functions (e.g.: Temperatures with PT100/1000 probe, fan monitoring)

#### 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
  - kWh/m<sup>3</sup>
  - kWh/mWc/m<sup>3</sup>

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 personnel 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:
  - Monitoring of pumping cycles
  - Start-stop of centrifugal pumps
  - Monitoring of start cycles (number of starts per hour)
  - Monitoring function to help protect against water hammer
  - Cleaning of pumps by reversing the flow (anti-clogging)



Altivar Process DTM in Unity Pro

### Integration

#### Communication protocols

- Modbus/TCP, EtherNet/IP 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 27):
  - Drive configuration, diagnostics, and control using Unity Pro software

#### Configuration and runtime tools

- Graphic display terminal (see page 24):
  - 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 25)
  - Connection to several drives using multidrop link components (see page 25)
- Embedded web server (see page 26):
  - 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 27):
  - Advanced functions for configuration, setup, and maintenance of Altivar Process drives



Embedded web server login screen

#### Integrated services

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

- Simplified communication:
  - Ethernet 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



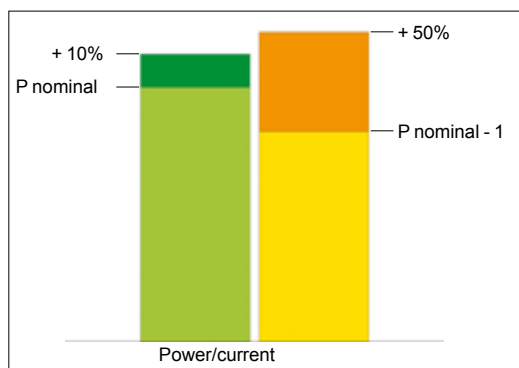
ATV630...N4F, ATV630...M3, ATV650...N4, ATV650...N4E

### Extensive offer

The Altivar Process offer covers motor power ratings from 0.75...315 kW for three-phase voltages between 200...240 V and 380...480 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                   | ATV630U07M3...D75M3                                                     |
| 380...480 V              | 0.75 kW...160 kW<br>1...250 HP | IP 21 UL type 1<br>IP 55<br>IP 55 | ATV630U07N4...C16N4<br>ATV650U07N4...D90N4<br>ATV650U07N4E...D90N4E (1) |
| 380...440 V              | 110 kW...315 kW                | IP 21<br>IP 54                    | ATV630C11N4F...C31N4F<br>ATV650C11N4F...C31N4F                          |

(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 110%) 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 21)
- Graphic display terminal:
- Remote mounting kit for mounting on enclosure door (see page 25)
- Multidrop connection accessories for connecting several drives to the RJ45 terminal port (see page 25)

#### Options

- Modules (see page 32):
- I/O expansion:
  - 2 analog inputs
  - 6 digital inputs
  - 2 digital outputs
- With relay output:
  - 3 NO contacts
- Communication:
  - EtherNet/IP and Modbus TCP Dual port
  - CANopen bus: RJ45 daisy chain, SUB-D, 5-way screw terminals
  - PROFINET bus
  - Profibus DP V1 bus
  - DeviceNet bus
- Passive filters (see page 42)
- Additional EMC input filters for reducing conducted emissions on the line (see page 44)
- Output filters:
- dv/dt filters (see page 46)
- Sinus filters (see page 47)

#### Motor starters

Schneider Electric offers combinations of circuit breakers and contactors to be able to use Altivar Process drives in optimum conditions (see page 52).



ATV660C31Q4X1

### Engineered Drive Systems

Altivar Process Drive Systems offer extensive flexibility for customers from different segments and for various applications.

Depending on customer requirements, several solutions are available.

#### Light engineered to order (Light ETO)

In the Light ETO variant, Altivar Process Drive Systems can be adapted to customer requirements easily and quickly via predefined options.

Thanks to its predefined options, the Light ETO variant allows the minimum delivery time for individually adapted enclosures, ready to connect.

The available options are:

- Increased IP 54 protection degree
- Enclosure plinth for basic device
- Additional enclosure allowing cabling from the top or from the bottom
- Enclosure lighting, heating
- "Local/remote" key switch
- Ethernet port on front door
- Digital and analog I/O modules and relay output modules
- Communication modules for various fieldbus systems
- STO - SIL 3 Stop category 0 or 1 emergency stop
- Front display module (FDM)
- Indicator lights on front door
- Motor/bearing temperature monitoring
- dv/dt filters for long motor cables
- Motor heating
- Circuit breaker
- Undervoltage coil for circuit breaker
- Motor for circuit breaker
- Automated mains disconnection
- Setting for 415 V + 10%
- Safety labels in the local language

#### Engineered to order (ETO)

The ETO variant offers, in addition to the predefined options, the possibility of implementing customer-specific adaptations in Drive Systems.

The following options are available:

- Modified wiring colors
- Remote monitoring
- Different ranges of supply voltages
- Multi-pulse supply (12-pulse)
- Design without a main switch
- Increased short-circuit strength up to 100 kA
- Air intake from the back
- Other enclosure colors
- Customized documentation and labeling
- Design for IT mains
- Motor contactor
- Seaworthy packaging



Engineered Drive System based on the  
ATV660C50Q4X1 drive



Full ETO Drive System

## Engineered Drive Systems (continued)

### Full engineered to order (Full ETO)

With the Full ETO variant it is possible to design bespoke system solutions for the customer.

Typical design variations are:

- Multi-drive systems (several frequency inverters in the same enclosure)
- Other cooling systems
- Other enclosure types
- Other dimensions
- Etc.

For further information, please consult our Customer Care Center.

## Variable speed drives

Altivar Process

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



ATV630D11M3



ATV630D15M3



ATV630D30M3



ATV630D75M3

200...240 V IP 21/UL Type 1 drives - Wall mounting <sup>(1)</sup>

| Motor                                      |                 |     | Line supply      |       |                |                              | Altivar Process                |                                 |                 |                    |
|--------------------------------------------|-----------------|-----|------------------|-------|----------------|------------------------------|--------------------------------|---------------------------------|-----------------|--------------------|
| Power indicated on rating plate (2)        |                 |     | Line current (3) |       | Apparent power | Maximum prospective line Isc | Maximum continuous current (2) | Max. transient current for 60 s | Reference (1)   | Weight             |
|                                            |                 |     | 200 V            | 240 V |                |                              |                                |                                 |                 |                    |
| ND:                                        | Normal duty (4) |     |                  |       |                |                              |                                |                                 |                 |                    |
| HD:                                        | Heavy duty (5)  |     |                  |       |                |                              |                                |                                 |                 |                    |
|                                            | kW              | HP  | A                | A     | kVA            | kA                           | A                              | A                               |                 | kg/<br>lb          |
| THDI ≤ 44% at 100% load in Normal duty (4) |                 |     |                  |       |                |                              |                                |                                 |                 |                    |
| ND                                         | 0.75            | 1   | 3                | 2.6   | 1.1            | 50                           | 4.6                            | 5.1                             | ATV630U07M3     | 4.300/<br>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                              | 8.8                             | ATV630U15M3     | 4.300/<br>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                           | 12.3                            | ATV630U22M3     | 4.500/<br>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                           | 15.1                            | ATV630U30M3     | 4.500/<br>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                           | 20.6                            | ATV630U40M3     | 4.600/<br>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                           | 27.9                            | ATV630U55M3     | 7.700/<br>16.976   |
| HD                                         | 4               | 5   | 15.1             | 13    | 5.4            | 50                           | 18.7                           | 28.1                            |                 |                    |
| ND                                         | 7.5             | 10  | 27.1             | 22.8  | 9.5            | 50                           | 32.7                           | 36                              | ATV630U75M3     | 13.800/<br>30.424  |
| HD                                         | 5.5             | 7.5 | 20.2             | 17.1  | 7.1            | 50                           | 25.4                           | 38.1                            |                 |                    |
| ND                                         | 11              | 15  | 39.3             | 32.9  | 13.7           | 50                           | 46.8                           | 51.5                            | ATV630D11M3     | 13.800/<br>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                           | 69.7                            | ATV630D15M3     | 27.300/<br>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                           | 86.2                            | ATV630D18M3     | 27.300/<br>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                           | 101.9                           | ATV630D22M3     | 27.300/<br>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                            | 135.3                           | ATV630D30M3     | 56.600/<br>124.781 |
| 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                            | 163.9                           | ATV630D37M3     | 56.600/<br>124.781 |
| HD                                         | 30              | 40  | 104.7            | 88.6  | 36.8           | 50                           | 123                            | 184.5                           |                 |                    |
| ND                                         | 45              | 60  | 155.1            | 130.4 | 54.2           | 50                           | 176                            | 193.6                           | ATV630D45M3     | 56.600/<br>124.781 |
| HD                                         | 37              | 50  | 128.5            | 108.5 | 45.1           | 50                           | 149                            | 223.5                           |                 |                    |
| ND                                         | 55              | 75  | 189              | 161   | 61.1           | 50                           | 211                            | 232.1                           | ATV630D55M3 (6) | 84.000/<br>185.188 |
| HD                                         | 45              | 60  | 156              | 134   | 50             | 50                           | 176                            | 264                             |                 |                    |
| ND                                         | 75              | 100 | 256              | 215   | 83.7           | 50                           | 282                            | 310.2                           | ATV630D75M3 (6) | 84.000/<br>185.188 |
| HD                                         | 55              | 75  | 189              | 161   | 61.1           | 50                           | 211                            | 316.5                           |                 |                    |

(1) Altivar Process **ATV630U07M3...D75M3** 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 **ATV630D22M3** or 2.5 kHz for **ATV630D30M3...D75M3**, for use in continuous operation.

The switching frequency is adjustable from 2...12 kHz for all ratings.

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 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%).

(6) Product supplied as IP 00 for mounting in an enclosure. For IP 21 wall mounting, order separately the kit for IP 21/UL Type 1 conformity VW3A9704.

**Note:** Consult the summary tables of possible drive, option and accessory combinations (see page 28).



ATV630D15N4



ATV630D30N4



ATV630D55N4

## 380...480 V IP 21/UL Type 1 drives with category C2 integrated EMC filter - Wall mounting

| Motor                                                         |                |     | Line supply      |                 |                |                              | Altivar Process                |                                 |             |               |       |
|---------------------------------------------------------------|----------------|-----|------------------|-----------------|----------------|------------------------------|--------------------------------|---------------------------------|-------------|---------------|-------|
| Power indicated on rating plate (1)<br>(> 45 kW, see page 20) |                |     | Line current (2) |                 | Apparent power | Maximum prospective line Isc | Maximum continuous current (1) | Max. transient current for 60 s | Reference   | Weight        |       |
|                                                               |                |     |                  |                 |                |                              |                                |                                 |             |               | 380 V |
|                                                               |                |     | ND:              | Normal duty (3) |                |                              |                                |                                 |             |               |       |
| HD:                                                           | Heavy duty (4) |     |                  |                 |                |                              |                                |                                 |             |               |       |
|                                                               | kW             | HP  | A                | A               | kVA            | kA                           | A                              | A                               |             | kg/lb         |       |
| THDI ≤ 44% at 100% load in Normal duty (3)                    |                |     |                  |                 |                |                              |                                |                                 |             |               |       |
| ND                                                            | 0.75           | 1   | 1.5              | 1.3             | 1.1            | 50                           | 2.2                            | 2.4                             | ATV630U07N4 | 4.500/9.921   |       |
| 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                              | 4.4                             | ATV630U15N4 | 4.500/9.921   |       |
| 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                            | 6.2                             | ATV630U22N4 | 4.500/9.921   |       |
| HD                                                            | 1.5            | 2   | 3.1              | 2.9             | 2.4            | 50                           | 4                              | 6                               |             |               |       |
| ND                                                            | 3              | –   | 5.8              | 5.1             | 4.2            | 50                           | 7.2                            | 7.9                             | ATV630U30N4 | 4.600/10.141  |       |
| 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                            | 10.2                            | ATV630U40N4 | 4.600/10.141  |       |
| 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                           | 14                              | ATV630U55N4 | 4.700/10.362  |       |
| 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                           | 18.2                            | ATV630U75N4 | 7.700/16.976  |       |
| 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                           | 25.9                            | ATV630D11N4 | 7.700/16.976  |       |
| 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                           | 34.9                            | ATV630D15N4 | 13.600/29.983 |       |
| 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                           | 43.1                            | ATV630D18N4 | 14.200/31.306 |       |
| 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                           | 50.9                            | ATV630D22N4 | 14.300/31.526 |       |
| 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                           | 67.7                            | ATV630D30N4 | 28.000/61.729 |       |
| 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                           | 82                              | ATV630D37N4 | 28.200/62.170 |       |
| 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                             | 96.8                            | ATV630D45N4 | 28.700/63.273 |       |
| HD                                                            | 37             | 50  | 67.1             | 59.0            | 49.1           | 50                           | 74.5                           | 111.8                           |             |               |       |

(1) These values are given for a nominal switching frequency of 4 kHz for use in continuous operation.

The switching frequency is adjustable from 2...12 kHz for all ratings.

Above 4 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 110%).

(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 28).

## Variable speed drives

Altivar Process

Three-phase supply voltage: 380...480 V, 380...440 V  
50/60 Hz

ATV630D55N4

## 380...480 V IP 21/UL Type 1 drives with category C3 integrated EMC filter - Wall mounting

| Motor                                                                     |                |     | Line supply      |                 |                |                              | Altivar Process                |                                 |                 |                    |
|---------------------------------------------------------------------------|----------------|-----|------------------|-----------------|----------------|------------------------------|--------------------------------|---------------------------------|-----------------|--------------------|
| Power indicated on rating plate (1)<br>( <i>&lt; 55 kW, see page 19</i> ) |                |     | Line current (2) |                 | Apparent power | Maximum prospective line lsc | Maximum continuous current (1) | Max. transient current for 60 s | Reference       | Weight             |
|                                                                           |                |     |                  |                 |                |                              |                                |                                 |                 |                    |
|                                                                           |                |     | ND:              | Normal duty (3) |                |                              |                                |                                 |                 |                    |
| HD:                                                                       | Heavy duty (4) |     |                  |                 |                |                              |                                |                                 |                 |                    |
|                                                                           | kW             | HP  | A                | A               | kVA            | kA                           | A                              | A                               |                 | kg/<br>lb          |
| THDI ≤ 44% at 100% load in Normal duty (3)                                |                |     |                  |                 |                |                              |                                |                                 |                 |                    |
| ND                                                                        | 55             | 75  | 97.2             | 84.2            | 70             | 50                           | 106                            | 116.6                           | ATV630D55N4     | 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                            | 159.5                           | ATV630D75N4     | 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                            | 190.3                           | ATV630D90N4     | 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                            | 232.1                           | ATV630C11N4 (5) | 85.000/<br>187.393 |
| HD                                                                        | 90             | 125 | 170              | 143             | 102.6          | 50                           | 173                            | 259.5                           |                 |                    |
| ND                                                                        | 132            | 200 | 237              | 213             | 161.4          | 50                           | 250                            | 275                             | ATV630C13N4 (5) | 85.000/<br>187.393 |
| HD                                                                        | 110            | 150 | 201              | 165             | 121.8          | 50                           | 211                            | 270                             |                 |                    |
| ND                                                                        | 160            | 250 | 284              | 262             | 201.3          | 50                           | 302                            | 332.2                           | ATV630C16N4 (5) | 85.000/<br>187.393 |
| HD                                                                        | 132            | 200 | 237              | 213             | 161.4          | 50                           | 250                            | 360                             |                 |                    |



ATV630C16N4F

## 380...440 V IP 21 drives with category C3 integrated EMC filter - Floor standing (6)

| Motor                                      |                |    | Line supply      |                 |                |                              | Altivar Process                |                                 |              |                     |
|--------------------------------------------|----------------|----|------------------|-----------------|----------------|------------------------------|--------------------------------|---------------------------------|--------------|---------------------|
| Power indicated on rating plate (1)        |                |    | Line current (2) |                 | Apparent power | Maximum prospective line lsc | Maximum continuous current (1) | Max. transient current for 60 s | Reference    | Weight              |
|                                            |                |    |                  |                 |                |                              |                                |                                 |              |                     |
|                                            |                |    | ND:              | Normal duty (3) |                |                              |                                |                                 |              |                     |
| HD:                                        | Heavy duty (4) |    |                  |                 |                |                              |                                |                                 |              |                     |
|                                            | kW             | HP | A                | A               | kVA            | kA                           | A                              | A                               |              | kg/<br>lb           |
| THDI ≤ 44% at 100% load in Normal duty (3) |                |    |                  |                 |                |                              |                                |                                 |              |                     |
| ND                                         | 110            | –  | 207              | 195             | 135            | 50                           | 211                            | 232                             | ATV630C11N4F | 300.000/<br>661.386 |
| HD                                         | 90             | –  | 174              | 164             | 113            | 50                           | 173                            | 259                             |              |                     |
| ND                                         | 132            | –  | 250              | 232             | 161            | 50                           | 250                            | 275                             | ATV630C13N4F | 300.000/<br>661.386 |
| HD                                         | 110            | –  | 207              | 197             | 136            | 50                           | 211                            | 316                             |              |                     |
| ND                                         | 160            | –  | 291              | 277             | 192            | 50                           | 302                            | 332                             | ATV630C16N4F | 300.000/<br>661.386 |
| HD                                         | 132            | –  | 244              | 232             | 161            | 50                           | 250                            | 375                             |              |                     |
| ND                                         | 200            | –  | 369              | 349             | 242            | 50                           | 370                            | 407                             | ATV630C20N4F | 400.000/<br>881.848 |
| HD                                         | 160            | –  | 302              | 286             | 198            | 50                           | 302                            | 453                             |              |                     |
| ND                                         | 250            | –  | 453              | 432             | 299            | 50                           | 477                            | 524                             | ATV630C25N4F | 400.000/<br>881.848 |
| HD                                         | 200            | –  | 369              | 353             | 244            | 50                           | 370                            | 555                             |              |                     |
| ND                                         | 315            | –  | 566              | 538             | 373            | 50                           | 590                            | 649                             | ATV630C31N4F | 400.000/<br>881.848 |
| HD                                         | 250            | –  | 453              | 432             | 299            | 50                           | 477                            | 715                             |              |                     |

(1) These values are given for a nominal switching frequency of 2.5 kHz for use in continuous operation.

The switching frequency is adjustable from 2...8 kHz 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  $I_{sc}$ .

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

(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, order separately the kit for IP 21/UL Type 1 conformity VW3A9704.

(6) 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/1476 ft in category C4.

**Note:** Consult the summary tables of possible drive, option and accessory combinations (see page 28).



ATV650D15N4



ATV650D30N4



ATV650D55N4

| 380...480 V IP 55 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 |    | Maximum prospective line Isc | Maximum continuous current <sup>(2)</sup> | Max. transient current for 60 s | Reference <sup>(6)</sup> | Weight         |
|                                                                                                      |                            | 380 V                       | 480 V | 380 V          |    |                              |                                           |                                 |                          |                |
| ND:                                                                                                  | Normal duty <sup>(4)</sup> |                             |       |                |    |                              |                                           |                                 |                          |                |
| HD:                                                                                                  | Heavy duty <sup>(5)</sup>  |                             |       |                |    |                              |                                           |                                 |                          |                |
|                                                                                                      | kW HP                      | A                           | A     | kVA            | kA |                              | A                                         | A                               |                          | kg/lb          |
| THDI ≤ 44% at 100% load in Normal duty <sup>(4)</sup>                                                |                            |                             |       |                |    |                              |                                           |                                 |                          |                |
| ND                                                                                                   | 0.75 1                     | 1.5                         | 1.3   | 1.1            | 50 | 2.2                          | 2.4                                       |                                 | ATV650U07N4              | 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                            | 4.4                                       |                                 | ATV650U15N4              | 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                          | 6.2                                       |                                 | ATV650U22N4              | 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                          | 7.9                                       |                                 | ATV650U30N4              | 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                          | 10.2                                      |                                 | ATV650U40N4              | 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                         | 14                                        |                                 | ATV650U55N4              | 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                         | 18.2                                      |                                 | ATV650U75N4              | 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                         | 25.9                                      |                                 | ATV650D11N4              | 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                         | 34.9                                      |                                 | ATV650D15N4              | 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                         | 43.1                                      |                                 | ATV650D18N4              | 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                         | 50.9                                      |                                 | ATV650D22N4              | 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                         | 67.7                                      |                                 | ATV650D30N4              | 50.000/110.231 |
| 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                         | 82                                        |                                 | ATV650D37N4              | 50.000/110.231 |
| 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                           | 96.8                                      |                                 | ATV650D45N4              | 50.000/110.231 |
| HD                                                                                                   | 37 50                      | 67.1                        | 59    | 49.1           | 50 | 74.5                         | 111.8                                     |                                 |                          |                |
| ND                                                                                                   | 55 75                      | 97.2                        | 84.2  | 70             | 50 | 106                          | 116.6                                     |                                 | ATV650D55N4              | 87.000/191.802 |
| HD                                                                                                   | 45 60                      | 81.4                        | 71.8  | 59.7           | 50 | 88                           | 152                                       |                                 |                          |                |
| ND                                                                                                   | 75 100                     | 131.3                       | 112.7 | 93.7           | 50 | 145                          | 159.5                                     |                                 | ATV650D75N4              | 87.000/191.802 |
| HD                                                                                                   | 55 75                      | 98.9                        | 86.9  | 72.2           | 50 | 106                          | 159                                       |                                 |                          |                |
| ND                                                                                                   | 90 125                     | 156.2                       | 135.8 | 112.9          | 50 | 173                          | 190.3                                     |                                 | ATV650D90N4              | 87.000/191.802 |
| HD                                                                                                   | 75 100                     | 134.3                       | 118.1 | 98.2           | 50 | 145                          | 217.5                                     |                                 |                          |                |

(1) Category C2 EMC filter for **ATV650U07N4...D45N4**. Category C3 EMC filter above **ATV650D45N4**.

(2) These values are given for a nominal switching frequency of 4 kHz adjustable from 2...12 kHz up to **ATV650D45N4** or 2.5 kHz adjustable from 2...8 kHz for **ATV650D55N4...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](http://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%).

(6) Supplied with cable gland.

**Note:** Consult the summary tables of possible drive, option and accessory combinations (see page 28).



ATV650D15N4E



ATV650D30N4E



ATV650D55N4E

### 380...480 V IP 55 drives with Vario disconnect switch and category C2 or C3 integrated EMC filter - Wall mounting <sup>(1)</sup>

| Motor                                      |                 |     | Line supply      |       |                |                              | Altivar Process                |                                 |               |                    |  |
|--------------------------------------------|-----------------|-----|------------------|-------|----------------|------------------------------|--------------------------------|---------------------------------|---------------|--------------------|--|
| Power indicated on rating plate (2)        |                 |     | Line current (3) |       | Apparent power | Maximum prospective line Isc | Maximum continuous current (2) | Max. transient current for 60 s | Reference (6) | Weight             |  |
|                                            |                 |     | 380 V            | 480 V | 380 V          |                              |                                |                                 |               |                    |  |
| ND:                                        | Normal duty (4) |     |                  |       |                |                              |                                |                                 |               |                    |  |
| HD:                                        | Heavy duty (5)  |     |                  |       |                |                              |                                |                                 |               |                    |  |
| kW                                         | HP              |     | A                | A     | kVA            | kA                           | A                              | A                               |               | kg<br>lb           |  |
| THDI ≤ 44% at 100% load in Normal duty (4) |                 |     |                  |       |                |                              |                                |                                 |               |                    |  |
| ND                                         | 0.75            | 1   | 1.5              | 1.3   | 1.1            | 50                           | 2.2                            | 2.4                             | ATV650U07N4E  | 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                              | 4.4                             | ATV650U15N4E  | 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                            | 6.2                             | ATV650U22N4E  | 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                            | 7.9                             | ATV650U30N4E  | 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                            | 10.2                            | ATV650U40N4E  | 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                           | 14                              | ATV650U55N4E  | 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                           | 18.2                            | ATV650U75N4E  | 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                           | 25.9                            | ATV650D11N4E  | 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                           | 34.9                            | ATV650D15N4E  | 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                           | 43.1                            | ATV650D18N4E  | 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                           | 50.9                            | ATV650D22N4E  | 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                           | 67.7                            | ATV650D30N4E  | 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                           | 82                              | ATV650D37N4E  | 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                             | 96.8                            | ATV650D45N4E  | 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                            | 116.6                           | ATV650D55N4E  | 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                            | 159.5                           | ATV650D75N4E  | 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                            | 190.3                           | ATV650D90N4E  | 87.000/<br>191.802 |  |
| HD                                         | 75              | 100 | 134.3            | 118.1 | 98.2           | 50                           | 145                            | 217.5                           |               |                    |  |

(1) Category C2 EMC filter for ATV650U07N4E...D45N4E. Category C3 EMC filter above ATV650D45N4E.

(2) These values are given for a nominal switching frequency of 4 kHz adjustable from 2...12 kHz up to **ATV650D45N4E** or 2.5 kHz adjustable from 2...8 kHz for **ATV650D55N4E...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 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%).

(6) Supplied with cable gland.

**Note:** Consult the summary tables of possible drive, option and accessory combinations (see page 28).



ATV650C31N4F

**380...440 V IP 54 drives with switch and category C3 integrated EMC filter - Floor standing (1)**

| Motor                                             |                 | Line supply      |       |                |                              | Altivar Process            |                                 |              |                 |
|---------------------------------------------------|-----------------|------------------|-------|----------------|------------------------------|----------------------------|---------------------------------|--------------|-----------------|
| Power indicated on rating plate                   |                 | Line current (2) |       | Apparent power | Maximum prospective line Isc | Maximum continuous current | Max. transient current for 60 s | Reference    | Weight          |
|                                                   |                 | 380 V            | 400 V | 380 V          |                              |                            |                                 |              |                 |
| ND:                                               | Normal duty (3) |                  |       |                |                              |                            |                                 |              |                 |
| HD:                                               | Heavy duty (4)  |                  |       |                |                              |                            |                                 |              |                 |
| kW                                                | HP              | A                | A     | kVA            | kA                           | A                          | A                               |              | kg/lb           |
| <b>THDI ≤ 44% at 100% load in Normal duty (3)</b> |                 |                  |       |                |                              |                            |                                 |              |                 |
| ND 110                                            | —               | 207              | 195   | 135            | 50                           | 211                        | 232                             | ATV650C11N4F | 310.000/683.433 |
| HD 90                                             | —               | 174              | 164   | 113            | 50                           | 173                        | 259                             |              |                 |
| ND 132                                            | —               | 250              | 232   | 161            | 50                           | 250                        | 275                             | ATV650C13N4F | 310.000/683.433 |
| HD 110                                            | —               | 207              | 197   | 136            | 50                           | 211                        | 316                             |              |                 |
| ND 160                                            | —               | 291              | 277   | 192            | 50                           | 302                        | 332                             | ATV650C16N4F | 310.000/683.433 |
| HD 132                                            | —               | 244              | 232   | 161            | 50                           | 250                        | 375                             |              |                 |
| ND 200                                            | —               | 369              | 349   | 242            | 50                           | 370                        | 407                             | ATV650C20N4F | 420.000/925.941 |
| HD 160                                            | —               | 302              | 286   | 198            | 50                           | 302                        | 453                             |              |                 |
| ND 250                                            | —               | 453              | 432   | 299            | 50                           | 477                        | 524                             | ATV650C25N4F | 420.000/925.941 |
| HD 200                                            | —               | 369              | 353   | 244            | 50                           | 370                        | 555                             |              |                 |
| ND 315                                            | —               | 566              | 538   | 373            | 50                           | 590                        | 649                             | ATV650C31N4F | 420.000/925.941 |
| HD 250                                            | —               | 453              | 432   | 299            | 50                           | 477                        | 715                             |              |                 |

**Replacement parts**

| Description                      | For drive                                  | Reference     | Weight kg/lb |
|----------------------------------|--------------------------------------------|---------------|--------------|
| <b>Fan kit for IP 21 drives</b>  |                                            |               |              |
| Fan, bracket, instruction sheets | ATV630U07M3...U40M3, ATV630U07N4...U55N4   | VX5VPS1001    | —            |
|                                  | ATV630U55M3, ATV630U75N4...D11N4           | VX5VPS2001    | —            |
|                                  | ATV630U75M3...D11M3, ATV630D15N4...D22N4   | VX5VPS3001    | —            |
|                                  | ATV630D15M3...D22M3, ATV630D30N4...D45N4   | VX5VPS4001    | —            |
|                                  | ATV630D30M3...D45M3, ATV630D55N4...D90N4   | VX5VPS5001    | —            |
|                                  | ATV630D55M3...D75M3, ATV630C11N4...C16N4   | VX5VPS6001    | —            |
|                                  | ATV630C11N4F...C31N4F                      | VX5VPM001 (5) | —            |
|                                  | ATV630C11N4F...C31N4F                      | VX5VPM002 (6) | —            |
| <b>Fan kit for IP 55 drives</b>  |                                            |               |              |
| Fan, bracket, instruction sheets | ATV650U07N4...D22N4, ATV650U07N4E...D22N4E | VX5VP50A001   | —            |
|                                  | ATV650D30N4...D90N4, ATV650D30N4E...D90N4E | VX5VP50BC001  | —            |
| <b>Fan kit for IP 54 drives</b>  |                                            |               |              |
| Fan, bracket, instruction sheets | ATV650C11N4F...C31N4F                      | VX5VPM001 (5) | —            |
|                                  | ATV650C11N4F...C31N4F                      | VX5VPM002 (6) | —            |

**Accessories**

| Description                                   | For drive                                | Reference   | Weight kg/lb |
|-----------------------------------------------|------------------------------------------|-------------|--------------|
| Flange-mounting kit for separate air flow (7) | ATV630U07M3...U40M3, ATV630U07N4...U55N4 | NSYPTDS1    | —            |
|                                               | ATV630U55M3, ATV630U75N4...D11N4         | NSYPTDS2    | —            |
|                                               | ATV630U75M3...D11M3, ATV630D15N4...D22N4 | NSYPTDS3    | —            |
|                                               | ATV630D15M3...D22M3, ATV630D30N4...D45N4 | NSYPTDS4    | —            |
|                                               | ATV630D30M3...D45M3, ATV630D55N4...D90N4 | NSYPTDS5    | —            |
| Wall-mounting kit                             | ATV630U07M3...D11M3, ATV630U07N4...D22N4 | NSYAEFPFPTD | —            |
| Kit for IP 21/UL Type 1 conformity            | ATV630D55M3...D75M3, ATV630C11N4...C16N4 | VW3A9704    | —            |

(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/1476 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 110%).

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

(5) VX5VPM001: power fan for IP 21 and IP 54 floor standing drives.

(6) VX5VPM002: door fan for IP 21 and IP 54 floor standing drives.

(7) RUE-2192 patented system.

**Note:** Consult the summary tables of possible drive, option and accessory combinations (see page 28).



Graphic display terminal  
(example shows dynamic pump operation in relation to its optimum operation)



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 25)

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
- Graphic display of a pump's dynamic operation in relation to its optimum operation
- 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 faults
- "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

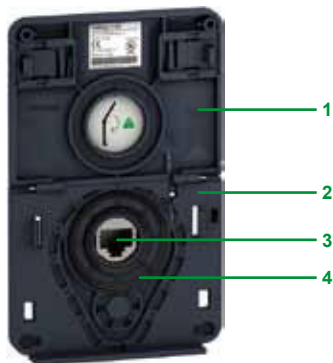
#### References

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

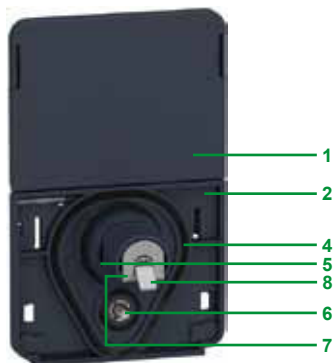
#### Communication accessory

| 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.) powered by internal rechargeable battery | TCSEGB13FA0 | 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)

- 1 Cover plate to maintain IP 65 protection when there is no terminal connected
- 2 Mounting plate
- 3 RJ45 port for the graphic display terminal
- 4 Seal
- 5 Fixing nut
- 6 Anti-rotation pin
- 7 RJ45 port for connecting the remote-mounting cordset (10 m/32.81 ft maximum)  
Cordsets should be ordered separately depending on the length required
- 8 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         | —  | <b>VW3A1104R10</b>  | 0.050/<br>0.110     |
|                                                                                                     | 3/<br>9.84         | —  | <b>VW3A1104R30</b>  | 0.150/<br>0.331     |
|                                                                                                     | 5/<br>16.40        | —  | <b>VW3A1104R50</b>  | 0.250/<br>0.551     |
|                                                                                                     | 10/<br>32.81       | —  | <b>VW3A1104R100</b> | 0.500/<br>1.102     |
|                                                                                                     | —                  | —  | <b>TCSXCNAMUM3P</b> | —                   |
| <b>USB/Mini B USB cable</b><br>for connecting the<br>display terminal to a PC                       | —                  | —  |                     |                     |
| <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     |

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

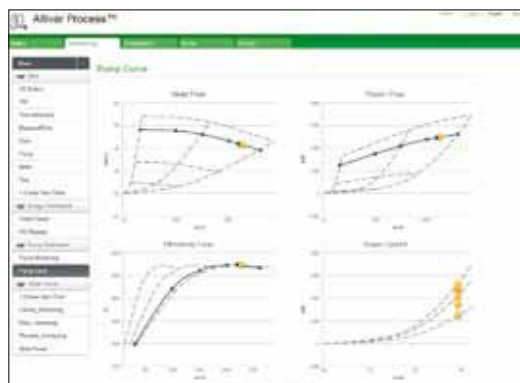
(1) Used to connect a remote PC to the RJ45 port on an IP 21 drive mounted in an enclosure or on a wall. Drill hole with a standard Ø 22 tool, as used for a pushbutton. (Requires a remote-mounting cordset VW3A1104R●●● equipped with 2 RJ45 connectors).



Login screen



Customizable widgets



Pump curves



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 such as optimum pump operation
  - 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 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 pump functions
- Energy and process dashboards
- Graphic display of system operation and comparison with optimum operation (pump 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

## 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 our "SoMove: Setup Software" catalog available on our website [www.schneider-electric.com](http://www.schneider-electric.com).

| Table showing possible combinations of options for ATV630●●●M3, ATV630●●●N4 and ATV650●●●N4 drives |     |             |              |                     |                         |               |                         |               |    |          |             |                          |               |                            |              |                            |
|----------------------------------------------------------------------------------------------------|-----|-------------|--------------|---------------------|-------------------------|---------------|-------------------------|---------------|----|----------|-------------|--------------------------|---------------|----------------------------|--------------|----------------------------|
| Motor                                                                                              |     | Drive       | 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 |
| kW                                                                                                 | HP  |             | Fan kit      | Flange-mounting kit | Passive filters (50 Hz) |               | Passive filters (60 Hz) |               |    |          |             |                          |               |                            |              |                            |
|                                                                                                    |     |             |              |                     | THDI < 10%              | THDI < 5%     | THDI < 10%              | THDI < 5%     |    |          |             |                          |               |                            |              |                            |
| Three-phase supply voltage: 200...240 V 50/60 Hz - IP 21/UL Type 1                                 |     |             |              |                     |                         |               |                         |               |    |          |             |                          |               |                            |              |                            |
| 0.75                                                                                               | 1   | ATV630U07M3 | VX5VP50BC001 | NSYPTDS1            | –                       | –             | –                       | –             |    | VW3A4701 | VW3A47901   | VW3A5301                 | VW3A53902     | VW3A5401                   | VW3A53901    |                            |
| 1.5                                                                                                | 2   | ATV630U15M3 | VX5VP50BC001 | NSYPTDS1            | –                       | –             | –                       | –             |    | VW3A4701 | VW3A47901   | VW3A5302                 | VW3A53902     | VW3A5402                   | VW3A53901    |                            |
| 2.2                                                                                                | 3   | ATV630U22M3 | VX5VP50BC001 | NSYPTDS1            | –                       | –             | –                       | –             |    | VW3A4702 | VW3A47902   | VW3A5302                 | VW3A53902     | VW3A5402                   | VW3A53901    |                            |
| 3                                                                                                  | –   | ATV630U30M3 | VX5VP50BC001 | NSYPTDS1            | –                       | –             | –                       | –             |    | VW3A4702 | VW3A47902   | VW3A5302                 | VW3A53902     | VW3A5402                   | VW3A53901    |                            |
| 4                                                                                                  | 5   | ATV630U40M3 | VX5VP50BC001 | NSYPTDS1            | –                       | –             | –                       | –             |    | VW3A4703 | VW3A47903   | VW3A5303                 | VW3A53902     | VW3A5403                   | VW3A53902    |                            |
| 5.5                                                                                                | 7.5 | ATV630U55M3 | VX5VPS1001   | NSYPTDS2            | –                       | –             | –                       | –             |    | VW3A4703 | VW3A47903   | VW3A5304                 | VW3A53903     | VW3A5404                   | VW3A53903    |                            |
| 7.5                                                                                                | 10  | ATV630U75M3 | VX5VPS3001   | NSYPTDS3            | –                       | –             | –                       | –             |    | VW3A4703 | VW3A47903   | VW3A5304                 | VW3A53903     | VW3A5404                   | VW3A53903    |                            |
| 11                                                                                                 | 15  | ATV630D11M3 | VX5VPS3001   | NSYPTDS3            | –                       | –             | –                       | –             |    | VW3A4704 | VW3A47904   | VW3A5304                 | VW3A53903     | VW3A5404                   | VW3A53903    |                            |
| 15                                                                                                 | 20  | ATV630D15M3 | VX5VPS4001   | NSYPTDS4            | –                       | –             | –                       | –             |    | VW3A4705 | VW3A47905   | VW3A5305                 | VW3A53905     | VW3A5405                   | VW3A53904    |                            |
| 18.5                                                                                               | 25  | ATV630D18M3 | VX5VPS4001   | NSYPTDS4            | –                       | –             | –                       | –             |    | VW3A4706 | VW3A47906   | VW3A5305                 | VW3A53905     | VW3A5405                   | VW3A53904    |                            |
| 22                                                                                                 | 30  | ATV630D22M3 | VX5VPS4001   | NSYPTDS4            | –                       | –             | –                       | –             |    | VW3A4706 | VW3A47906   | VW3A5305                 | VW3A53905     | VW3A5405                   | VW3A53904    |                            |
| 30                                                                                                 | 40  | ATV630D30M3 | VX5VPS5001   | NSYPTDS5            | –                       | –             | –                       | –             |    | VW3A4707 | VW3A47907   | VW3A5306                 | –             | VW3A5406                   | –            |                            |
| 37                                                                                                 | 50  | ATV630D37M3 | VX5VPS5001   | NSYPTDS5            | –                       | –             | –                       | –             |    | VW3A4707 | VW3A47907   | VW3A5306                 | –             | VW3A5406                   | –            |                            |
| 45                                                                                                 | 60  | ATV630D45M3 | VX5VPS5001   | NSYPTDS5            | –                       | –             | –                       | –             |    | VW3A4708 | VW3A47908   | VW3A5306                 | –             | VW3A5406                   | –            |                            |
| 55                                                                                                 | 75  | ATV630D55M3 | VX5VPS6001   | –                   | –                       | –             | –                       | –             |    | VW3A4709 | –           | VW3A5307                 | –             | –                          | –            |                            |
| 75                                                                                                 | 100 | ATV630D75M3 | VX5VPS6001   | –                   | –                       | –             | –                       | –             |    | VW3A4710 | –           | VW3A5307                 | –             | VW3A5407 (2)               | –            |                            |
| Three-phase supply voltage: 380...480 V 50/60 Hz - IP 21/UL Type 1                                 |     |             |              |                     |                         |               |                         |               |    |          |             |                          |               |                            |              |                            |
| 0.75                                                                                               | 1   | ATV630U07N4 | VX5VP50BC001 | NSYPTDS1            | VW3A46101               | VW3A46120     | VW3A46139               | VW3A46158     |    | VW3A4701 | VW3A47901   | VW3A5301                 | VW3A53902     | VW3A5401                   | VW3A53901    |                            |
| 1.5                                                                                                | 2   | ATV630U15N4 | VX5VP50BC001 | NSYPTDS1            | VW3A46101               | VW3A46120     | VW3A46139               | VW3A46158     |    | VW3A4701 | VW3A47901   | VW3A5301                 | VW3A53902     | VW3A5401                   | VW3A53901    |                            |
| 2.2                                                                                                | 3   | ATV630U22N4 | VX5VP50BC001 | NSYPTDS1            | VW3A46101               | VW3A46120     | VW3A46139               | VW3A46158     |    | VW3A4701 | VW3A47901   | VW3A5301                 | VW3A53902     | VW3A5401                   | VW3A53901    |                            |
| 3                                                                                                  | –   | ATV630U30N4 | VX5VP50BC001 | NSYPTDS1            | VW3A46101               | VW3A46120     | VW3A46139               | VW3A46158     |    | VW3A4702 | VW3A47902   | VW3A5302                 | VW3A53902     | VW3A5402                   | VW3A53901    |                            |
| 4                                                                                                  | 5   | ATV630U40N4 | VX5VP50BC001 | NSYPTDS1            | VW3A46102               | VW3A46121     | VW3A46140               | VW3A46159     |    | VW3A4702 | VW3A47902   | VW3A5302                 | VW3A53902     | VW3A5402                   | VW3A53901    |                            |
| 5.5                                                                                                | 7.5 | ATV630U55N4 | VX5VP50BC001 | NSYPTDS1            | VW3A46102               | VW3A46121     | VW3A46140               | VW3A46159     |    | VW3A4702 | VW3A47902   | VW3A5302                 | VW3A53902     | VW3A5402                   | VW3A53901    |                            |
| 7.5                                                                                                | 10  | ATV630U75N4 | VX5VPS1001   | NSYPTDS2            | VW3A46103               | VW3A46122     | VW3A46141               | VW3A46160     |    | VW3A4703 | VW3A47903   | VW3A5303                 | VW3A53902     | VW3A5403                   | VW3A53902    |                            |
| 11                                                                                                 | 15  | ATV630D11N4 | VX5VPS1001   | NSYPTDS2            | VW3A46104               | VW3A46123     | VW3A46142               | VW3A46161     |    | VW3A4703 | VW3A47903   | VW3A5303                 | VW3A53902     | VW3A5403                   | VW3A53902    |                            |
| 15                                                                                                 | 20  | ATV630D15N4 | VX5VPS3001   | NSYPTDS3            | VW3A46105               | VW3A46124     | VW3A46143               | VW3A46162     |    | VW3A4703 | VW3A47903   | VW3A5304                 | VW3A53903     | VW3A5404                   | VW3A53903    |                            |
| 18.5                                                                                               | 25  | ATV630D18N4 | VX5VPS3001   | NSYPTDS3            | VW3A46106               | VW3A46125     | VW3A46144               | VW3A46163     |    | VW3A4704 | VW3A47904   | VW3A5304                 | VW3A53903     | VW3A5404                   | VW3A53903    |                            |
| 22                                                                                                 | 30  | ATV630D22N4 | VX5VPS3001   | NSYPTDS3            | VW3A46107               | VW3A46126     | VW3A46145               | VW3A46164     |    | VW3A4704 | VW3A47904   | VW3A5304                 | VW3A53903     | VW3A5404                   | VW3A53903    |                            |
| 30                                                                                                 | 40  | ATV630D30N4 | VX5VPS4001   | NSYPTDS4            | VW3A46108               | VW3A46127     | VW3A46146               | VW3A46165     |    | VW3A4705 | VW3A47905   | VW3A5305                 | VW3A53905     | VW3A5405                   | VW3A53904    |                            |
| 37                                                                                                 | 50  | ATV630D37N4 | VX5VPS4001   | NSYPTDS4            | VW3A46109               | VW3A46128     | VW3A46147               | VW3A46166     |    | VW3A4706 | VW3A47906   | VW3A5305                 | VW3A53905     | VW3A5405                   | VW3A53904    |                            |
| 45                                                                                                 | 60  | ATV630D45N4 | VX5VPS4001   | NSYPTDS4            | VW3A46110               | VW3A46129     | VW3A46148               | VW3A46167     |    | VW3A4706 | VW3A47906   | VW3A5305                 | VW3A53905     | VW3A5405                   | VW3A53904    |                            |
| 55                                                                                                 | 75  | ATV630D55N4 | VX5VPS5001   | NSYPTDS5            | VW3A46111               | VW3A46130     | VW3A46149               | VW3A46168     |    | VW3A4707 | VW3A47907   | VW3A5306                 | –             | VW3A5406                   | –            |                            |
| 75                                                                                                 | 100 | ATV630D75N4 | VX5VPS5001   | NSYPTDS5            | VW3A46112               | VW3A46131     | VW3A46150               | VW3A46169     |    | VW3A4708 | VW3A47908   | VW3A5306                 | –             | VW3A5406                   | –            |                            |
| 90                                                                                                 | 125 | ATV630D90N4 | VX5VPS5001   | NSYPTDS5            | VW3A46113               | VW3A46132     | VW3A46151               | VW3A46170     |    | VW3A4708 | VW3A47908   | VW3A5306                 | –             | VW3A5406                   | –            |                            |
| 110                                                                                                | 150 | ATV630C11N4 | VX5VPS6001   | –                   | VW3A46114               | VW3A46133     | VW3A46152               | VW3A46171     |    | VW3A4709 | –           | VW3A5307                 | –             | –                          | –            |                            |
| 132                                                                                                | 200 | ATV630C13N4 | VX5VPS6001   | –                   | VW3A46115               | VW3A46134     | VW3A46153               | VW3A46172     |    | VW3A4709 | –           | VW3A5307                 | –             | VW3A5407 (2)               | –            |                            |
| 160                                                                                                | 250 | ATV630C16N4 | VX5VPS6001   | –                   | VW3A46116               | VW3A46135     | VW3A46154               | VW3A46173     |    | VW3A4710 | –           | VW3A5307                 | –             | VW3A5407 (2)               | –            |                            |
| Three-phase supply voltage: 380...480 V 50/60 Hz - IP 55                                           |     |             |              |                     |                         |               |                         |               |    |          |             |                          |               |                            |              |                            |
| 0.75                                                                                               | 1   | ATV650U07N4 | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |    | VW3A4701 | –           | VW3A5301                 | –             | VW3A5401 (1)               | –            |                            |
| 1.5                                                                                                | 2   | ATV650U15N4 | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |    | VW3A4701 | –           | VW3A5301                 | –             | VW3A5401 (1)               | –            |                            |
| 2.2                                                                                                | 3   | ATV650U22N4 | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |    | VW3A4701 | –           | VW3A5301                 | –             | VW3A5401 (1)               | –            |                            |
| 3                                                                                                  | –   | ATV650U30N4 | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |    | VW3A4702 | –           | VW3A5302                 | –             | VW3A5402 (1)               | –            |                            |
| 4                                                                                                  | 5   | ATV650U40N4 | VX5VP50A001  | –                   | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) |    | VW3A4702 | –           | VW3A5302                 | –             | VW3A5402 (1)               | –            |                            |
| 5.5                                                                                                | 7.5 | ATV650U55N4 | VX5VP50A001  | –                   | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) |    | VW3A4702 | –           | VW3A5302                 | –             | VW3A5402 (1)               | –            |                            |
| 7.5                                                                                                | 10  | ATV650U75N4 | VX5VP50A001  | –                   | VW3A46103 (1)           | VW3A46122 (1) | VW3A46141 (1)           | VW3A46160 (1) |    | VW3A4703 | –           | VW3A5303                 | –             | VW3A5403 (1)               | –            |                            |
| 11                                                                                                 | 15  | ATV650D11N4 | VX5VP50A001  | –                   | VW3A46104 (1)           | VW3A46123 (1) | VW3A46142 (1)           | VW3A46161 (1) |    | VW3A4703 | –           | VW3A5303                 | –             | VW3A5403 (1)               | –            |                            |
| 15                                                                                                 | 20  | ATV650D15N4 | VX5VP50A001  | –                   | VW3A46105 (1)           | VW3A46124 (1) | VW3A46143 (1)           | VW3A46162 (1) |    | VW3A4703 | –           | VW3A5304                 | –             | VW3A5404 (1)               | –            |                            |
| 18.5                                                                                               | 25  | ATV650D18N4 | VX5VP50A001  | –                   | VW3A46106 (1)           | VW3A46125 (1) | VW3A46144 (1)           | VW3A46163 (1) |    | VW3A4704 | –           | VW3A5304                 | –             | VW3A5404 (1)               | –            |                            |
| 22                                                                                                 | 30  | ATV650D22N4 | VX5VP50A001  | –                   | VW3A46107 (1)           | VW3A46126 (1) | VW3A46145 (1)           | VW3A46164 (1) |    | VW3A4704 | –           | VW3A5304                 | –             | VW3A5404 (1)               | –            |                            |
| 30                                                                                                 | 40  | ATV650D30N4 | VX5VP50BC001 | –                   | VW3A46108 (1)           | VW3A46127 (1) | VW3A46146 (1)           | VW3A46165 (1) |    | VW3A4705 | –           | VW3A5305                 | –             | VW3A5405 (1)               | –            |                            |
| 37                                                                                                 | 50  | ATV650D37N4 | VX5VP50BC001 | –                   | VW3A46109 (1)           | VW3A46128 (1) | VW3A46147 (1)           | VW3A46166 (1) |    | VW3A4706 | –           | VW3A5305                 | –             | VW3A5405 (1)               | –            |                            |
| 45                                                                                                 | 60  | ATV650D45N4 | VX5VP50BC001 | –                   | VW3A46110 (1)           | VW3A46129 (1) | VW3A46148 (1)           | VW3A46167 (1) |    | VW3A4706 | –           | VW3A5305                 | –             | VW3A5405 (1)               | –            |                            |
| 55                                                                                                 | 75  | ATV650D55N4 | VX5VP50BC001 | –                   | VW3A46111 (1)           | VW3A46130 (1) | VW3A46149 (1)           | VW3A46168 (1) |    | VW3A4707 | –           | VW3A5306                 | –             | VW3A5406 (1)               | –            |                            |
| 75                                                                                                 | 100 | ATV650D75N4 | VX5VP50BC001 | –                   | VW3A46112 (1)           | VW3A46131 (1) | VW3A46150 (1)           | VW3A46169 (1) |    | VW3A4708 | –           | VW3A5306                 | –             | VW3A5406 (1)               | –            |                            |
| 90                                                                                                 | 125 | ATV650D90N4 | VX5VP50BC001 | –                   | VW3A46113 (1)           | VW3A46132 (1) | VW3A46151 (1)           | VW3A46170 (1) |    | VW3A4708 | –           | VW3A5306                 | –             | VW3A5406 (1)               | –            |                            |
| Pages                                                                                              | 18  | 23          | 23           | 42                  | 43                      | 44            | 45                      |               | 46 | 47       | 48          | 49                       | 50            | 51                         |              |                            |

(1) When used with ATV650U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

(2) In "Normal Duty", apply a derating of 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.

| Table showing possible combinations of options for ATV650●●●N4E drives                |     |              |              |                     |                         |               |                         |               |  |             |                          |               |                            |              |                            |
|---------------------------------------------------------------------------------------|-----|--------------|--------------|---------------------|-------------------------|---------------|-------------------------|---------------|--|-------------|--------------------------|---------------|----------------------------|--------------|----------------------------|
| Motor                                                                                 |     | Drive        | Options      |                     |                         |               |                         |               |  |             |                          |               |                            |              |                            |
| kW                                                                                    | HP  |              | Fan kit      | Flange-mounting kit | Passive filters (50 Hz) |               | Passive filters (60 Hz) |               |  | 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 |
|                                                                                       |     |              |              |                     | THDI < 10%              | THDI < 5%     | THDI < 10%              | THDI < 5%     |  |             |                          |               |                            |              |                            |
| Three-phase supply voltage: 380...480 V 50/60 Hz - IP 55 with Vario disconnect switch |     |              |              |                     |                         |               |                         |               |  |             |                          |               |                            |              |                            |
| 0.75                                                                                  | 1   | ATV650U07N4E | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |  | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          |
| 1.5                                                                                   | 2   | ATV650U15N4E | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |  | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          |
| 2.2                                                                                   | 3   | ATV650U22N4E | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |  | VW3A4701    | –                        | VW3A5301      | –                          | VW3A5401 (1) | –                          |
| 3                                                                                     | –   | ATV650U30N4E | VX5VP50A001  | –                   | VW3A46101 (1)           | VW3A46120 (1) | VW3A46139 (1)           | VW3A46158 (1) |  | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          |
| 4                                                                                     | 5   | ATV650U40N4E | VX5VP50A001  | –                   | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) |  | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          |
| 5.5                                                                                   | 7.5 | ATV650U55N4E | VX5VP50A001  | –                   | VW3A46102 (1)           | VW3A46121 (1) | VW3A46140 (1)           | VW3A46159 (1) |  | VW3A4702    | –                        | VW3A5302      | –                          | VW3A5402 (1) | –                          |
| 7.5                                                                                   | 10  | ATV650U75N4E | VX5VP50A001  | –                   | VW3A46103 (1)           | VW3A46122 (1) | VW3A46141 (1)           | VW3A46160 (1) |  | VW3A4703    | –                        | VW3A5303      | –                          | VW3A5403 (1) | –                          |
| 11                                                                                    | 15  | ATV650D11N4E | VX5VP50A001  | –                   | VW3A46104 (1)           | VW3A46123 (1) | VW3A46142 (1)           | VW3A46161 (1) |  | VW3A4703    | –                        | VW3A5303      | –                          | VW3A5403 (1) | –                          |
| 15                                                                                    | 20  | ATV650D15N4E | VX5VP50A001  | –                   | VW3A46105 (1)           | VW3A46124 (1) | VW3A46143 (1)           | VW3A46162 (1) |  | VW3A4703    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          |
| 18.5                                                                                  | 25  | ATV650D18N4E | VX5VP50A001  | –                   | VW3A46106 (1)           | VW3A46125 (1) | VW3A46144 (1)           | VW3A46163 (1) |  | VW3A4704    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          |
| 22                                                                                    | 30  | ATV650D22N4E | VX5VP50A001  | –                   | VW3A46107 (1)           | VW3A46126 (1) | VW3A46145 (1)           | VW3A46164 (1) |  | VW3A4704    | –                        | VW3A5304      | –                          | VW3A5404 (1) | –                          |
| 30                                                                                    | 40  | ATV650D30N4E | VX5VP50BC001 | –                   | VW3A46108 (1)           | VW3A46127 (1) | VW3A46146 (1)           | VW3A46165 (1) |  | VW3A4705    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          |
| 37                                                                                    | 50  | ATV650D37N4E | VX5VP50BC001 | –                   | VW3A46109 (1)           | VW3A46128 (1) | VW3A46147 (1)           | VW3A46166 (1) |  | VW3A4706    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          |
| 45                                                                                    | 60  | ATV650D45N4E | VX5VP50BC001 | –                   | VW3A46110 (1)           | VW3A46129 (1) | VW3A46148 (1)           | VW3A46167 (1) |  | VW3A4706    | –                        | VW3A5305      | –                          | VW3A5405 (1) | –                          |
| 55                                                                                    | 75  | ATV650D55N4E | VX5VP50BC001 | –                   | VW3A46111 (1)           | VW3A46130 (1) | VW3A46149 (1)           | VW3A46168 (1) |  | VW3A4707    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          |
| 75                                                                                    | 100 | ATV650D75N4E | VX5VP50BC001 | –                   | VW3A46112 (1)           | VW3A46131 (1) | VW3A46150 (1)           | VW3A46169 (1) |  | VW3A4708    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          |
| 90                                                                                    | 125 | ATV650D90N4E | VX5VP50BC001 | –                   | VW3A46113 (1)           | VW3A46132 (1) | VW3A46151 (1)           | VW3A46170 (1) |  | VW3A4708    | –                        | VW3A5306      | –                          | VW3A5406 (1) | –                          |
| Pages                                                                                 |     | 18           | 23           | 23                  | 42                      | 43            | 44                      | 45            |  | 46          | 47                       | 48            | 49                         | 50           | 51                         |

| I/O expansion modules              |           |      |
|------------------------------------|-----------|------|
| Description                        | Reference | Page |
| Module with digital and analog I/O | VW3A3203  | 33   |
| Module with relay outputs          | VW3A3204  | 33   |

| List of communication modules (2)    |           |      |
|--------------------------------------|-----------|------|
| Description                          | Reference | Page |
| EtherNet/IP and Modbus TCP dual port | VW3A3720  | 37   |
| CANopen Daisy chain                  | VW3A3608  | 38   |
| CANopen SUB-D                        | VW3A3618  | 38   |
| CANopen screw terminal block         | VW3A3628  | 39   |
| PROFINET                             | VW3A3627  | 40   |
| PROFIBUS DP V1                       | VW3A3607  | 40   |
| DeviceNet                            | VW3A3609  | 41   |

(1) When used with ATV650U07N4/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<br>VW3A3203 (3) | Relay outputs<br>VW3A3204 (3) | Communication<br>VW3A3720 and VW3A36●● (4) |
| Digital and analog I/O<br>VW3A3203     |                                        |                               |                                            |
| Relay outputs<br>VW3A3204              |                                        |                               |                                            |
| Communication<br>VW3A3720 and VW3A36●● |                                        |                               |                                            |

Combination possible

Combination impossible

(3) Maximum combination involving two types of module is 2.  
(4) Maximum combination involving two types of module is 1.

PF140354



#### I/O expansion modules

##### Presentation

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

2 expansion 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 expansion or communication modules
- 2 Slot B for I/O expansion 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  $\square$  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

**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).

PF130896



VW3A3203

PF130897



VW3A3204

## I/O expansion modules

| Description                        | I/O type          |                    |                  |                  | Reference | Weight<br>kg/<br>lb |
|------------------------------------|-------------------|--------------------|------------------|------------------|-----------|---------------------|
|                                    | Digital<br>inputs | Digital<br>outputs | Analog<br>inputs | Relay<br>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.

#### Presentation

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

- 1 Ethernet port
- 2 serial ports

#### Integrated communication protocols

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

##### ■ Ethernet port

This offers standard services regularly used in industrial networks:

- 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 the Ethernet port mean that Altivar Process drives can be integrated into Schneider Electric solutions.

##### ■ Serial ports

- One port dedicated to field network operation for exchanging data with other devices via the Modbus protocol
- A second dedicated port for the multidrop connection of the following HMIs and configuration tools:
  - The remote 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 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 RJ45 Ethernet port
- 2 RJ45 serial port
- 3 Slot A for I/O expansion or communication modules
- 4 Slot B for I/O expansion modules
- 5 Removable screw terminal blocks for 24 V  $\overline{\text{---}}$  power supply and integrated I/O
- 6 RJ45 serial link for HMI (remote graphic display terminal, Magelis terminal, etc.)

Altivar Process drives can only take one communication 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*, *xif*) for devices on the communication buses and networks are available on our website [www.schneider-electric.com](http://www.schneider-electric.com).

PFI140394



#### Optional communication modules

The Altivar Process drive can also be connected to other industrial communication buses and networks by using one of the communication modules available as an option. Communication cards are supplied in "cassette" format for ease of mounting/removal.

Dedicated communication modules:

- EtherNet/IP and Modbus TCP Dual port
- CANopen:
  - RJ45 Daisy Chain
  - Sub-D
  - Screw terminal block
- 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 are possible via the network are possible even if there is no power supply 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:

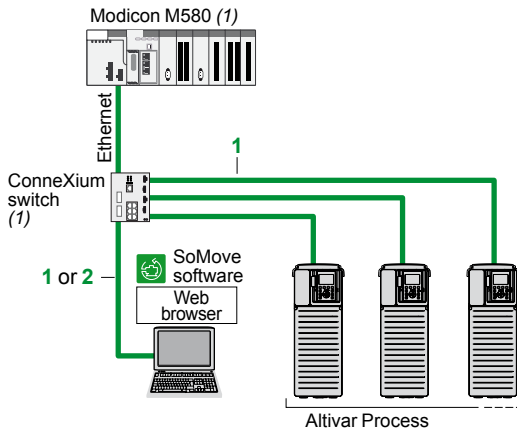
- Define the type of stop when a communication interruption is detected
- Maintain last command received
- Fallback position at preset speed
- Ignore the detected communication interruption

## Variable speed drives

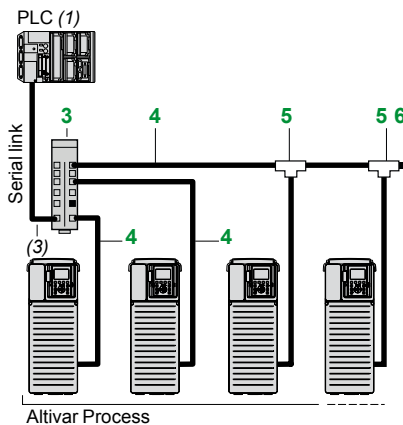
## Altivar Process

## Communication buses and networks

## Integrated ports



Example of Ethernet architecture



Example of serial link architecture

## Integrated Ethernet 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      | <b>1</b> | 2/<br>6.56         | <b>490NTW00002</b>  | —                   |
|                                                                                                                                                                   |          | 5/<br>16.40        | <b>490NTW00005</b>  | —                   |
|                                                                                                                                                                   |          | 12/<br>39.37       | <b>490NTW00012</b>  | —                   |
| <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 | <b>2</b> | 5/<br>16.40        | <b>490NTC00005</b>  | —                   |
|                                                                                                                                                                   |          | 15/<br>49.21       | <b>490NTC00015</b>  | —                   |
| <b>Straight shielded twisted pair cables</b><br>equipped with 2 RJ45 connectors<br>conforming to UL and CSA 22.1                                                  | <b>1</b> | 2/<br>6.56         | <b>490NTW00002U</b> | —                   |
|                                                                                                                                                                   |          | 5/<br>16.40        | <b>490NTW00005U</b> | —                   |
|                                                                                                                                                                   |          | 12/<br>39.37       | <b>490NTW00012U</b> | —                   |
| <b>Crossover shielded twisted pair<br/>cables</b><br>equipped with 2 RJ45 connectors<br>conforming to UL and CSA 22.1                                             | <b>2</b> | 5/<br>16.40        | <b>490NTC00005U</b> | —                   |
|                                                                                                                                                                   |          | 15/<br>49.21       | <b>490NTC00015U</b> | —                   |

## Integrated serial port

| Description                                                      |                                       | Item                  | Length<br>m/<br>ft | Unit<br>reference | Weight<br>kg/<br>lb |                 |
|------------------------------------------------------------------|---------------------------------------|-----------------------|--------------------|-------------------|---------------------|-----------------|
| Connection accessories                                           |                                       |                       |                    |                   |                     |                 |
| Splitter box<br>10 RJ45 connectors and 1 screw<br>terminal block |                                       | 3                     | —                  | LU9GC3            | 0.500/<br>1.102     |                 |
| Modbus<br>T-junction<br>boxes                                    | 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 integrated<br>cable  | 5                     | 1/<br>3.28         | VW3A8306TF10      | 0.210/<br>0.463     |                 |
| Modbus line<br>terminator (4)                                    | For RJ45<br>connector                 | R = 120 Ω<br>C = 1 nf | 6                  | —                 | VW3A8306RC          | 0.010/<br>0.022 |
| Cordsets<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

## Communication buses and networks

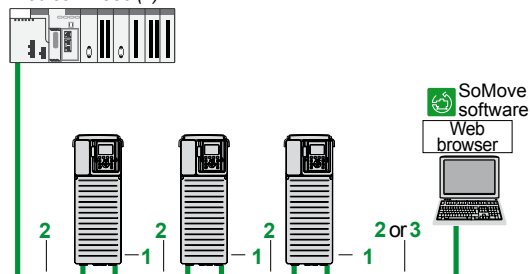
## Option: Communication modules

PF130914A



VW3A3720

Modicon M580 (2)



Altivar Process drive + VW3A3720 module

Example of connection on an EtherNet/IP network

## EtherNet/IP and Modbus TCP networks (1)

| Description                                                     | Item     | Length<br>m/<br>ft | Unit<br>reference | Weight<br>kg/<br>lb |
|-----------------------------------------------------------------|----------|--------------------|-------------------|---------------------|
| <b>Communication module</b>                                     |          |                    |                   |                     |
| <b>EtherNet/IP and Modbus TCP dual port module</b>              | <b>1</b> | –                  | <b>VW3A3720</b>   | 0.020/<br>0.044     |
| For connection to the Modbus TCP network or EtherNet/IP network |          |                    |                   |                     |
| Ports: 2 RJ45 connectors                                        |          |                    |                   |                     |
| ■ 10/100 Mbps, half duplex and full duplex                      |          |                    |                   |                     |
| ■ embedded Web server                                           |          |                    |                   |                     |
| Requires cordset                                                |          |                    |                   |                     |
| 490NTW000●●/●●U or                                              |          |                    |                   |                     |
| 490NTC000●●/●●U                                                 |          |                    |                   |                     |

## ConneXium cordsets (3)

|                                                                                                                                                               |          |              |                     |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|---------------------|---|
| <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  | <b>2</b> | 2/<br>6.56   | <b>490NTW000002</b> | – |
|                                                                                                                                                               |          | 5/<br>16.40  | <b>490NTW000005</b> | – |
|                                                                                                                                                               |          | 12/<br>39.37 | <b>490NTW000012</b> | – |
|                                                                                                                                                               |          |              |                     |   |
| <b>Crossover 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 | <b>3</b> | 5/<br>16.40  | <b>490NTC000005</b> | – |
|                                                                                                                                                               |          | 15/<br>49.21 | <b>490NTC000015</b> | – |
| <b>Straight shielded twisted pair cables</b><br>equipped with 2 RJ45 connectors<br>conforming to UL and CSA 22.1                                              | <b>2</b> | 2/<br>6.56   | <b>490NTW00002U</b> | – |
|                                                                                                                                                               |          | 5/<br>16.40  | <b>490NTW00005U</b> | – |
|                                                                                                                                                               |          | 12/<br>39.37 | <b>490NTW00012U</b> | – |
|                                                                                                                                                               |          |              |                     |   |
| <b>Crossover shielded twisted pair cables</b><br>equipped with 2 RJ45 connectors<br>conforming to UL and CSA 22.1                                             | <b>3</b> | 5/<br>16.40  | <b>490NTC00005U</b> | – |
|                                                                                                                                                               |          | 15/<br>49.21 | <b>490NTC00015U</b> | – |

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

(2) Please refer to the "M580 automation platform" catalog on our website [www.schneider-electric.com](http://www.schneider-electric.com).(3) 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).

## Variable speed drives

## Altivar Process

## Communication buses and networks

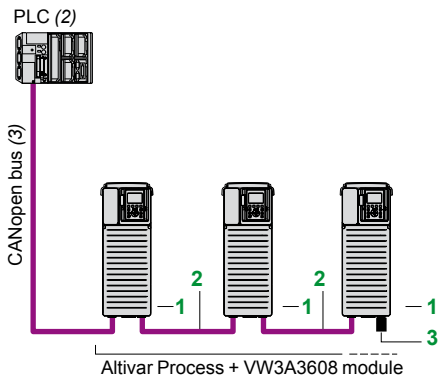
## Option: Communication modules



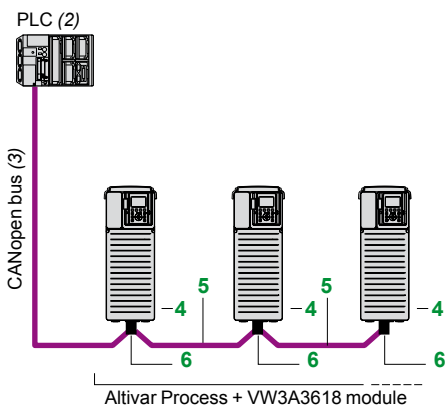
VW3A3608



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 |
|----------------------------------------------------------------------------------------------------|------|--------------------|-------------------|---------------------|
| <b>Communication module</b>                                                                        |      |                    |                   |                     |
| <b>CANopen Daisy chain module</b><br>Ports: 2 RJ45 connectors                                      | 1    | —                  | VW3A3608          | —                   |
| <b>Connection to RJ45 connector (optimized solution for daisy chain connection on CANopen bus)</b> |      |                    |                   |                     |
| <b>CANopen cordsets</b><br>equipped with 2 RJ45 connectors                                         | 2    | 0.3/<br>0.98       | VW3CANCARR03      | 0.050/<br>0.110     |
|                                                                                                    |      | 1/<br>3.28         | VW3CANCARR1       | 0.500/<br>1.102     |
| <b>CANopen line terminator for RJ45 connector</b>                                                  | 3    | —                  | TCSCAR013M120     | —                   |

## Communication module

|                                                                                                                                                                           |   |                |                |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------|----------------|-------------------|
| <b>CANopen SUB-D module</b><br>Ports: 1 x 9-way male SUB-D connector                                                                                                      | 4 | —              | VW3A3618       | —                 |
| <b>Connection to SUB-D connector</b>                                                                                                                                      |   |                |                |                   |
| <b>CANopen cables (3) (4)</b><br>Standard cable, C€ mark<br>Low smoke zero halogen.<br>Flame-retardant<br>(IEC 60332-1)                                                   | 5 | 50/<br>164.04  | TSXCANCA50     | 4.930/<br>10.869  |
|                                                                                                                                                                           |   | 100/<br>328.08 | TSXCANCA100    | 8.800/<br>19.401  |
|                                                                                                                                                                           |   | 300/<br>984.25 | TSXCANCA300    | 24.560/<br>54.145 |
| <b>CANopen cables (3) (4)</b><br>UL certification, C€ mark<br>Flame-retardant<br>(IEC 60332-2)                                                                            | 5 | 50/<br>164.04  | TSXCANCB50     | 3.580/<br>7.893   |
|                                                                                                                                                                           |   | 100/<br>328.08 | TSXCANCB100    | 7.840/<br>17.284  |
|                                                                                                                                                                           |   | 300/<br>984.25 | TSXCANCB300    | 21.870/<br>48.215 |
| <b>CANopen cables (3) (4)</b><br>Cable for harsh environments or<br>mobile installations, C€ mark Low<br>smoke zero halogen Flame-retardant<br>(IEC 60332-1)              | 5 | 50/<br>164.04  | TSXCANCD50     | 3.510/<br>7.738   |
|                                                                                                                                                                           |   | 100/<br>328.08 | TSXCANCD100    | 7.770/<br>17.130  |
|                                                                                                                                                                           |   | 300/<br>984.25 | TSXCANCD300    | 7.770/<br>17.130  |
| <b>IP 20 straight CANopen connector</b><br>(5)<br>9-way female SUB-D connector with<br>line terminator that can be deactivated<br>For connecting CAN-H, CAN-L,<br>CAN-GND | 6 | —              | TSXCANKCDF180T | 0.049/<br>0.108   |

(1) Altivar Process drives can only take one communication 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

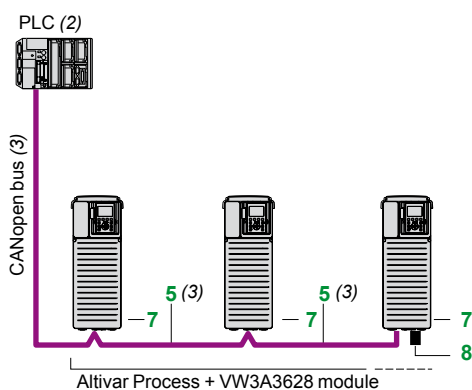
- Significant temperature variations

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

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>Communication 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<br>Standard cable, C€ mark.<br>Low smoke zero halogen<br>Flame-retardant<br>(IEC 60332-1)                               | 5    | 0.3/<br>0.98       | TSXCANCADD03      | 0.091/<br>0.201     |
|                                                                                                                                                                                                              |      | 1/<br>3.28         | TSXCANCADD1       | 0.143/<br>0.315     |
|                                                                                                                                                                                                              |      | 3/<br>9.84         | TSXCANCBDD3       | 0.268/<br>0.591     |
|                                                                                                                                                                                                              |      | 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<br>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<br>tap link<br>■ 2 RJ45 connectors for connecting<br>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 communication 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.



VW3A3627



VW3A3607

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

| PROFIBUS DP V1 bus (1) (3)                                                                                                                                                                                        |           |                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------|
| Description                                                                                                                                                                                                       | Reference | Weight<br>kg/<br>lb |
| Communication module                                                                                                                                                                                              |           |                     |
| PROFIBUS DP V1 module<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 | VW3A3607  | 0.140/<br>0.309     |

| SUB-D connection                                     |        |   |
|------------------------------------------------------|--------|---|
| IP 20 straight connectors (4)<br>for Profibus module | LU9AD7 | — |

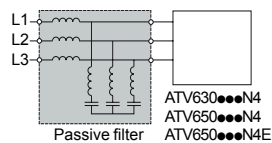
(1) Altivar Process drives can only take one communication module.  
(2) Minimum version compatible with Altivar Process: v1.2.06.  
(3) Minimum version compatible with Altivar Process: v1.9.01.  
(4) Only straight connectors are compatible with Altivar Process drives.



VW3A3609

| DeviceNet bus (1) (2)                                                                                                   |           |                     |
|-------------------------------------------------------------------------------------------------------------------------|-----------|---------------------|
| Description                                                                                                             | Reference | Weight<br>kg/<br>lb |
| Communication module                                                                                                    |           |                     |
| DeviceNet module<br>Port: 1 removable 5-way screw connector<br>Profiles supported:<br>■ CIP AC DRIVE<br>■ CiA 402 drive | VW3A3609  | 0.300/<br>0.661     |

(1) Altivar Process drives can only take one communication module.  
(2) Minimum version compatible with Altivar Process: v1.5.05.



### 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).

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

| Motor rating |     | For Altivar<br>Process drives              | Filter<br>Nominal current |        | Quantity<br>required<br>per drive | Reference<br>(1) | Weight              |
|--------------|-----|--------------------------------------------|---------------------------|--------|-----------------------------------|------------------|---------------------|
| kW           | HP  |                                            | input                     | output |                                   |                  |                     |
|              |     |                                            | A                         | A      |                                   |                  |                     |
| THDI < 10%   |     |                                            |                           |        |                                   |                  |                     |
| 0.75         | 1   | ATV630U07N4<br>ATV650U07N4<br>ATV650U07N4E | 6                         | 6.2    | 1                                 | VW3A46101        | 12.000/<br>26.455   |
| 1.5          | 2   | ATV630U15N4<br>ATV650U15N4<br>ATV650U15N4E |                           |        |                                   |                  |                     |
| 2.2          | 3   | ATV630U22N4<br>ATV650U22N4<br>ATV650U22N4E |                           |        |                                   |                  |                     |
| 3            | –   | ATV630U30N4<br>ATV650U30N4<br>ATV650U30N4E |                           |        |                                   |                  |                     |
| 4            | 5   | ATV630U40N4<br>ATV650U40N4<br>ATV650U40N4E | 10                        | 10.4   | 1                                 | VW3A46102        | 13.500/<br>29.762   |
| 5.5          | 7.5 | ATV630U55N4<br>ATV650U55N4<br>ATV650U55N4E |                           |        |                                   |                  |                     |
| 7.5          | 10  | ATV630U75N4<br>ATV650U75N4<br>ATV650U75N4E | 14                        | 14.5   | 1                                 | VW3A46103        | 16.300/<br>35.935   |
| 11           | 15  | ATV630D11N4<br>ATV650D11N4<br>ATV650D11N4E | 22                        | 23     | 1                                 | VW3A46104        | 22.000/<br>48.502   |
| 15           | 20  | ATV630D15N4<br>ATV650D15N4<br>ATV650D15N4E | 29                        | 30     | 1                                 | VW3A46105        | 25.000/<br>55.116   |
| 18.5         | 25  | ATV630D18N4<br>ATV650D18N4<br>ATV650D18N4E | 35                        | 37     | 1                                 | VW3A46106        | 37.000/<br>81.571   |
| 22           | 30  | ATV630D22N4<br>ATV650D22N4<br>ATV650D22N4E | 43                        | 45     | 1                                 | VW3A46107        | 39.000/<br>85.980   |
| 30           | 40  | ATV630D30N4<br>ATV650D30N4<br>ATV650D30N4E | 58                        | 60     | 1                                 | VW3A46108        | 44.000/<br>97.003   |
| 37           | 50  | ATV630D37N4<br>ATV650D37N4<br>ATV650D37N4E | 72                        | 75     | 1                                 | VW3A46109        | 56.000/<br>123.459  |
| 45           | 60  | ATV630D45N4<br>ATV650D45N4<br>ATV650D45N4E | 86                        | 90     | 1                                 | VW3A46110        | 62.000/<br>136.686  |
| 55           | 75  | ATV630D55N4<br>ATV650D55N4<br>ATV650D55N4E | 101                       | 105    | 1                                 | VW3A46111        | 74.000/<br>163.142  |
| 75           | 100 | ATV630D75N4<br>ATV650D75N4<br>ATV650D75N4E | 144                       | 150    | 1                                 | VW3A46112        | 85.000/<br>187.393  |
| 90           | 125 | ATV630D90N4<br>ATV650D90N4<br>ATV650D90N4E | 180                       | 187    | 1                                 | VW3A46113        | 102.000/<br>224.871 |
| 110          | 150 | ATV630C11N4                                | 217                       | 225    | 1                                 | VW3A46114        | 119.000/<br>262.350 |
| 132          | 200 | ATV630C13N4                                | 252                       | 262    | 1                                 | VW3A46115        | 136.000/<br>299.828 |
| 160          | 250 | ATV630C16N4                                | 304                       | 316    | 1                                 | VW3A46116        | 142.000/<br>313.056 |

(1) When used with ATV650U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

| Passive filters: 400 V 50 Hz three-phase supply |     |                                            |                          |        |                                   |                  |                     |
|-------------------------------------------------|-----|--------------------------------------------|--------------------------|--------|-----------------------------------|------------------|---------------------|
| Motor rating                                    |     | For Altivar<br>Process drives              | Filter                   |        | Quantity<br>required<br>per drive | Reference<br>(1) | Weight              |
| kW                                              | HP  |                                            | Nominal current<br>input | output |                                   |                  |                     |
| A                                               | A   |                                            |                          |        |                                   |                  | kg/<br>lb           |
| THDI < 5%                                       |     |                                            |                          |        |                                   |                  |                     |
| 0.75                                            | 1   | ATV630U07N4<br>ATV650U07N4<br>ATV650U07N4E | 6                        | 6.2    | 1                                 | VW3A46120        | 16.000/<br>35.274   |
| 1.5                                             | 2   | ATV630U15N4<br>ATV650U15N4<br>ATV650U15N4E |                          |        |                                   |                  |                     |
| 2.2                                             | 3   | ATV630U22N4<br>ATV650U22N4<br>ATV650U22N4E |                          |        |                                   |                  |                     |
| 3                                               | –   | ATV630U30N4<br>ATV650U30N4<br>ATV650U30N4E |                          |        |                                   |                  |                     |
| 4                                               | 5   | ATV630U40N4<br>ATV650U40N4<br>ATV650U40N4E | 10                       | 10.4   | 1                                 | VW3A46121        | 18.000/<br>39.683   |
| 5.5                                             | 7.5 | ATV630U55N4<br>ATV650U55N4<br>ATV650U55N4E |                          |        |                                   |                  |                     |
| 7.5                                             | 10  | ATV630U75N4<br>ATV650U75N4<br>ATV650U75N4E | 14                       | 14.5   | 1                                 | VW3A46122        | 20.000/<br>44.092   |
| 11                                              | 15  | ATV630D11N4<br>ATV650D11N4<br>ATV650D11N4E | 22                       | 23     | 1                                 | VW3A46123        | 30.000/<br>66.139   |
| 15                                              | 20  | ATV630D15N4<br>ATV650D15N4<br>ATV650D15N4E | 29                       | 30     | 1                                 | VW3A46124        | 34.000/<br>74.957   |
| 18.5                                            | 25  | ATV630D18N4<br>ATV650D18N4<br>ATV650D18N4E | 35                       | 37     | 1                                 | VW3A46125        | 53.000/<br>116.845  |
| 22                                              | 30  | ATV630D22N4<br>ATV650D22N4<br>ATV650D22N4E | 43                       | 45     | 1                                 | VW3A46126        | 58.000/<br>127.868  |
| 30                                              | 40  | ATV630D30N4<br>ATV650D30N4<br>ATV650D30N4E | 58                       | 60     | 1                                 | VW3A46127        | 76.000/<br>167.551  |
| 37                                              | 50  | ATV630D37N4<br>ATV650D37N4<br>ATV650D37N4E | 72                       | 75     | 1                                 | VW3A46128        | 98.000/<br>216.053  |
| 45                                              | 60  | ATV630D45N4<br>ATV650D45N4<br>ATV650D45N4E | 86                       | 90     | 1                                 | VW3A46129        | 104.000/<br>229.281 |
| 55                                              | 75  | ATV630D55N4<br>ATV650D55N4<br>ATV650D55N4E | 101                      | 105    | 1                                 | VW3A46130        | 106.000/<br>233.690 |
| 75                                              | 100 | ATV630D75N4<br>ATV650D75N4<br>ATV650D75N4E | 144                      | 150    | 1                                 | VW3A46131        | 126.000/<br>277.782 |
| 90                                              | 125 | ATV630D90N4<br>ATV650D90N4<br>ATV650D90N4E | 180                      | 187    | 1                                 | VW3A46132        | 135.000/<br>297.623 |
| 110                                             | 150 | ATV630C11N4                                | 217                      | 225    | 1                                 | VW3A46133        | 172.000/<br>379.195 |
| 132                                             | 200 | ATV630C13N4                                | 252                      | 262    | 1                                 | VW3A46134        | 206.000/<br>454.152 |
| 160                                             | 250 | ATV630C16N4                                | 304                      | 316    | 1                                 | VW3A46135        | 221.000/<br>487.221 |

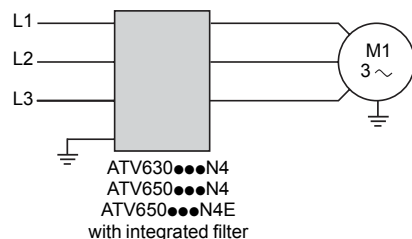
(1) When used with **ATV650U07N4/N4E...D90N4/N4E** drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

| Passive filters: 460 V 60 Hz three-phase supply |     |                                            |                 |        |                                   |                  |                     |
|-------------------------------------------------|-----|--------------------------------------------|-----------------|--------|-----------------------------------|------------------|---------------------|
| Motor rating                                    |     | For Altivar<br>Process drives              | Filter          |        | Quantity<br>required<br>per drive | Reference<br>(1) | Weight              |
|                                                 |     |                                            | Nominal current |        |                                   |                  |                     |
|                                                 |     |                                            | input           | output |                                   |                  |                     |
| kW                                              | HP  |                                            | A               | A      |                                   |                  | kg/<br>lb           |
| THDI < 10%                                      |     |                                            |                 |        |                                   |                  |                     |
| 0.75                                            | 1   | ATV630U07N4<br>ATV650U07N4<br>ATV650U07N4E | 6               | 6.2    | 1                                 | VW3A46139        | 12.000/<br>26.455   |
| 1.5                                             | 2   | ATV630U15N4<br>ATV650U15N4<br>ATV650U15N4E |                 |        |                                   |                  |                     |
| 2.2                                             | 3   | ATV630U22N4<br>ATV650U22N4<br>ATV650U22N4E |                 |        |                                   |                  |                     |
| 3                                               | –   | ATV630U30N4<br>ATV650U30N4<br>ATV650U30N4E |                 |        |                                   |                  |                     |
| 4                                               | 5   | ATV630U40N4<br>ATV650U40N4<br>ATV650U40N4E | 10              | 10.4   | 1                                 | VW3A46140        | 13.500/<br>29.762   |
| 5.5                                             | 7.5 | ATV630U55N4<br>ATV650U55N4<br>ATV650U55N4E |                 |        |                                   |                  |                     |
| 7.5                                             | 10  | ATV630U75N4<br>ATV650U75N4<br>ATV650U75N4E | 14              | 14.5   | 1                                 | VW3A46141        | 16.300/<br>35.935   |
| 11                                              | 15  | ATV630D11N4<br>ATV650D11N4<br>ATV650D11N4E | 19              | 19.5   | 1                                 | VW3A46142        | 22.000/<br>48.502   |
| 15                                              | 20  | ATV630D15N4<br>ATV650D15N4<br>ATV650D15N4E | 25              | 26     | 1                                 | VW3A46143        | 23.000/<br>50.706   |
| 18.5                                            | 25  | ATV630D18N4<br>ATV650D18N4<br>ATV650D18N4E | 31              | 32     | 1                                 | VW3A46144        | 33.000/<br>72.752   |
| 22                                              | 30  | ATV630D22N4<br>ATV650D22N4<br>ATV650D22N4E | 36              | 37     | 1                                 | VW3A46145        | 37.000/<br>81.571   |
| 30                                              | 40  | ATV630D30N4<br>ATV650D30N4<br>ATV650D30N4E | 48              | 50     | 1                                 | VW3A46146        | 39.000/<br>85.980   |
| 37                                              | 50  | ATV630D37N4<br>ATV650D37N4<br>ATV650D37N4E | 60              | 62     | 1                                 | VW3A46147        | 43.000/<br>94.799   |
| 45                                              | 60  | ATV630D45N4<br>ATV650D45N4<br>ATV650D45N4E | 73              | 76     | 1                                 | VW3A46148        | 55.000/<br>121.254  |
| 55                                              | 75  | ATV630D55N4<br>ATV650D55N4<br>ATV650D55N4E | 95              | 99     | 1                                 | VW3A46149        | 62.000/<br>136.686  |
| 75                                              | 100 | ATV630D75N4<br>ATV650D75N4<br>ATV650D75N4E | 118             | 122    | 1                                 | VW3A46150        | 74.000/<br>163.142  |
| 90                                              | 125 | ATV630D90N4<br>ATV650D90N4<br>ATV650D90N4E | 154             | 160    | 1                                 | VW3A46151        | 85.000/<br>187.393  |
| 110                                             | 150 | ATV630C11N4                                | 183             | 190    | 1                                 | VW3A46152        | 102.000/<br>224.871 |
| 132                                             | 200 | ATV630C13N4                                | 231             | 240    | 1                                 | VW3A46153        | 119.000/<br>262.35  |
| 160                                             | 250 | ATV630C16N4                                | 291             | 302.5  | 1                                 | VW3A46154        | 142.000/<br>313.056 |

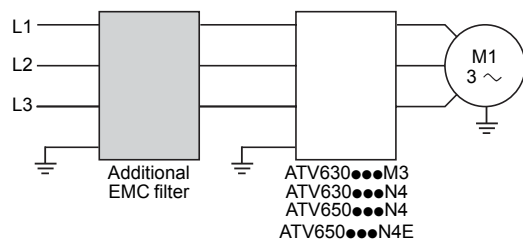
(1) When used with ATV650U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.

| Passive filters: 460 V 60 Hz three-phase supply |     |                                            |                 |        |                                   |                  |                     |
|-------------------------------------------------|-----|--------------------------------------------|-----------------|--------|-----------------------------------|------------------|---------------------|
| Motor rating                                    |     | For Altivar<br>Process drives              | Filter          |        | Quantity<br>required<br>per drive | Reference<br>(1) | Weight              |
|                                                 |     |                                            | Nominal current |        |                                   |                  |                     |
|                                                 |     |                                            | input           | output |                                   |                  |                     |
| kW                                              | HP  |                                            | A               | A      |                                   |                  | kg/<br>lb           |
| THDI < 5%                                       |     |                                            |                 |        |                                   |                  |                     |
| 0.75                                            | 1   | ATV630U07N4<br>ATV650U07N4<br>ATV650U07N4E | 6               | 6.2    | 1                                 | VW3A46158        | 16.000/<br>35.274   |
| 1.5                                             | 2   | ATV630U15N4<br>ATV650U15N4<br>ATV650U15N4E |                 |        |                                   |                  |                     |
| 2.2                                             | 3   | ATV630U22N4<br>ATV650U22N4<br>ATV650U22N4E |                 |        |                                   |                  |                     |
| 3                                               | –   | ATV630U30N4<br>ATV650U30N4<br>ATV650U30N4E |                 |        |                                   |                  |                     |
| 4                                               | 5   | ATV630U40N4<br>ATV650U40N4<br>ATV650U40N4E | 10              | 10.4   | 1                                 | VW3A46159        | 18.000/<br>39.683   |
| 5.5                                             | 7.5 | ATV630U55N4<br>ATV650U55N4<br>ATV650U55N4E |                 |        |                                   |                  |                     |
| 7.5                                             | 10  | ATV630U75N4<br>ATV650U75N4<br>ATV650U75N4E | 14              | 14.5   | 1                                 | VW3A46160        | 20.000/<br>44.092   |
| 11                                              | 15  | ATV630D11N4<br>ATV650D11N4<br>ATV650D11N4E | 19              | 19.5   | 1                                 | VW3A46161        | 30.000/<br>66.139   |
| 15                                              | 20  | ATV630D15N4<br>ATV650D15N4<br>ATV650D15N4E | 25              | 26     | 1                                 | VW3A46162        | 34.000/<br>74.957   |
| 18.5                                            | 25  | ATV630D18N4<br>ATV650D18N4<br>ATV650D18N4E | 31              | 32     | 1                                 | VW3A46163        | 52.000/<br>114.640  |
| 22                                              | 30  | ATV630D22N4<br>ATV650D22N4<br>ATV650D22N4E | 36              | 37     | 1                                 | VW3A46164        | 53.000/<br>116.845  |
| 30                                              | 40  | ATV630D30N4<br>ATV650D30N4<br>ATV650D30N4E | 48              | 50     | 1                                 | VW3A46165        | 57.000/<br>125.663  |
| 37                                              | 50  | ATV630D37N4<br>ATV650D37N4<br>ATV650D37N4E | 60              | 62     | 1                                 | VW3A46166        | 75.000/<br>165.347  |
| 45                                              | 60  | ATV630D45N4<br>ATV650D45N4<br>ATV650D45N4E | 73              | 76     | 1                                 | VW3A46167        | 97.000/<br>213.848  |
| 55                                              | 75  | ATV630D55N4<br>ATV650D55N4<br>ATV650D55N4E | 95              | 99     | 1                                 | VW3A46168        | 104.000/<br>229.281 |
| 75                                              | 100 | ATV630D75N4<br>ATV650D75N4<br>ATV650D75N4E | 118             | 122    | 1                                 | VW3A46169        | 106.000/<br>233.690 |
| 90                                              | 125 | ATV630D90N4<br>ATV650D90N4<br>ATV650D90N4E | 154             | 160    | 1                                 | VW3A46170        | 126.000/<br>277.782 |
| 110                                             | 150 | ATV630C11N4                                | 183             | 190    | 1                                 | VW3A46171        | 135.000/<br>297.624 |
| 132                                             | 200 | ATV630C13N4                                | 231             | 240    | 1                                 | VW3A46172        | 172.000/<br>379.195 |
| 160                                             | 250 | ATV630C16N4                                | 291             | 316    | 1                                 | VW3A46173        | 221.000/<br>487.221 |

(1) When used with ATV650U07N4/N4E...D90N4/N4E drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.



Altivar Process drive with integrated EMC filter



Altivar Process drive with additional EMC filter

#### Integrated EMC filters

Altivar Process drives (except ATV630U07M3...D75M3) 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> |                                              |                            |
| ATV630U07N4... D45N4                                 | 50                                           | 150                        |
| ATV630D55N4... C16N4                                 | –                                            | 150                        |
| <b>Three-phase supply voltage: 380...480 V IP 55</b> |                                              |                            |
| ATV650U07N4/N4E...D45N4/N4E                          | 50                                           | 150                        |
| ATV650D55N4/N4E...D90N4/N4E                          | –                                            | 150                        |

#### 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 (2) | If   | Reference | Weight            |
|------------------------------------------------------|--------------------------------------|--------------------------------|--------|------|-----------|-------------------|
|                                                      | IEC/EN 61800-3 category C2 (3)       | IEC/EN 61800-3 category C3 (3) |        |      |           |                   |
|                                                      | m                                    | m                              | A      | mA   |           | kg/<br>lb         |
| <b>Three-phase supply voltage: 200...240 V 50 Hz</b> |                                      |                                |        |      |           |                   |
| ATV630U07M3...U15M3                                  | 50                                   | 150                            | 8      | 7.6  | VW3A4701  | 2.000/<br>4.409   |
| ATV630U22M3...U30M3                                  | 50                                   | 150                            | 15     | 7.6  | VW3A4702  | 2.400/<br>5.291   |
| ATV630U40M3...U75M3                                  | 50                                   | 150                            | 35     | 7.6  | VW3A4703  | 4.100/<br>9.039   |
| ATV630D11M3                                          | 50                                   | 150                            | 50     | 7.6  | VW3A4704  | 5.200/<br>11.464  |
| ATV630D15M3                                          | 50                                   | 150                            | 70     | 13.9 | VW3A4705  | 6.100/<br>13.448  |
| ATV630D18M3...D22M3                                  | 50                                   | 150                            | 100    | 13.9 | VW3A4706  | 6.500/<br>14.330  |
| ATV630D30M3...D37M3                                  | 50                                   | 150                            | 160    | 13.9 | VW3A4707  | 8.500/<br>18.739  |
| ATV630D45M3                                          | 50                                   | 150                            | 200    | 13.9 | VW3A4708  | 9.500/<br>20.944  |
| ATV630D55M3                                          | 50                                   | 150                            | 240    | 27.8 | VW3A4709  | 15.000/<br>33.069 |
| ATV630D75M3                                          | 50                                   | 150                            | 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.

| Additional EMC input filters (continued)                            |                                  |                                   |                                   |      |                  |                   |
|---------------------------------------------------------------------|----------------------------------|-----------------------------------|-----------------------------------|------|------------------|-------------------|
| References (continued)                                              |                                  |                                   |                                   |      |                  |                   |
| For drives                                                          | Maximum length of shielded cable |                                   | In<br>(4)                         | If   | Reference<br>(5) | Weight            |
|                                                                     | (1) (2)                          |                                   |                                   |      |                  |                   |
|                                                                     |                                  | IEC/EN 61800-3<br>category C2 (3) | IEC/EN 61800-3<br>category C3 (3) |      |                  |                   |
|                                                                     | m                                | m                                 | A                                 | mA   |                  | kg/<br>lb         |
| Three-phase supply voltage: 380...480 V 50 Hz                       |                                  |                                   |                                   |      |                  |                   |
| ATV630U07N4...U22N4<br>ATV650U07N4...U22N4<br>ATV650U07N4E...U22N4E | 150                              | 300                               | 8                                 | 7.6  | VW3A4701         | 2.000/<br>4.409   |
| ATV630U30N4...U55N4<br>ATV650U30N4...U55N4<br>ATV650U30N4E...U55N4E | 150                              | 300                               | 15                                | 7.6  | VW3A4702         | 2.400/<br>5.291   |
| ATV630U75N4...D15N4<br>ATV650U75N4...D15N4<br>ATV650U75N4E...D15N4E | 150                              | 300                               | 35                                | 7.6  | VW3A4703         | 4.100/<br>9.039   |
| ATV630D18N4...D22N4<br>ATV650D18N4...D22N4<br>ATV650D18N4E...D22N4E | 150                              | 300                               | 50                                | 7.6  | VW3A4704         | 5.200/<br>11.464  |
| ATV630D30N4<br>ATV650D30N4<br>ATV650D30N4E                          | 150                              | 300                               | 70                                | 13.9 | VW3A4705         | 6.100/<br>13.448  |
| ATV630D37N4...D45N4<br>ATV650D37N4...D45N4<br>ATV650D37N4E...D45N4E | 150                              | 300                               | 100                               | 13.9 | VW3A4706         | 6.500/<br>14.330  |
| ATV630D55N4<br>ATV650D55N4<br>ATV650D55N4E                          | 150                              | 300                               | 160                               | 13.9 | VW3A4707         | 8.500/<br>18.739  |
| ATV630D75N4...D90N4<br>ATV650D75N4...D90N4<br>ATV650D75N4E...D90N4E | 150                              | 300                               | 200                               | 13.9 | VW3A4708         | 9.500/<br>20.944  |
| ATV630C11N4<br>ATV630C13N4                                          | 150                              | 300                               | 240                               | 27.8 | VW3A4709         | 15.000/<br>33.069 |
| ATV630C16N4                                                         | 150                              | 300                               | 305                               | 27.8 | VW3A4710         | 17.000/<br>37.479 |

## 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     |

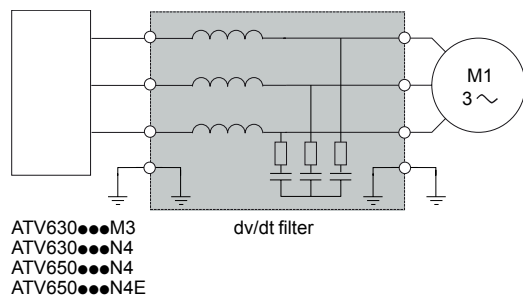
(1) The maximum lengths are given as examples only, as they vary depending on the stray capacitance of the motors and the cables used. If motors are connected in parallel, it is the total length of all cables that should be taken into account.

(2) The associations of EMC filters with **ATV630U07N4/N4E...D22N4/N4E** 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 **ATV650U07N4/N4E...D90N4/N4E** drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.



### Presentation

Altivar Process drives operate with the following maximum motor cable lengths: 150 m/492 ft for shielded cables and 300 m/984 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 variable speed drives 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.

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)

They are also used to:

- Limit overvoltages at the motor terminals
- Filter interference caused by opening a contactor placed between the filter and the motor

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 less than 100 Hz.

### 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> |                                 |                    |                      |        |           |               |
| ATV630U07M3                                    | 4                               | 300/984            | 20                   | 6      | VW3A5301  | 11.000/24.251 |
| ATV630U15M3...U30M3                            | 4                               | 300/984            | 20                   | 15     | VW3A5302  | 12.000/26.455 |
| ATV630U40M3                                    | 4                               | 300/984            | 20                   | 25     | VW3A5303  | 12.000/26.455 |
| ATV630U55M3...D11M3                            | 4                               | 300/984            | 20                   | 50     | VW3A5304  | 18.000/39.683 |
| ATV630D15M3...D22M3                            | 4                               | 300/984            | 20                   | 95     | VW3A5305  | 19.000/41.888 |
| ATV630D30M3...D45M3                            | 2.5                             | 300/984            | 00                   | 180    | VW3A5306  | 22.000/48.502 |
| ATV630D55M3...D75M3                            | 2.5                             | 300/984            | 00                   | 305    | VW3A5307  | 40.000/88.185 |

(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.

## dv/dt output filters (continued)

| For drives                                                          | Maximum length of motor cable   | Degree of protection | In (3) | Reference (4) | Weight                               |
|---------------------------------------------------------------------|---------------------------------|----------------------|--------|---------------|--------------------------------------|
|                                                                     | Maximum switching frequency (1) | Shielded cable (2)   |        |               |                                      |
|                                                                     | kHz                             | m/ft                 | IP     | A             | kg/lb                                |
| <b>Three-phase supply voltage: 380...480 V</b>                      |                                 |                      |        |               |                                      |
| ATV630U07N4...U22N4<br>ATV650U07N4...U22N4<br>ATV650U07N4E...U22N4E | 4                               | 300/<br>984          | 20     | 6             | <b>VW3A5301</b><br>11.000/<br>24.251 |
| ATV630U30N4...U55N4<br>ATV650U30N4...U55N4<br>ATV650U30N4E...U55N4E | 4                               | 300/<br>984          | 20     | 15            | <b>VW3A5302</b><br>12.000/<br>26.455 |
| ATV630U75N4...D11N4<br>ATV650U75N4...D11N4<br>ATV650U75N4E...D11N4E | 4                               | 300/<br>984          | 20     | 25            | <b>VW3A5303</b><br>12.000/<br>26.455 |
| ATV630D15N4...D22N4<br>ATV650D15N4...D22N4<br>ATV650D15N4E...D22N4E | 4                               | 300/<br>984          | 20     | 50            | <b>VW3A5304</b><br>18.000/<br>39.683 |
| ATV630D30N4...D45N4<br>ATV650D30N4...D45N4<br>ATV650D30N4E...D45N4E | 4                               | 300/<br>984          | 20     | 95            | <b>VW3A5305</b><br>19.000/<br>41.888 |
| ATV630D55N4...D90N4<br>ATV650D55N4...D90N4<br>ATV650D55N4E...D90N4E | 2.5                             | 300/<br>984          | 00     | 180           | <b>VW3A5306</b><br>22.000/<br>48.502 |
| ATV630C11N4...C16N4                                                 | 2.5                             | 300/<br>984          | 00     | 305           | <b>VW3A5307</b><br>40.000/<br>88.185 |

## IP 21 protection kit for IP 20 filters

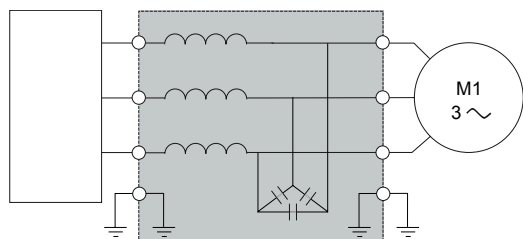
| Description                                            | For dv/dt filters | Reference        | Weight kg/lb    |
|--------------------------------------------------------|-------------------|------------------|-----------------|
| <b>Mechanical kit including cover and cable clamps</b> | <b>VW3A5301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

(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 **ATV650U07N4/N4E...D90N4/N4E** drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.



ATV630...M3  
ATV630...N4  
ATV650...N4  
ATV650...N4E

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 | Degree of protection | Reference (1)   | Weight              |
|------------------------------------------------|-----------------|----------------------|-----------------|---------------------|
|                                                | A               | IP                   |                 | kg/<br>lb           |
| <b>Three-phase supply voltage: 200...240 V</b> |                 |                      |                 |                     |
| ATV630U07M3                                    | 6               | 20                   | <b>VW3A5401</b> | 10.000/<br>22.046   |
| ATV630U15M3...U30M3                            | 15              | 20                   | <b>VW3A5402</b> | 13.500/<br>29.762   |
| ATV630U40M3                                    | 25              | 20                   | <b>VW3A5403</b> | 20.000/<br>44.092   |
| ATV630U55M3...D11M3                            | 50              | 20                   | <b>VW3A5404</b> | 35.000/<br>77.162   |
| ATV630D15M3...D22M3                            | 95              | 20                   | <b>VW3A5405</b> | 60.000/<br>132.277  |
| ATV630D30M3...D45M3                            | 180             | 00                   | <b>VW3A5406</b> | 90.000/<br>198.416  |
| ATV630D75M3 (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 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.

## Sinus filters (continued)

| For drives                                                          | Nominal current | Degree of protection | Reference (1) (2) | Weight              |
|---------------------------------------------------------------------|-----------------|----------------------|-------------------|---------------------|
|                                                                     | A               | IP                   |                   | kg/<br>lb           |
| <b>Three-phase supply voltage: 380...480 V</b>                      |                 |                      |                   |                     |
| ATV630U07N4...U22N4<br>ATV650U07N4...U22N4<br>ATV650U07N4E...U22N4E | 6               | 20                   | <b>VW3A5401</b>   | 10.000/<br>22.046   |
| ATV630U30N4...U55N4<br>ATV650U30N4...U55N4<br>ATV650U30N4E...U55N4E | 15              | 20                   | <b>VW3A5402</b>   | 13.500/<br>29.762   |
| ATV630U75N4...D11N4<br>ATV650U75N4...D11N4<br>ATV650U75N4E...D11N4E | 25              | 20                   | <b>VW3A5403</b>   | 20.000/<br>44.092   |
| ATV630D15N4...D22N4<br>ATV650D15N4...D22N4<br>ATV650D15N4E...D22N4E | 50              | 20                   | <b>VW3A5404</b>   | 35.000/<br>77.162   |
| ATV630D30N4...D45N4<br>ATV650D30N4...D45N4<br>ATV650D30N4E...D45N4E | 95              | 20                   | <b>VW3A5405</b>   | 60.000/<br>132.277  |
| ATV630D55N4...D90N4<br>ATV650D55N4...D90N4<br>ATV650D55N4E...D90N4E | 180             | 00                   | <b>VW3A5406</b>   | 90.000/<br>198.416  |
| ATV630C13N4...C16N4 (3)                                             | 305             | 00                   | <b>VW3A5407</b>   | 134.000/<br>295.419 |

## 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>VW3A5403</b>  | <b>VW3A53902</b> | 1.300/<br>2.866     |
|                                                        | <b>VW3A5404</b>  | <b>VW3A53903</b> | 2.700/<br>5.952     |
|                                                        | <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 **ATV650U07N4/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 1 to the drive nominal power with a minimum switching frequency of 4 kHz. For example:  
An ATV630C13N4 drive with sinus filter can be used on a 110 kW motor.  
An ATV630C16N4 drive with sinus filter can be used on a 132 kW motor.

### Applications

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

The type of circuit breaker/contactor coordination selected can reduce maintenance costs in the event of a motor 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.



GV3L40

+



LC1D40A●●

+



ATV630D11M3

### IEC standard motor starters

| Motor                                            |     | Drive       | Circuit breaker          |  | Rating | Irm  | Line contactor    |
|--------------------------------------------------|-----|-------------|--------------------------|--|--------|------|-------------------|
| Power (1)                                        |     | Reference   | Reference (2)            |  |        |      | Reference (3) (4) |
| kW                                               | HP  |             |                          |  | A      | A    |                   |
| Three-phase supply voltage: 200...240 V 50/60 Hz |     |             |                          |  |        |      |                   |
| 0.75                                             | 1   | ATV630U07M3 | GV2L08                   |  | 4      | 51   | LC1D09●●          |
| 1.5                                              | 2   | ATV630U15M3 | GV2L10                   |  | 6.3    | 78   | LC1D09●●          |
| 2.2                                              | 3   | ATV630U22M3 | GV2L14                   |  | 10     | 138  | LC1D09●●          |
| 3                                                | –   | ATV630U30M3 | GV2L16                   |  | 14     | 170  | LC1D18●●          |
| 4                                                | 5   | ATV630U40M3 | GV2L20                   |  | 18     | 223  | LC1D18●●          |
| 5.5                                              | 7.5 | ATV630U55M3 | GV2L22                   |  | 25     | 327  | LC1D25●●          |
| 7.5                                              | 10  | ATV630U75M3 | GV2L32                   |  | 32     | 448  | LC1D40A●●         |
| 11                                               | 15  | ATV630D11M3 | GV3L40                   |  | 40     | 560  | LC1D40A●●         |
| 15                                               | 20  | ATV630D15M3 | GV3L65                   |  | 65     | 910  | LC1D65A●●         |
| 18.5                                             | 25  | ATV630D18M3 | NS80HMA                  |  | 80     | 1000 | LC1D65A●●         |
| 22                                               | 30  | ATV630D22M3 | NS80HMA                  |  | 80     | 1000 | LC1D80●●          |
| 30                                               | 40  | ATV630D30M3 | NSX100●MA100             |  | 100    | 1300 | LC1D95●●          |
| 37                                               | 50  | ATV630D37M3 | NSX160●MA150             |  | 150    | 1500 | LC1D115●●         |
| 45                                               | 60  | ATV630D45M3 | NSX160●MA150             |  | 150    | 1500 | LC1D150●●         |
| 55                                               | 75  | ATV630D55M3 | NSX250●MA220             |  | 220    | 2420 | LC1F185●●         |
| 75                                               | 100 | ATV630D75M3 | 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          | Icu (kA) for 200...240 V | Icu (kA) for 200...240 V |    |     |     |     |
|--------------------------|--------------------------|--------------------------|----|-----|-----|-----|
|                          |                          | F                        | N  | H   | S   | L   |
| GV2L08...16              | 130                      | –                        | –  | –   | –   | –   |
| GV2L20...32              | 130                      | –                        | –  | –   | –   | –   |
| GV3L40...65              | 50                       | –                        | –  | –   | –   | –   |
| NS80HMA                  | 100                      | –                        | –  | –   | –   | –   |
| NSX100●MA100             | –                        | 85                       | 90 | 100 | 120 | 150 |
| NSX160●MA150             | –                        | 85                       | 90 | 100 | 120 | 150 |
| NSX250●MA220             | –                        | 85                       | 90 | 100 | 120 | 150 |
| NSX400● Micrologic 1.3-M | –                        | 40                       | 85 | 100 | 120 | 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.



NSX100FMA100

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LC1D80●●

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ATV630D45N4

## IEC standard motor starters

| Motor                                            | Drive     | Circuit breaker |                          | Line contactor  |                   |           |
|--------------------------------------------------|-----------|-----------------|--------------------------|-----------------|-------------------|-----------|
| Power (1)                                        | Reference | Reference (2)   | Rating                   | I <sub>rm</sub> | Reference (4) (5) |           |
| kW                                               | HP        |                 | A                        | A               |                   |           |
| Three-phase supply voltage: 380...415 V 50/60 Hz |           |                 |                          |                 |                   |           |
| 0.75                                             | 1         | ATV630U07N4     | GV2L07                   | 2.5             | 33.5              | LC1D09●●  |
| 1.5                                              | 2         | ATV630U15N4     | GV2L08                   | 4               | 51                | LC1D09●●  |
| 2.2                                              | 3         | ATV630U22N4     | GV2L10                   | 6.3             | 78                | LC1D09●●  |
| 3                                                | –         | ATV630U30N4     | GV2L14                   | 10              | 138               | LC1D09●●  |
| 4                                                | 5         | ATV630U40N4     | GV2L14                   | 10              | 138               | LC1D09●●  |
| 5.5                                              | 7.5       | ATV630U55N4     | GV2L16                   | 14              | 170               | LC1D18●●  |
| 7.5                                              | 10        | ATV630U75N4     | GV2L20                   | 18              | 223               | LC1D18●●  |
| 11                                               | 15        | ATV630D11N4     | GV2L22                   | 25              | 327               | LC1D25●●  |
| 15                                               | 20        | ATV630D15N4     | GV3L32                   | 32              | 448               | LC1D25●●  |
| 18.5                                             | 25        | ATV630D18N4     | GV3L40                   | 40              | 560               | LC1D40A●● |
| 22                                               | 30        | ATV630D22N4     | GV3L50                   | 50              | 700               | LC1D50A●● |
| 30                                               | 40        | ATV630D30N4     | GV3L65                   | 65              | 910               | LC1D50A●● |
| 37                                               | 50        | ATV630D37N4     | NS80HMA                  | 80              | 1000              | LC1D65A●● |
| 45                                               | 60        | ATV630D45N4     | NSX100●MA100             | 100             | 1300              | LC1D80●●  |
| 55                                               | 75        | ATV630D55N4     | NSX160●MA150             | 150             | 1500              | LC1D115●● |
| 75                                               | 100       | ATV630D75N4     | NSX160●MA150             | 150             | 1500              | LC1D115●● |
| 90                                               | 125       | ATV630D90N4     | NSX250●MA220             | 220             | 2420              | LC1F185●● |
| 110                                              | 150       | ATV630C11N4     | NSX250●MA220             | 220             | 2860              | LC1F185●● |
| 132                                              | 200       | ATV630C13N4     | NSX400● Micrologic 1.3-M | 320             | 3500              | LC1F265●● |
| 160                                              | 250       | ATV630C16N4     | NSX400● Micrologic 1.3-M | 320             | 4000              | LC1F265●● |

(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          | Icu (kA) for 380...415 V | Icu (kA) for 380...415 V |    |    |     |     |
|--------------------------|--------------------------|--------------------------|----|----|-----|-----|
|                          |                          | F                        | N  | H  | S   | L   |
| GV2L07                   | 100                      | –                        | –  | –  | –   | –   |
| GV2L08...14 (3)          | 130                      | –                        | –  | –  | –   | –   |
| GV2L14 (3)...22          | 50                       | –                        | –  | –  | –   | –   |
| GV3L32...65              | 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● Micrologic 1.3-M | –                        | 36                       | 50 | 70 | 100 | 150 |

(3) GV2L14: Icu of 130 kA in combination with an ATV630U30N4, Icu of 20 kA with an ATV630U40N4.

(4) 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.

(5) 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  |

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



NSX100FMA100

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LC1D80●●

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ATV650D45N4

## IEC standard motor starters

| Motor                                            | Drive     | Circuit breaker |              | Line contactor |                       |           |
|--------------------------------------------------|-----------|-----------------|--------------|----------------|-----------------------|-----------|
| Power (1)                                        | Reference | Reference (2)   | Rating       | Irm            | Reference (4) (5) (6) |           |
| kW                                               | HP        |                 | A            | A              |                       |           |
| Three-phase supply voltage: 380...415 V 50/60 Hz |           |                 |              |                |                       |           |
| 0.75                                             | 1         | ATV650U07N4/N4E | GV2L07       | 2.5            | 33.5                  | LC1D09●●  |
| 1.5                                              | 2         | ATV650U15N4/N4E | GV2L08       | 4              | 51                    | LC1D09●●  |
| 2.2                                              | 3         | ATV650U22N4/N4E | GV2L10       | 6.3            | 78                    | LC1D09●●  |
| 3                                                | —         | ATV650U30N4/N4E | GV2L14       | 10             | 138                   | LC1D09●●  |
| 4                                                | 5         | ATV650U40N4/N4E | GV2L14       | 10             | 138                   | LC1D09●●  |
| 5.5                                              | 7.5       | ATV650U55N4/N4E | GV2L16       | 14             | 170                   | LC1D18●●  |
| 7.5                                              | 10        | ATV650U75N4/N4E | GV2L20       | 18             | 223                   | LC1D18●●  |
| 11                                               | 15        | ATV650D11N4/N4E | GV2L22       | 25             | 327                   | LC1D25●●  |
| 15                                               | 20        | ATV650D15N4/N4E | GV3L32       | 32             | 448                   | LC1D25●●  |
| 18.5                                             | 25        | ATV650D18N4/N4E | GV3L40       | 40             | 560                   | LC1D40A●● |
| 22                                               | 30        | ATV650D22N4/N4E | GV3L50       | 50             | 700                   | LC1D50A●● |
| 30                                               | 40        | ATV650D30N4/N4E | GV3L65       | 65             | 910                   | LC1D50A●● |
| 37                                               | 50        | ATV650D37N4/N4E | NS80HMA      | 80             | 1000                  | LC1D65A●● |
| 45                                               | 60        | ATV650D45N4/N4E | NSX100●MA100 | 100            | 1300                  | LC1D80●●  |
| 55                                               | 75        | ATV650D55N4/N4E | NSX160●MA150 | 150            | 1500                  | LC1D115●● |
| 75                                               | 100       | ATV650D75N4/N4E | NSX160●MA150 | 150            | 1500                  | LC1D115●● |
| 90                                               | 125       | ATV650D90N4/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 | Icu (kA) for 380...415 V | F  | N  | H  | S   | L   |
|-----------------|--------------------------|----|----|----|-----|-----|
| GV2L07          | 100                      | —  | —  | —  | —   | —   |
| GV2L08...14 (3) | 130                      | —  | —  | —  | —   | —   |
| GV2L14 (3)...22 | 50                       | —  | —  | —  | —   | —   |
| GV3L32...65     | 50                       | —  | —  | —  | —   | —   |
| NS80HMA         | 70                       | —  | —  | —  | —   | —   |
| NSX100●MA100    | —                        | 36 | 50 | 70 | 100 | 150 |
| NSX160●MA150    | —                        | 36 | 50 | 70 | 100 | 150 |
| NSX250●MA220    | —                        | 36 | 50 | 70 | 100 | 150 |

(3) GV2L14: Icu of 130 kA in combination with an ATV650U30N4/N4E, Icu of 20 kA with an ATV650U40N4/N4E.

(4) 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.

(5) 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  |

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

(6) When they are used with ATV650U07N4/N4E...D90N4/N4E drives, the motor starters must be installed in a separate enclosure to maintain the IP 55 protection degree of the installation.



GV2L08

+



LC1D09●●

+



ATV630U15N4

| IEC standard motor starters                |           |                 |              |                 |                   |           |
|--------------------------------------------|-----------|-----------------|--------------|-----------------|-------------------|-----------|
| Motor                                      | Drive     | Circuit breaker |              |                 | Line contactor    |           |
| Power (1)                                  | Reference | Reference (2)   | Rating       | I <sub>rm</sub> | Reference (4) (5) |           |
| kW                                         | HP        |                 | A            | A               |                   |           |
| Three-phase supply voltage: 440 V 50/60 Hz |           |                 |              |                 |                   |           |
| 0.75                                       | 1         | ATV630U07N4     | GV2L07       | 2.5             | 33.5              | LC1D09●●  |
| 1.5                                        | 2         | ATV630U15N4     | GV2L08       | 4               | 51                | LC1D09●●  |
| 2.2                                        | 3         | ATV630U22N4     | GV2L10       | 6.3             | 78                | LC1D09●●  |
| 3                                          | –         | ATV630U30N4     | GV2L10       | 6.3             | 78                | LC1D09●●  |
| 4                                          | 5         | ATV630U40N4     | GV2L14       | 10              | 138               | LC1D09●●  |
| 5.5                                        | 7.5       | ATV630U55N4     | GV2L16       | 14              | 170               | LC1D18●●  |
| 7.5                                        | 10        | ATV630U75N4     | GV2L16       | 14              | 170               | LC1D18●●  |
| 11                                         | 15        | ATV630D11N4     | GV2L22       | 25              | 327               | LC1D25●●  |
| 15                                         | 20        | ATV630D15N4     | GV3L32       | 32              | 448               | LC1D25●●  |
| 18.5                                       | 25        | ATV630D18N4     | GV3L40       | 40              | 560               | LC1D40A●● |
| 22                                         | 30        | ATV630D22N4     | GV3L50       | 50              | 700               | LC1D50A●● |
| 30                                         | 40        | ATV630D30N4     | GV3L65       | 65              | 910               | LC1D50A●● |
| 37                                         | 50        | ATV630D37N4     | GV3L66       | 65              | 910               | LC1D65A●● |
| 45                                         | 60        | ATV630D45N4     | NS80HMA      | 80              | 1000              | LC1D80●●  |
| 55                                         | 75        | ATV630D55N4     | NSX100●MA100 | 100             | 1040              | LC1D95●●  |
| 75                                         | 100       | ATV630D75N4     | NSX160●MA150 | 150             | 1500              | LC1D115●● |
| 90                                         | 125       | ATV630D90N4     | 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 | Icu (kA) for 440 V |    |    |    |     |
|-----------------|--------------------------------|--------------------|----|----|----|-----|
|                 |                                | F                  | N  | H  | S  | L   |
| GV2L07          | 100                            | –                  | –  | –  | –  | –   |
| GV2L08...16 (3) | 130                            | –                  | –  | –  | –  | –   |
| GV2L16 (3)...22 | 20                             | –                  | –  | –  | –  | –   |
| GV3L32...66     | 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) GV2L16: I<sub>cu</sub> of 130 kA in combination with an ATV630U30N4, I<sub>cu</sub> of 20 kA with an ATV630U40N4.

(4) 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.

(5) 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.

| IEC standard motor starters                |           |                 |                          |     |                   |           |
|--------------------------------------------|-----------|-----------------|--------------------------|-----|-------------------|-----------|
| Motor                                      | Drive     | Circuit breaker |                          |     | Line contactor    |           |
| Power (1)                                  | Reference | Reference (2)   | Rating                   | Irm | Reference (3) (4) |           |
| kW                                         | HP        |                 | A                        | A   |                   |           |
| Three-phase supply voltage: 440 V 50/60 Hz |           |                 |                          |     |                   |           |
| 110                                        | 150       | ATV630C11N4     | NSX250●MA220             | 220 | 2420              | LC1F185●● |
| 132                                        | 200       | ATV630C13N4     | NSX250●MA220             | 220 | 2420              | LC1F185●● |
| 160                                        | 250       | ATV630C16N4     | NSX400● Micrologic 1.3-M | 320 | 3500              | LC1F265●● |

(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          | Icu (kA) for 440 V |    |    |    |    |     |
|--------------------------|--------------------|----|----|----|----|-----|
|                          | F                  | N  | H  | S  | L  |     |
| NSX250●MA220             | –                  | 35 | 50 | 65 | 90 | 130 |
| NSX400● Micrologic 1.3-M | –                  | 30 | 42 | 65 | 90 | 130 |

(3) Composition of contactors:  
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 |
|---------|------------------------|----|----|-----|-----|-----|-----|
| 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.



NSX250•MA220

+



LC1D115••

+



ATV650D90N4

| IEC standard motor starters                |           |                 |              |     |                   |           |
|--------------------------------------------|-----------|-----------------|--------------|-----|-------------------|-----------|
| Motor                                      | Drive     | Circuit breaker |              |     | Line contactor    |           |
| Power (1)                                  | Reference | Reference (2)   | Rating       | Irm | Reference (4) (5) |           |
| kW                                         | HP        |                 | A            | A   |                   |           |
| Three-phase supply voltage: 440 V 50/60 Hz |           |                 |              |     |                   |           |
| 0.75                                       | 1         | ATV650U07N4/N4E | GV2L07       | 2.5 | 33.5              | LC1D09●●  |
| 1.5                                        | 2         | ATV650U15N4/N4E | GV2L08       | 4   | 51                | LC1D09●●  |
| 2.2                                        | 3         | ATV650U22N4/N4E | GV2L10       | 6.3 | 78                | LC1D09●●  |
| 3                                          | –         | ATV650U30N4/N4E | GV2L10       | 6.3 | 78                | LC1D09●●  |
| 4                                          | 5         | ATV650U40N4/N4E | GV2L14       | 10  | 138               | LC1D09●●  |
| 5.5                                        | 7.5       | ATV650U55N4/N4E | GV2L16       | 14  | 170               | LC1D18●●  |
| 7.5                                        | 10        | ATV650U75N4/N4E | GV2L16       | 14  | 170               | LC1D18●●  |
| 11                                         | 15        | ATV650D11N4/N4E | GV2L22       | 25  | 327               | LC1D25●●  |
| 15                                         | 20        | ATV650D15N4/N4E | GV3L32       | 32  | 448               | LC1D25●●  |
| 18.5                                       | 25        | ATV650D18N4/N4E | GV3L40       | 40  | 560               | LC1D40A●● |
| 22                                         | 30        | ATV650D22N4/N4E | GV3L50       | 50  | 700               | LC1D50A●● |
| 30                                         | 40        | ATV650D30N4/N4E | GV3L65       | 65  | 910               | LC1D50A●● |
| 37                                         | 50        | ATV650D37N4/N4E | GV3L66       | 65  | 910               | LC1D65A●● |
| 45                                         | 60        | ATV650D45N4/N4E | NS80HMA      | 80  | 1000              | LC1D80●●  |
| 55                                         | 75        | ATV650D55N4/N4E | NSX100●MA100 | 100 | 1040              | LC1D95●●  |
| 75                                         | 100       | ATV650D75N4/N4E | NSX160●MA150 | 150 | 1500              | LC1D115●● |
| 90                                         | 125       | ATV650D90N4/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 | Icu (kA) for 440 V |    |    |    |    |     |
|-----------------|--------------------|----|----|----|----|-----|
|                 |                    | F  | N  | H  | S  | L   |
| GV2L07          | 100                | –  | –  | –  | –  | –   |
| GV2L08...16 (3) | 130                | –  | –  | –  | –  | –   |
| GV2L16 (3)...22 | 20                 | –  | –  | –  | –  | –   |
| GV3L32...66     | 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) GV2L16: Lcu of 130 kA in combination with an ATV650U30N4/N4E, Icu of 20 kA with an ATV650U40N4/N4E.

(4) 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.

(5) 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.

(6) When they are used with ATV650U07N4/N4E...D90N4/N4E drives, the motor starters must be installed in a separate enclosure to maintain the IP 55 protection degree of the installation.



ATV660C31Q4X1



Cooling concept

### Presentation

#### Concept

The ATV660 Compact Drive Systems range offers standard enclosures ready to connect. The modular construction makes it possible to adapt the enclosure unit to individual requirements. The low-cost enclosure variant simplifies design and allows quick installation and commissioning of the drive.

#### Power versus overload

For optimum adaptation to the application you can choose between two overload modes:

- Normal duty: High continuous power with an overload capability of 10% (for pumps, fans, etc.)
- Heavy duty: Reduced continuous power with an increased overload capability of 50% for drives with enhanced requirements regarding overload capability, starting torque, load impacts and control performance (such as compressors, mixers, rotary blowers, etc.)

#### Standard equipment

The standard compact offer contains frequency inverter modules, semiconductor fuses, a main switch, a line reactor to reduce the harmonics, a motor choke to protect the motor and spacious mains and motor bars for connecting the power cables.

The design is based on the ready-assembled Sarel "Spacial SF" enclosures with a graphic operating panel integrated in the enclosure door.

#### Compact dimensions

Inside the enclosure there is an easily accessible and spaciouly designed control panel with the control components. It has compact dimensions, nevertheless there is enough space for additional extensions and accessibility for maintenance.

### Device features

#### Enclosure system

The ready-assembled Sarel "Spacial SF" enclosure with additional internal reinforcing elements and separate cooling air channels provides optimum cooling of the built-in frequency inverter modules and maximum compactness at the same time.

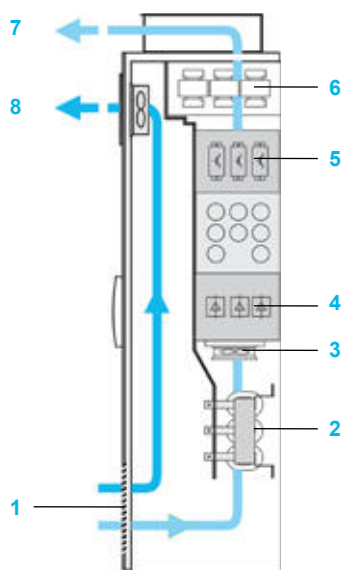
#### Cooling concept

The power section components are cooled in a separate cooling air channel. About 90% of the heat losses are evacuated via this channel. The inside of the enclosure is cooled via fans in the enclosure door.

When using the "IP 54 increased protection degree" option, the separate air supply for the power section comes through the enclosure plinth.

#### Connection

The power cables are connected on the mains side and motor side to spaciouly designed bars. The cable strain relief is realized via another bar with solid metal clamps. Each device is equipped with an EMC screen bar for correct shielding connection. In the standard design, the cables are connected at the bottom.



IP 23 enclosure

### Protection degrees

The standard design of Altivar Process Compact Drive Systems complies with the IP 23 protection degree. This solution provides optimum cooling of the built-in frequency inverter modules and power components as well as maximum compactness.

For operation in harsh ambient conditions, the increased IP 54 protection degree is available as an option. This solution consists of a clearly specified and tested cooling system with a separate cooling air channel which provides excellent reliability.

About 90% of the heat losses are evacuated via the separate cooling air channel. The inside of the enclosure is cooled via fans located in the enclosure door.

### Standard IP 23 enclosure design

In order to avoid internal air short-circuits, the power sections of the components are located in the main cooling air channel.

The cooling air intake comes from a grid located in the bottom of the enclosure door. The internal fan, which is in a separate air channel, provides cooling of the power section. The air then comes out through the top of the enclosure.

The heat losses from the control section are evacuated by a fan in the enclosure door.

The incoming air temperature must be between 0°C and 40°C (-10°C with enclosure heating) and can reach +50°C with derating (class 3K3 according to IEC/EN 60721-3-3).

IP 23 enclosures comprise:

- 1 An air intake (without filter mat) via a grid on the bottom of the enclosure door
- 2 A line reactor
- 3 Fans for the power section
- 4 A rectifier module
- 5 An inverter module
- 6 A dv/dt filter choke
- 7 An air outlet via a metal cover with protection against water splashes on the enclosure roof
- 8 An air outlet (without filter mat) with fans for the control section

### Increased IP 54 protection degree

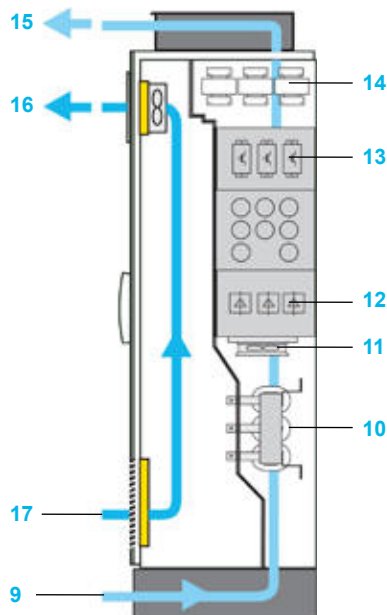
With the increased IP 54 protection degree with separate channels, the cooling air intake comes from the floor and goes out through the enclosure roof.

The control section is cooled by filter fans located in the enclosure door.

The incoming air temperature must be between 0°C and 40°C (-10°C with enclosure heating) and can reach +50°C with derating (class 3K3 according to IEC/EN 60721-3-3).

IP 54 enclosures are composed of:

- 9 An air intake for the power section via the enclosure plinth
- 10 A line reactor
- 11 Fans for the power section
- 12 A rectifier module
- 13 An inverter module
- 14 A dv/dt filter choke
- 15 An air outlet via a metal cover with protection against water splashes on the enclosure roof
- 16 An air outlet (with filter mat) with fans for the control section
- 17 An air intake grid (with filter mat) for the control section



IP 54 enclosure



Additional enclosure allowing cabling from the bottom

### Modular offer

This consists of:

- The standard compact offer
- One or more options (see pages 66 to 69)

### Options (Light ETO)

Some of these options depend on the drive rating. They can be integrated without any need for modifications to the enclosure:

- Increased IP 54 protection degree
- Enclosure plinth
- Additional enclosure allowing cabling from the top or from the bottom
- Enclosure lighting, heating
- "Local/remote" key switch
- Ethernet port on front door
- Discrete and analog I/O modules and relay output module
- Communication modules for various fieldbus systems
- STO - SIL 3 Stop category 0 or 1
- Indicator lights on front door
- Motor/bearing temperature monitoring
- dv/dt filters for long motor cables
- Motor heating
- Circuit breaker
- Undervoltage coil for circuit breaker 230 V
- Motor for circuit breaker 230 V
- Automated mains disconnection via a circuit breaker
- Setting for 415 V + 10%
- Safety labels in the local language

### Further design variations (ETO)

These options depend on the drive rating. Some may lead to modification of the size of the enclosure:

- Different ranges of supply voltages
- Multipulse supply (12-pulse)
- Design without a main switch
- Increased short-circuit strength (100 kA)
- Air intake from the back
- Other enclosure colors
- Customized documentation and labeling
- Reinforced or seaworthy packaging
- Design for IT mains
- Motor contactor
- Remote monitoring
- Etc.



ATV660C16Q4X1

| IP 23 three-phase 380...415 V Compact Drive Systems |                  |                |                           |                             |                                 |               |                      |
|-----------------------------------------------------|------------------|----------------|---------------------------|-----------------------------|---------------------------------|---------------|----------------------|
| Motor                                               | Line supply      |                |                           | Altivar Process             |                                 |               |                      |
| Power indicated on rating plate (1)                 | Line current (2) | Apparent power | Max. prospective line Isc | Max. continuous current (1) | Max. transient current for 60 s | Reference (1) | Weight               |
|                                                     | 400 V            | 400 V          |                           |                             |                                 |               |                      |
| ND: Normal duty (3)                                 |                  |                |                           |                             |                                 |               |                      |
| HD: Heavy duty (4)                                  |                  |                |                           |                             |                                 |               |                      |
| kW                                                  | A                | kVA            | kA                        | A                           | A                               |               | kg/lb                |
| THDI ≤ 44% at 100% load                             |                  |                |                           |                             |                                 |               |                      |
| ND 110                                              | 195              | 135            | 50                        | 211                         | 232                             | ATV660C11Q4X1 | 300.000/<br>661.386  |
| HD 90                                               | 164              | 113            | 50                        | 173                         | 260                             |               |                      |
| ND 132                                              | 232              | 161            | 50                        | 250                         | 275                             | ATV660C13Q4X1 | 300.000/<br>661.386  |
| HD 110                                              | 197              | 136            | 50                        | 211                         | 317                             |               |                      |
| ND 160                                              | 277              | 192            | 50                        | 302                         | 332                             | ATV660C16Q4X1 | 300.000/<br>661.386  |
| HD 132                                              | 232              | 161            | 50                        | 250                         | 375                             |               |                      |
| ND 200                                              | 349              | 242            | 50                        | 370                         | 407                             | ATV660C20Q4X1 | 400.000/<br>881.848  |
| HD 160                                              | 286              | 198            | 50                        | 302                         | 453                             |               |                      |
| ND 250                                              | 432              | 299            | 50                        | 477                         | 525                             | ATV660C25Q4X1 | 400.000/<br>881.848  |
| HD 200                                              | 353              | 244            | 50                        | 370                         | 555                             |               |                      |
| ND 315                                              | 538              | 373            | 50                        | 590                         | 649                             | ATV660C31Q4X1 | 400.000/<br>881.848  |
| HD 250                                              | 432              | 299            | 50                        | 477                         | 716                             |               |                      |
| ND 355                                              | 611              | 423            | 50                        | 660                         | 726                             | ATV660C35Q4X1 | 650.000/<br>1433.004 |
| HD 280                                              | 489              | 339            | 50                        | 520                         | 780                             |               |                      |
| ND 400                                              | 681              | 472            | 50                        | 730                         | 803                             | ATV660C40Q4X1 | 650.000/<br>1433.004 |
| HD 315                                              | 545              | 378            | 50                        | 590                         | 885                             |               |                      |
| ND 450                                              | 764              | 529            | 50                        | 830                         | 913                             | ATV660C45Q4X1 | 650.000/<br>1433.004 |
| HD 355                                              | 611              | 423            | 50                        | 660                         | 990                             |               |                      |
| ND 500                                              | 846              | 586            | 50                        | 900                         | 990                             | ATV660C50Q4X1 | 650.000/<br>1433.004 |
| HD 400                                              | 681              | 472            | 50                        | 730                         | 1095                            |               |                      |
| ND 560                                              | 948              | 656            | 50                        | 1020                        | 1122                            | ATV660C56Q4X1 | 850.000/<br>1873.928 |
| HD 450                                              | 767              | 531            | 50                        | 830                         | 1245                            |               |                      |
| ND 630                                              | 1058             | 733            | 50                        | 1140                        | 1254                            | ATV660C63Q4X1 | 850.000/<br>1873.928 |
| HD 500                                              | 849              | 588            | 50                        | 900                         | 1350                            |               |                      |
| ND 710                                              | 1192             | 826            | 50                        | 1260                        | 1386                            | ATV660C71Q4X1 | 1100.00/<br>2425.083 |
| HD 560                                              | 951              | 659            | 50                        | 1020                        | 1530                            |               |                      |
| ND 800                                              | 1335             | 925            | 50                        | 1420                        | 1562                            | ATV660C80Q4X1 | 1100.00/<br>2425.083 |
| HD 630                                              | 1061             | 735            | 50                        | 1140                        | 1710                            |               |                      |

(1) These values are given for a nominal switching frequency of 2.5 kHz for use in continuous operation.

The switching frequency is adjustable from 2...8 kHz 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 the 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 110%).

(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 66).



ATV680C16Q4X1

### Presentation

#### Concept

The ATV680 Low Harmonic Drive Systems are used when drives need to have particularly low mains harmonics.

Schneider Electric has developed a concept based on a 3-level technology that reduces the total current distortion factor (THDI) to a value under 5%.

The Low Harmonic Drive Systems were conceived to fulfill stringent requirements as regards THDI. The ATV680 range is an optimum solution for energy efficiency and process optimization.

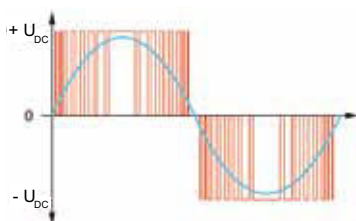
The modular design makes it possible to adapt the enclosure unit to individual requirements. It simplifies planning and allows quick installation and commissioning of the drive.

#### Standard equipment

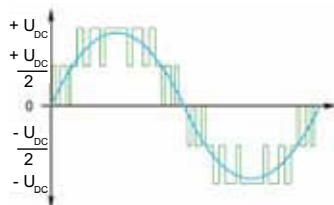
The Low Harmonic offer contains active infeed modules as well as frequency inverter modules, filter components, semiconductor fuses, a main switch, a dv/dt filter choke for motor protection and spacious mains and motor bars for connecting the power cables.

The design is based on the ready-assembled Sarel "Spacial SF" enclosures with a graphic operating panel integrated in the enclosure door.

Inside the enclosure there is an easily accessible and spaciouly designed control panel with the control components. It has compact dimensions, nevertheless there is enough space for additional extensions and accessibility for maintenance.



2-level technology



3-level technology

### Device features

#### Enhanced motor lifetime due to the 3-level concept

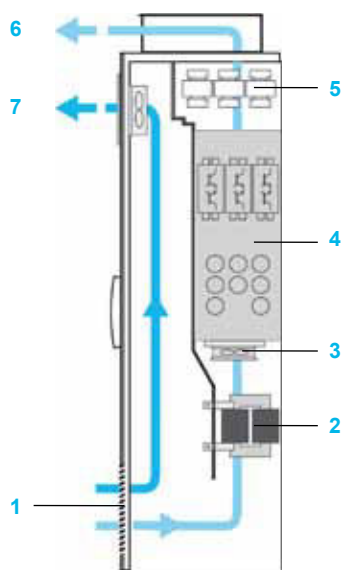
The 3-level technology of the active mains rectifier reduces the voltage load at the motor significantly, compared to other Low Harmonic frequency inverters. The fluctuating adaptation of the DC link voltage helps extend the motor lifetime.

#### Reduced losses due to the 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 due to the 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.



IP 23 enclosure

#### Protection degrees

The standard design of the Altivar Process Low Harmonic Drive Systems complies with the IP 23 protection degree. This solution provides optimum cooling of the built-in frequency inverter modules and power components as well as maximum compactness.

For operation in harsh ambient conditions, the increased IP 54 protection degree is available as an option. This solution consists of a clearly specified and tested cooling system with a separate cooling air channel which provides excellent reliability.

About 90% of the heat losses are evacuated via the separate cooling air channel. The inside of the enclosure is cooled via fans located in the enclosure door.

#### Standard IP 23 enclosure design

In order to avoid internal air short-circuits, the power sections of the components are located in the main cooling air channel.

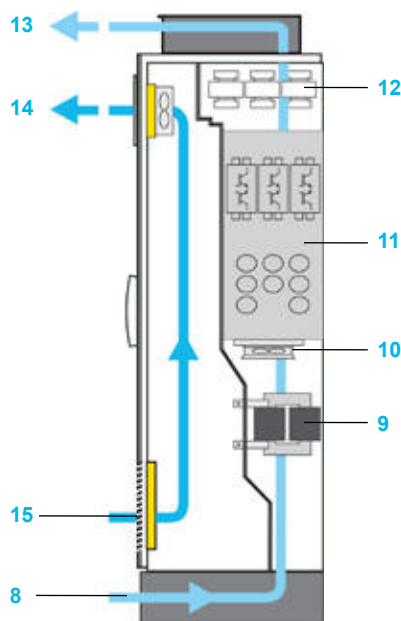
The cooling air intake comes from a grid located in the bottom of the enclosure door. The internal fan, which is in a separate air channel, provides cooling of the power section. The air then comes out through the top of the enclosure.

The heat losses from the control section are evacuated by a fan in the enclosure door.

The incoming air temperature must be between 0°C and 40°C (- 10°C with enclosure heating) and can reach + 50°C with derating (class 3K3 according to IEC/EN 60721-3-3).

IP 23 enclosures comprise:

- 1 An air intake (without filter mat) via a grid on the bottom of the enclosure door
- 2 Filter components
- 3 Fans for the power section
- 4 An Active Front End module
- 5 A dv/dt filter choke
- 6 An air outlet via a metal cover with protection against water splashes on the enclosure roof
- 7 An air outlet (without filter mat) with fans for the control section



IP 54 enclosure

#### Increased IP 54 protection degree

With the increase IP 54 protection degree with separate channels the cooling air intake comes from the floor and goes out through the enclosure roof.

The control section is cooled by filter fans located in the enclosure door.

The incoming air temperature must be between 0°C and 40°C (- 10°C with enclosure heating) and can reach + 50°C with derating (class 3K3 according to IEC/EN 60721-3-3).

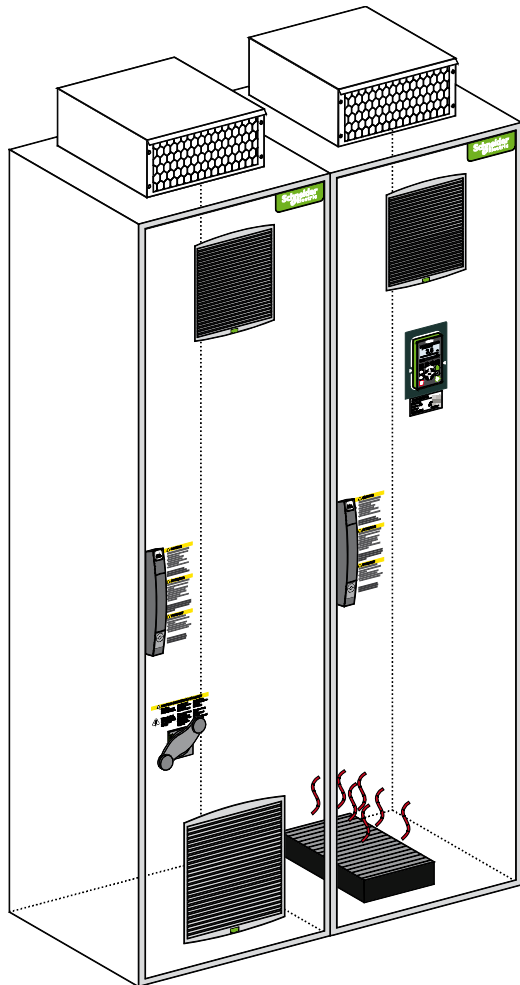
IP 54 enclosures comprise:

- 8 An air intake for the power section via the enclosure plinth
- 9 Filter components
- 10 Fans for the power section
- 11 An Active Front End module
- 12 A dv/dt filter choke
- 13 An air outlet via a metal cover with protection against water splashes on the enclosure roof
- 14 An air outlet (with filter mat) with fans for the control section
- 15 An air intake grid (with filter mat) for the control section

# Variable speed drives

## Altivar Process

### Low Harmonic Drive Systems



Enclosure heating

#### Modular offer

This consists of:

- The standard Low Harmonic offer
- One or more options (see pages 66 to 69)

#### Options (Light ETO)

Some of these options depend on the drive rating. They can be integrated without any need for modifications to the enclosure:

- Increased IP 54 protection degree
- Enclosure plinth
- Additional enclosure allowing cabling from the top or from the bottom
- Enclosure lighting, heating
- "Local/remote" key switch
- Ethernet port on front door
- Discrete and analog I/O modules and relay output module
- Communication modules for various fieldbus systems
- STO - SIL 3 Stop category 0 or 1
- Indicator lights on front door
- Motor/bearing temperature monitoring
- dv/dt filters for long motor cables
- Motor heating
- Setting for 415 V + 10%

#### Further design variations (ETO)

These options depend on the drive rating. Some will lead to modification of the size of the enclosure:

- Different ranges of supply voltages
- Multipulse supply (12-pulse)
- Design without a main switch
- Increased short-circuit strength (100 kA)
- Air intake from the back
- Other enclosure colors
- Customized documentation and labeling
- Stronger or seaworthy packaging
- Design for IT mains
- Motor contactor
- Remote monitoring
- Etc.



ATV680C16Q4X1

| IP 23 three-phase 380...415 V Low Harmonic Drive Systems |  |                  |                |                           |                             |                                 |               |                       |
|----------------------------------------------------------|--|------------------|----------------|---------------------------|-----------------------------|---------------------------------|---------------|-----------------------|
| Motor                                                    |  | Line supply      |                |                           | Altivar Process             |                                 |               |                       |
| Power indicated on rating plate (1)                      |  | Line current (2) | Apparent power | Max. prospective line Isc | Max. continuous current (1) | Max. transient current for 60 s | Reference (1) | Weight                |
|                                                          |  | 400 V            | 400 V          |                           |                             |                                 |               |                       |
| ND: Normal duty (3)                                      |  |                  |                |                           |                             |                                 |               |                       |
| HD: Heavy duty (4)                                       |  |                  |                |                           |                             |                                 |               |                       |
| kW                                                       |  | A                | kVA            | kA                        | A                           | A                               |               | kg/lb                 |
| THDI ≤ 5% at 100% load                                   |  |                  |                |                           |                             |                                 |               |                       |
| ND 110                                                   |  | 175              | 121            | 50                        | 211                         | 232                             | ATV680C11Q4X1 | 400.000/<br>881.848   |
| HD 90                                                    |  | 144              | 100            | 50                        | 173                         | 260                             |               |                       |
| ND 132                                                   |  | 208              | 144            | 50                        | 250                         | 275                             | ATV680C13Q4X1 | 400.000/<br>881.848   |
| HD 110                                                   |  | 174              | 121            | 50                        | 211                         | 317                             |               |                       |
| ND 160                                                   |  | 252              | 174            | 50                        | 302                         | 332                             | ATV680C16Q4X1 | 400.000/<br>881.848   |
| HD 132                                                   |  | 208              | 144            | 50                        | 250                         | 375                             |               |                       |
| ND 200                                                   |  | 313              | 217            | 50                        | 370                         | 407                             | ATV680C20Q4X1 | 700.000/<br>1543.235  |
| HD 160                                                   |  | 252              | 174            | 50                        | 302                         | 453                             |               |                       |
| ND 250                                                   |  | 389              | 270            | 50                        | 477                         | 525                             | ATV680C25Q4X1 | 700.000/<br>1543.235  |
| HD 200                                                   |  | 313              | 217            | 50                        | 370                         | 555                             |               |                       |
| ND 315                                                   |  | 491              | 340            | 50                        | 590                         | 649                             | ATV680C31Q4X1 | 700.000/<br>1543.235  |
| HD 250                                                   |  | 389              | 270            | 50                        | 477                         | 716                             |               |                       |
| ND 355                                                   |  | 553              | 383            | 50                        | 660                         | 726                             | ATV680C35Q4X1 | 1150.000/<br>2535.314 |
| HD 280                                                   |  | 436              | 302            | 50                        | 520                         | 780                             |               |                       |
| ND 400                                                   |  | 620              | 429            | 50                        | 730                         | 803                             | ATV680C40Q4X1 | 1150.000/<br>2535.314 |
| HD 315                                                   |  | 491              | 340            | 50                        | 590                         | 885                             |               |                       |
| ND 450                                                   |  | 697              | 483            | 50                        | 830                         | 913                             | ATV680C45Q4X1 | 1150.000/<br>2535.314 |
| HD 355                                                   |  | 553              | 383            | 50                        | 660                         | 990                             |               |                       |
| ND 500                                                   |  | 775              | 537            | 50                        | 900                         | 990                             | ATV680C50Q4X1 | 1150.000/<br>2535.314 |
| HD 400                                                   |  | 620              | 429            | 50                        | 730                         | 1095                            |               |                       |
| ND 560                                                   |  | 868              | 601            | 50                        | 1020                        | 1122                            | ATV680C56Q4X1 | 1450.000/<br>3196.700 |
| HD 450                                                   |  | 697              | 483            | 50                        | 830                         | 1245                            |               |                       |
| ND 630                                                   |  | 971              | 673            | 50                        | 1140                        | 1254                            | ATV680C63Q4X1 | 1450.000/<br>3196.700 |
| HD 500                                                   |  | 775              | 537            | 50                        | 900                         | 1350                            |               |                       |
| ND 710                                                   |  | 1094             | 758            | 50                        | 1260                        | 1386                            | ATV680C71Q4X1 | 1950.000/<br>4299.011 |
| HD 560                                                   |  | 868              | 601            | 50                        | 1020                        | 1530                            |               |                       |
| ND 800                                                   |  | 1227             | 850            | 50                        | 1420                        | 1562                            | ATV680C80Q4X1 | 1950.000/<br>4299.011 |
| HD 630                                                   |  | 971              | 673            | 50                        | 1140                        | 1710                            |               |                       |

(1) These values are given for a nominal switching frequency of 2.5 kHz for use in continuous operation.

The switching frequency is adjustable from 2...8 kHz 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 the 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 110%).

(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 66).



VW3AP1601



VW3AP1502

**Common options (1)**

| Description                                                | Reference | Weight<br>kg/lb |
|------------------------------------------------------------|-----------|-----------------|
| <b>Enclosure options</b>                                   |           |                 |
| Enclosure lighting (2)                                     | VW3AP1601 | 0.500/<br>1.102 |
| <b>Control options</b>                                     |           |                 |
| "Local/remote" key switch                                  | VW3AP1801 | 0.200/<br>0.441 |
| Ethernet port on front door                                | VW3AP1807 | 0.200/<br>0.441 |
| <b>I/O expansion modules</b>                               |           |                 |
| Expansion module with additional I/O                       | VW3AP3203 | 0.200/<br>0.441 |
| Expansion module with relay outputs                        | VW3AP3204 | 0.200/<br>0.441 |
| <b>Communication modules</b>                               |           |                 |
| Profibus DP communication module                           | VW3AP3607 | 0.200/<br>0.441 |
| CANopen Daisy Chain communication module                   | VW3AP3608 | 0.200/<br>0.441 |
| DeviceNet communication module                             | VW3AP3609 | 0.200/<br>0.441 |
| CANopen SUB-D9 communication module                        | VW3AP3618 | 0.200/<br>0.441 |
| CANopen communication module with screw terminals          | VW3AP3628 | 0.200/<br>0.441 |
| PROFINET communication module                              | VW3AP3627 | 0.200/<br>0.441 |
| Modbus TCP and EtherNet/IP communication module            | VW3AP3720 | 0.200/<br>0.441 |
| <b>Safety functions</b>                                    |           |                 |
| Safe Torque Off STO - SIL 3 Stop category 0                | VW3AP1502 | 0.200/<br>0.441 |
| Safe Torque Off STO - SIL 3 Stop category 1                | VW3AP1503 | 0.500/<br>1.102 |
| <b>Display options</b>                                     |           |                 |
| Indicator lights on front door                             | VW3AP0421 | 0.200/<br>0.441 |
| <b>Motor options</b>                                       |           |                 |
| PTC relay for motor monitoring                             | VW3AP2001 | 0.200/<br>0.441 |
| PTC relay with ATEX certification for motor monitoring (3) | VW3AP2002 | 0.200/<br>0.441 |
| PT100/1000/KTY relay for motor monitoring                  | VW3AP2003 | 0.200/<br>0.441 |
| PT100/1000/KTY relay for bearing monitoring                | VW3AP2004 | 0.200/<br>0.441 |
| Motor heating                                              | VW3AP2101 | 0.300/<br>0.661 |
| <b>Mains supply</b>                                        |           |                 |
| Setting for 415 V + 10%                                    | VW3AP0415 | —               |
| <b>Safety labels</b>                                       |           |                 |
| English and German safety labels                           | VW3AP0561 | —               |
| English and Italian safety labels                          | VW3AP0562 | —               |
| English and Spanish safety labels                          | VW3AP0563 | —               |
| English and Dutch safety labels                            | VW3AP0564 | —               |
| English and Chinese safety labels                          | VW3AP0565 | —               |
| English and Russian safety labels                          | VW3AP0566 | —               |
| English and Turkish safety labels                          | VW3AP0567 | —               |
| English and Polish safety labels                           | VW3AP0568 | —               |
| English and Portuguese safety labels                       | VW3AP0569 | —               |

(1) These options cannot be ordered alone. For any other configuration, please contact our Customer Care Center.

(2) Not available for ATV660C11Q4X1...C16Q4X1.

(3) ATEX: please refer to the ATEX guide available on our website [www.schneider-electric.com](http://www.schneider-electric.com).



VW3AP0801

| Options dependent on the drive rating (1) |                         |           |                    |
|-------------------------------------------|-------------------------|-----------|--------------------|
| Description                               | For enclosure           | Reference | Weight<br>kg/lb    |
| <b>Enclosure options</b>                  |                         |           |                    |
| Enclosure heating                         | ATV660C11Q4X1...C31Q4X1 | VW3AP0501 | 1.500/<br>3.307    |
|                                           | ATV660C35Q4X1...C50Q4X1 | VW3AP0502 | 3.000/<br>6.614    |
|                                           | ATV660C56Q4X1...C80Q4X1 | VW3AP0503 | 4.500/<br>9.921    |
|                                           | ATV680C11Q4X1...C16Q4X1 | VW3AP0551 | 2.000/<br>4.409    |
|                                           | ATV680C20Q4X1...C31Q4X1 | VW3AP0552 | 3.000/<br>6.614    |
|                                           | ATV680C35Q4X1...C50Q4X1 | VW3AP0553 | 5.000/<br>11.023   |
|                                           | ATV680C56Q4X1...C63Q4X1 | VW3AP0554 | 6.000/<br>13.228   |
|                                           | ATV680C71Q4X1...C80Q4X1 | VW3AP0555 | 8.000/<br>17.637   |
| Increased IP 54 protection degree         | ATV660C11Q4X1...C16Q4X1 | VW3AP0301 | 13.000/<br>28.660  |
|                                           | ATV660C20Q4X1...C31Q4X1 | VW3AP0302 | 16.000/<br>35.274  |
|                                           | ATV660C35Q4X1...C50Q4X1 | VW3AP0303 | 19.000/<br>41.888  |
|                                           | ATV660C56Q4X1...C63Q4X1 | VW3AP0304 | 32.000/<br>70.548  |
|                                           | ATV660C71Q4X1...C80Q4X1 | VW3AP0305 | 35.000/<br>77.162  |
|                                           | ATV680C11Q4X1...C16Q4X1 | VW3AP0351 | 16.000/<br>35.274  |
|                                           | ATV680C20Q4X1...C31Q4X1 | VW3AP0352 | 29.000/<br>63.934  |
|                                           | ATV680C35Q4X1...C50Q4X1 | VW3AP0353 | 45.000/<br>99.208  |
|                                           | ATV680C56Q4X1...C63Q4X1 | VW3AP0354 | 58.000/<br>127.668 |
|                                           | ATV680C71Q4X1...C80Q4X1 | VW3AP0355 | 74.000/<br>163.142 |
| Enclosure plinth for basic device         | ATV660C11Q4X1...C16Q4X1 | VW3AP0801 | 9.000/<br>19.842   |
|                                           | ATV660C20Q4X1...C31Q4X1 | VW3AP0802 | 11.000/<br>24.251  |
|                                           | ATV660C35Q4X1...C50Q4X1 | VW3AP0803 | 13.000/<br>28.660  |
|                                           | ATV660C56Q4X1...C63Q4X1 | VW3AP0804 | 22.000/<br>48.502  |
|                                           | ATV660C71Q4X1...C80Q4X1 | VW3AP0805 | 24.000/<br>52.911  |
|                                           | ATV680C11Q4X1...C16Q4X1 | VW3AP0851 | 11.000/<br>24.251  |
|                                           | ATV680C20Q4X1...C31Q4X1 | VW3AP0852 | 20.000/<br>44.093  |
|                                           | ATV680C35Q4X1...C50Q4X1 | VW3AP0853 | 31.000/<br>68.343  |
|                                           | ATV680C56Q4X1...C63Q4X1 | VW3AP0854 | 40.000/<br>88.185  |
|                                           | ATV680C71Q4X1...C80Q4X1 | VW3AP0855 | 54.000/<br>119.050 |

(1) These options cannot be ordered alone. For any other configuration, please contact our Customer Care Center.

## Variable speed drives

Altivar Process

Drive Systems

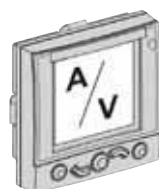
Options dependent on the drive rating



VW3AP0707

## Options dependent on the drive rating (continued) (1)

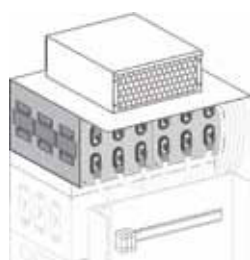
| Description                                                              | For enclosure           | Reference        | Weight<br>kg/lb     |
|--------------------------------------------------------------------------|-------------------------|------------------|---------------------|
| <b>Enclosure options</b>                                                 |                         |                  |                     |
| <b>Additional enclosure allowing cabling from the top</b>                | ATV660C11Q4X1...C31Q4X1 | <b>VW3AP0701</b> | 85.000/<br>187.393  |
|                                                                          | ATV660C35Q4X1...C80Q4X1 | <b>VW3AP0702</b> | 100.000/<br>220.462 |
|                                                                          | ATV680C11Q4X1...C31Q4X1 | <b>VW3AP0751</b> | 85.000/<br>187.393  |
|                                                                          | ATV680C35Q4X1...C80Q4X1 | <b>VW3AP0752</b> | 100.000/<br>220.462 |
| <b>Additional enclosure allowing cabling from the top with plinth</b>    | ATV660C11Q4X1...C31Q4X1 | <b>VW3AP0704</b> | 94.000/<br>207.234  |
|                                                                          | ATV660C35Q4X1...C80Q4X1 | <b>VW3AP0705</b> | 111.000/<br>244.713 |
|                                                                          | ATV680C11Q4X1...C31Q4X1 | <b>VW3AP0754</b> | 94.000/<br>207.234  |
|                                                                          | ATV680C35Q4X1...C80Q4X1 | <b>VW3AP0755</b> | 111.000/<br>244.713 |
| <b>Additional enclosure allowing cabling from the bottom</b>             | ATV660C11Q4X1...C31Q4X1 | <b>VW3AP0707</b> | 85.000/<br>187.393  |
|                                                                          | ATV660C35Q4X1...C80Q4X1 | <b>VW3AP0708</b> | 100.000/<br>220.462 |
|                                                                          | ATV680C11Q4X1...C31Q4X1 | <b>VW3AP0757</b> | 85.000/<br>187.393  |
|                                                                          | ATV680C35Q4X1...C80Q4X1 | <b>VW3AP0758</b> | 100.000/<br>220.462 |
| <b>Additional enclosure allowing cabling from the bottom with plinth</b> | ATV660C11Q4X1...C31Q4X1 | <b>VW3AP0710</b> | 94.000/<br>207.234  |
|                                                                          | ATV660C35Q4X1...C80Q4X1 | <b>VW3AP0711</b> | 111.000/<br>244.713 |
|                                                                          | ATV680C11Q4X1...C31Q4X1 | <b>VW3AP0760</b> | 94.000/<br>207.234  |
|                                                                          | ATV680C35Q4X1...C80Q4X1 | <b>VW3AP0761</b> | 111.000/<br>244.713 |



VW3AP0403

## Display options

|                                   |                         |                  |                 |
|-----------------------------------|-------------------------|------------------|-----------------|
| <b>Front display module (FDM)</b> | ATV660C11Q4X1...C13Q4X1 | <b>VW3AP0401</b> | 0.500/<br>1.102 |
|                                   | ATV660C16Q4X1...C20Q4X1 | <b>VW3AP0402</b> | 0.500/<br>1.102 |
|                                   | ATV660C25Q4X1...C31Q4X1 | <b>VW3AP0403</b> | 0.500/<br>1.102 |
|                                   | ATV660C35Q4X1...C50Q4X1 | <b>VW3AP0404</b> | 0.500/<br>1.102 |
|                                   | ATV660C56Q4X1...C80Q4X1 | <b>VW3AP0405</b> | 0.500/<br>1.102 |

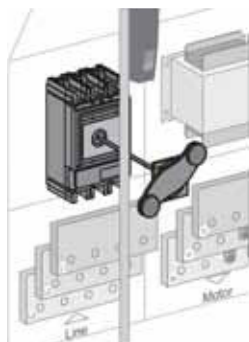


VW3AP0612

## Motor options

|                                 |                         |                  |                     |
|---------------------------------|-------------------------|------------------|---------------------|
| <b>150 m dv/dt filter choke</b> | ATV660C11Q4X1...C16Q4X1 | <b>VW3AP0601</b> | 25.000/<br>55.116   |
|                                 | ATV680C11Q4X1...C16Q4X1 |                  |                     |
|                                 | ATV660C20Q4X1...C31Q4X1 | <b>VW3AP0602</b> | 50.000/<br>110.231  |
| <b>300 m dv/dt filter choke</b> | ATV660C11Q4X1...C16Q4X1 | <b>VW3AP0611</b> | 28.000/<br>61.729   |
|                                 | ATV680C11Q4X1...C16Q4X1 |                  |                     |
|                                 | ATV660C20Q4X1...C31Q4X1 | <b>VW3AP0612</b> | 56.000/<br>123.459  |
|                                 | ATV680C20Q4X1...C31Q4X1 |                  |                     |
|                                 | ATV660C35Q4X1...C50Q4X1 | <b>VW3AP0613</b> | 84.000/<br>185.188  |
|                                 | ATV680C35Q4X1...C50Q4X1 |                  |                     |
|                                 | ATV660C56Q4X1...C63Q4X1 | <b>VW3AP0614</b> | 112.000/<br>246.918 |
|                                 | ATV680C56Q4X1...C63Q4X1 |                  |                     |
|                                 | ATV660C71Q4X1...C80Q4X1 | <b>VW3AP0615</b> | 140.000/<br>308.647 |
|                                 | ATV680C71Q4X1...C80Q4X1 |                  |                     |

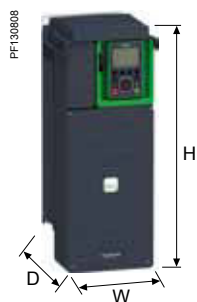
(1) These options cannot be ordered alone. For any other configuration, please contact our Customer Care Center.



VW3AP0104

| Options dependent on the drive rating (continued) (1) |                         |                  |                  |
|-------------------------------------------------------|-------------------------|------------------|------------------|
| Description                                           | For enclosure           | Reference        | Weight<br>kg/lb  |
| <b>Mains supply</b>                                   |                         |                  |                  |
| <b>Circuit breaker</b>                                | ATV660C11Q4X1...C20Q4X1 | <b>VW3AP0101</b> | 2.000/<br>4.409  |
|                                                       | ATV660C25Q4X1...C31Q4X1 | <b>VW3AP0102</b> | 2.000/<br>4.409  |
|                                                       | ATV660C35Q4X1...C40Q4X1 | <b>VW3AP0103</b> | 1.000/<br>2.204  |
|                                                       | ATV660C45Q4X1...C50Q4X1 | <b>VW3AP0104</b> | 1.000/<br>2.204  |
|                                                       | ATV660C56Q4X1...C63Q4X1 | <b>VW3AP0105</b> | 1.000/<br>2.204  |
|                                                       | ATV660C71Q4X1...C80Q4X1 | <b>VW3AP0106</b> | 1.000/<br>2.204  |
| <b>Undervoltage coil for circuit breaker 230 V</b>    | ATV660C11Q4X1...C31Q4X1 | <b>VW3AP0201</b> | 0.100/<br>0.220  |
|                                                       | ATV660C35Q4X1...C80Q4X1 | <b>VW3AP0202</b> | 0.100/<br>0.220  |
| <b>Motor for circuit breaker 230 V</b>                | ATV660C11Q4X1...C31Q4X1 | <b>VW3AP0251</b> | 4.000/<br>8.818  |
|                                                       | ATV660C35Q4X1...C40Q4X1 | <b>VW3AP0252</b> | 4.000/<br>8.818  |
|                                                       | ATV660C45Q4X1...C50Q4X1 | <b>VW3AP0253</b> | 7.000/<br>15.432 |
|                                                       | ATV660C56Q4X1...C63Q4X1 | <b>VW3AP0254</b> | 7.000/<br>15.432 |
|                                                       | ATV660C71Q4X1...C80Q4X1 | <b>VW3AP0255</b> | 7.000/<br>15.432 |
| <b>Automated mains disconnection</b>                  | ATV660C11Q4X1...C20Q4X1 | <b>VW3AP0271</b> | 4.500/<br>9.921  |
|                                                       | ATV660C25Q4X1...C31Q4X1 | <b>VW3AP0272</b> | 4.500/<br>9.921  |
|                                                       | ATV660C35Q4X1...C40Q4X1 | <b>VW3AP0273</b> | 7.500/<br>16.535 |
|                                                       | ATV660C45Q4X1...C50Q4X1 | <b>VW3AP0274</b> | 7.500/<br>16.535 |
|                                                       | ATV660C56Q4X1...C63Q4X1 | <b>VW3AP0275</b> | 7.500/<br>16.535 |
|                                                       | ATV660C71Q4X1...C80Q4X1 | <b>VW3AP0276</b> | 7.500/<br>16.535 |

(1) These options cannot be ordered alone. For any other configuration, please contact our Customer Care Center.



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

##### Overall dimensions

| Drives                                  | W x H x D        |                       |
|-----------------------------------------|------------------|-----------------------|
|                                         | mm               | in.                   |
| ATV630U07M3                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U15M3                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U22M3                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U30M3                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U40M3                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U55M3                             | 171 x 409 x 233  | 6.73 x 16.10 x 9.17   |
| ATV630U75M3                             | 211 x 546 x 232  | 8.31 x 21.50 x 9.13   |
| ATV630D11M3                             | 211 x 546 x 232  | 8.31 x 21.50 x 9.13   |
| ATV630D15M3                             | 226 x 673 x 271  | 8.90 x 26.50 x 10.67  |
| ATV630D18M3                             | 226 x 673 x 271  | 8.90 x 26.50 x 10.67  |
| ATV630D22M3                             | 226 x 673 x 271  | 8.90 x 26.50 x 10.67  |
| ATV630D30M3                             | 290 x 922 x 323  | 11.42 x 36.30 x 12.72 |
| ATV630D37M3                             | 290 x 922 x 323  | 11.42 x 36.30 x 12.72 |
| ATV630D45M3                             | 290 x 922 x 323  | 11.42 x 36.30 x 12.72 |
| ATV630D55M3                             | 320 x 852 x 390  | 12.60 x 33.54 x 15.35 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1157 x 390 | 12.60 x 45.55 x 15.35 |
| ATV630D75M3                             | 320 x 852 x 390  | 12.60 x 33.54 x 15.35 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1157 x 390 | 12.60 x 45.55 x 15.35 |

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

##### Overall dimensions

| Drives                                  | W x H x D        |                       |
|-----------------------------------------|------------------|-----------------------|
|                                         | mm               | in.                   |
| ATV630U07N4                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U15N4                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U22N4                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U30N4                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U40N4                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U55N4                             | 144 x 350 x 203  | 5.67 x 13.78 x 7.99   |
| ATV630U75N4                             | 171 x 409 x 233  | 6.73 x 16.10 x 9.17   |
| ATV630D11N4                             | 171 x 409 x 233  | 6.73 x 16.10 x 9.17   |
| ATV630D15N4                             | 211 x 546 x 232  | 8.31 x 21.50 x 9.13   |
| ATV630D18N4                             | 211 x 546 x 232  | 8.31 x 21.50 x 9.13   |
| ATV630D22N4                             | 211 x 546 x 232  | 8.31 x 21.50 x 9.13   |
| ATV630D30N4                             | 226 x 673 x 271  | 8.90 x 26.50 x 10.67  |
| ATV630D37N4                             | 226 x 673 x 271  | 8.90 x 26.50 x 10.67  |
| ATV630D45N4                             | 226 x 673 x 271  | 8.90 x 26.50 x 10.67  |
| ATV630D55N4                             | 290 x 922 x 323  | 11.42 x 36.30 x 12.72 |
| ATV630D75N4                             | 290 x 922 x 323  | 11.42 x 36.30 x 12.72 |
| ATV630D90N4                             | 290 x 922 x 323  | 11.42 x 36.30 x 12.72 |
| ATV630C11N4                             | 320 x 852 x 390  | 12.60 x 33.54 x 15.35 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1157 x 390 | 12.60 x 45.55 x 15.35 |
| ATV630C13N4                             | 320 x 852 x 390  | 12.60 x 33.54 x 15.35 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1157 x 390 | 12.60 x 45.55 x 15.35 |
| ATV630C16N4                             | 320 x 852 x 390  | 12.60 x 33.54 x 15.35 |
| With kit for IP 21/UL Type 1 conformity | 320 x 1157 x 390 | 12.60 x 45.55 x 15.35 |

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

##### Overall dimensions

| Drives       | W x H x D (1)    |                       |
|--------------|------------------|-----------------------|
|              | mm               | in.                   |
| ATV630C11N4F | 400 x 2150 x 642 | 15.75 x 84.65 x 25.28 |
| ATV630C13N4F | 400 x 2150 x 642 | 15.75 x 84.65 x 25.28 |
| ATV630C16N4F | 400 x 2150 x 642 | 15.75 x 84.65 x 25.28 |
| ATV630C20N4F | 600 x 2150 x 642 | 23.62 x 84.65 x 25.28 |
| ATV630C25N4F | 600 x 2150 x 642 | 23.62 x 84.65 x 25.28 |
| ATV630C31N4F | 600 x 2150 x 642 | 23.62 x 84.65 x 25.28 |

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



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

#### Overall dimensions

| Drives      | W x H x D        |                       |
|-------------|------------------|-----------------------|
|             | mm               | in.                   |
| ATV650U07N4 | 264 x 678 x 272  | 10.39 x 26.69 x 10.71 |
| ATV650U15N4 | 264 x 678 x 272  | 10.39 x 26.69 x 10.71 |
| ATV650U22N4 | 264 x 678 x 272  | 10.39 x 26.69 x 10.71 |
| ATV650U30N4 | 264 x 678 x 272  | 10.39 x 26.69 x 10.71 |
| ATV650U40N4 | 264 x 678 x 272  | 10.39 x 26.69 x 10.71 |
| ATV650U55N4 | 264 x 678 x 272  | 10.39 x 26.69 x 10.71 |
| ATV650U75N4 | 264 x 678 x 299  | 10.39 x 26.69 x 11.77 |
| ATV650D11N4 | 264 x 678 x 299  | 10.39 x 26.69 x 11.77 |
| ATV650D15N4 | 264 x 678 x 299  | 10.39 x 26.69 x 11.77 |
| ATV650D18N4 | 264 x 678 x 299  | 10.39 x 26.69 x 11.77 |
| ATV650D22N4 | 264 x 678 x 299  | 10.39 x 26.69 x 11.77 |
| ATV650D30N4 | 290 x 910 x 340  | 11.42 x 35.83 x 13.39 |
| ATV650D37N4 | 290 x 910 x 340  | 11.42 x 35.83 x 13.39 |
| ATV650D45N4 | 290 x 910 x 340  | 11.42 x 35.83 x 13.39 |
| ATV650D55N4 | 345 x 1250 x 375 | 13.58 x 49.21 x 14.76 |
| ATV650D75N4 | 345 x 1250 x 375 | 13.58 x 49.21 x 14.76 |
| ATV650D90N4 | 345 x 1250 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.                   |
| <b>Overall dimensions</b> |                  |                       |
| ATV650U07N4E              | 264 x 678 x 300  | 10.39 x 26.69 x 11.81 |
| ATV650U15N4E              | 264 x 678 x 300  | 10.39 x 26.69 x 11.81 |
| ATV650U22N4E              | 264 x 678 x 300  | 10.39 x 26.69 x 11.81 |
| ATV650U30N4E              | 264 x 678 x 300  | 10.39 x 26.69 x 11.81 |
| ATV650U40N4E              | 264 x 678 x 300  | 10.39 x 26.69 x 11.81 |
| ATV650U55N4E              | 264 x 678 x 300  | 10.39 x 26.69 x 11.81 |
| ATV650U75N4E              | 264 x 678 x 330  | 10.39 x 26.69 x 12.99 |
| ATV650D11N4E              | 264 x 678 x 330  | 10.39 x 26.69 x 12.99 |
| ATV650D15N4E              | 264 x 678 x 330  | 10.39 x 26.69 x 12.99 |
| ATV650D18N4E              | 264 x 678 x 330  | 10.39 x 26.69 x 12.99 |
| ATV650D22N4E              | 264 x 678 x 330  | 10.39 x 26.69 x 12.99 |
| ATV650D30N4E              | 290 x 910 x 401  | 11.42 x 35.83 x 15.79 |
| ATV650D37N4E              | 290 x 910 x 401  | 11.42 x 35.83 x 15.79 |
| ATV650D45N4E              | 290 x 910 x 401  | 11.42 x 35.83 x 15.79 |
| ATV650D55N4E              | 345 x 1250 x 436 | 13.58 x 49.21 x 17.17 |
| ATV650D75N4E              | 345 x 1250 x 436 | 13.58 x 49.21 x 17.17 |
| ATV650D90N4E              | 345 x 1250 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.                   |
| ATV650C11N4F | 400 x 2350 x 664 | 15.75 x 92.52 x 26.14 |
| ATV650C13N4F | 400 x 2350 x 664 | 15.75 x 92.52 x 26.14 |
| ATV650C16N4F | 400 x 2350 x 664 | 15.75 x 92.52 x 26.14 |
| ATV650C20N4F | 600 x 2350 x 664 | 23.62 x 92.52 x 26.14 |
| ATV650C25N4F | 600 x 2350 x 664 | 23.62 x 92.52 x 26.14 |
| ATV650C31N4F | 600 x 2350 x 664 | 23.62 x 92.52 x 26.14 |

(1) 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.



### Floor standing 380...415 V ("Compact") IP 23 drives

#### Overall dimensions

| Drives        | W x H x D (1)     |                       |
|---------------|-------------------|-----------------------|
|               | mm                | in.                   |
| ATV660C11Q4X1 | 400 x 2150 x 664  | 15.75 x 84.65 x 26.14 |
| ATV660C13Q4X1 | 400 x 2150 x 664  | 15.75 x 84.65 x 26.14 |
| ATV660C16Q4X1 | 400 x 2150 x 664  | 15.75 x 84.65 x 26.14 |
| ATV660C20Q4X1 | 600 x 2150 x 664  | 23.62 x 84.65 x 26.14 |
| ATV660C25Q4X1 | 600 x 2150 x 664  | 23.62 x 84.65 x 26.14 |
| ATV660C31Q4X1 | 600 x 2150 x 664  | 23.62 x 84.65 x 26.14 |
| ATV660C35Q4X1 | 800 x 2150 x 664  | 31.50 x 84.65 x 26.14 |
| ATV660C40Q4X1 | 800 x 2150 x 664  | 31.50 x 84.65 x 26.14 |
| ATV660C45Q4X1 | 800 x 2150 x 664  | 31.50 x 84.65 x 26.14 |
| ATV660C50Q4X1 | 800 x 2150 x 664  | 31.50 x 84.65 x 26.14 |
| ATV660C56Q4X1 | 1200 x 2150 x 664 | 47.24 x 84.65 x 26.14 |
| ATV660C63Q4X1 | 1200 x 2150 x 664 | 47.24 x 84.65 x 26.14 |
| ATV660C71Q4X1 | 1400 x 2150 x 664 | 55.12 x 84.65 x 26.14 |
| ATV660C80Q4X1 | 1400 x 2150 x 664 | 55.12 x 84.65 x 26.14 |

### Floor standing 380...415 V ("Low Harmonic") IP 23 drives

#### Overall dimensions

| Drives        | W x H x D (1)     |                        |
|---------------|-------------------|------------------------|
|               | mm                | in.                    |
| ATV680C11Q4X1 | 600 x 2150 x 664  | 23.62 x 84.65 x 26.14  |
| ATV680C13Q4X1 | 600 x 2150 x 664  | 23.62 x 84.65 x 26.14  |
| ATV680C16Q4X1 | 600 x 2150 x 664  | 23.62 x 84.65 x 26.14  |
| ATV680C20Q4X1 | 1000 x 2150 x 664 | 39.37 x 84.65 x 23.62  |
| ATV680C25Q4X1 | 1000 x 2150 x 664 | 39.37 x 84.65 x 26.14  |
| ATV680C31Q4X1 | 1000 x 2150 x 664 | 39.37 x 84.65 x 26.14  |
| ATV680C35Q4X1 | 1600 x 2150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV680C40Q4X1 | 1600 x 2150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV680C45Q4X1 | 1600 x 2150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV680C50Q4X1 | 1600 x 2150 x 664 | 62.99 x 84.65 x 26.14  |
| ATV680C56Q4X1 | 2000 x 2150 x 664 | 78.74 x 84.65 x 26.14  |
| ATV680C63Q4X1 | 2000 x 2150 x 664 | 78.74 x 84.65 x 26.14  |
| ATV680C71Q4X1 | 2600 x 2150 x 664 | 102.36 x 84.65 x 26.14 |
| ATV680C80Q4X1 | 2600 x 2150 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 consult our Customer Care Center.

**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 |
| 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    |

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

##### Overall dimensions

| Passive filters | W x H x D            |                       |
|-----------------|----------------------|-----------------------|
|                 | mm                   | in.                   |
| 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 |
| 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 |
| 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 17.75 |
| 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    |

**Additional EMC input filters****Overall dimensions**

| EMC filters | W x H x D       |                      |
|-------------|-----------------|----------------------|
|             | mm              | in.                  |
| VW3A4701    | 75 x 230 x 135  | 2.95 x 9.06 x 5.32   |
| VW3A4702    | 75 x 250 x 140  | 2.95 x 9.84 x 5.51   |
| VW3A4703    | 80 x 290 x 160  | 3.15 x 11.42 x 6.30  |
| VW3A4704    | 90 x 300 x 170  | 3.54 x 11.81 x 6.69  |
| VW3A4705    | 100 x 330 x 180 | 3.94 x 12.99 x 7.09  |
| VW3A4706    | 130 x 350 x 190 | 5.12 x 13.78 x 7.48  |
| VW3A4707    | 140 x 400 x 242 | 5.51 x 15.75 x 9.53  |
| VW3A4708    | 242 x 450 x 320 | 9.53 x 17.72 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 |

**dv/dt filters****Overall dimensions**

| dv/dt filters | W x H x D       |                       |
|---------------|-----------------|-----------------------|
|               | mm              | in.                   |
| VW3A5301      | 295 x 530 x 215 | 11.61 x 20.87 x 8.47  |
| VW3A5302      | 295 x 530 x 215 | 11.61 x 20.87 x 8.47  |
| VW3A5303      | 295 x 530 x 215 | 11.61 x 20.87 x 8.47  |
| VW3A5304      | 300 x 560 x 245 | 11.81 x 22.05 x 9.65  |
| VW3A5305      | 300 x 610 x 245 | 11.81 x 24.02 x 9.65  |
| VW3A5306      | 350 x 380 x 235 | 13.78 x 14.96 x 9.25  |
| VW3A5307      | 360 x 420 x 270 | 14.17 x 16.54 x 10.63 |

**Sinus filters****Overall dimensions**

| Sinus filters | W x H x D       |                       |
|---------------|-----------------|-----------------------|
|               | mm              | in.                   |
| VW3A5401      | 220 x 455 x 210 | 8.66 x 17.91 x 8.27   |
| VW3A5402      | 220 x 455 x 210 | 8.66 x 17.91 x 8.27   |
| VW3A5403      | 295 x 530 x 215 | 11.61 x 20.87 x 8.47  |
| VW3A5404      | 300 x 560 x 245 | 11.81 x 22.05 x 9.65  |
| VW3A5405      | 375 x 760 x 285 | 14.76 x 29.92 x 11.22 |
| VW3A5406      | 430 x 350 x 495 | 16.93 x 13.78 x 19.49 |
| VW3A5407      | 460 x 370 x 565 | 18.11 x 14.57 x 22.24 |

# 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.

A worldwide network, 24/7:

- 400 highly qualified and certified experts
- Field service engineers, online experts

A digital world of Services:

- "Schneider Electric Customer Care" app
- Remote technical support

|             |  |  |                            |
|-------------|--|--|----------------------------|
| People      |  |  | Digitized support material |
| Spare parts |  |  | Service provisions         |

A dedicated supply chain:

- All the spare parts you need
- Designed and manufactured by Schneider Electric

An optimal life cycle model:

- Spare parts management, Exchange and Repairs
- Extended warranties, Maintenance plans

### Schneider Electric drive maintenance expert certification

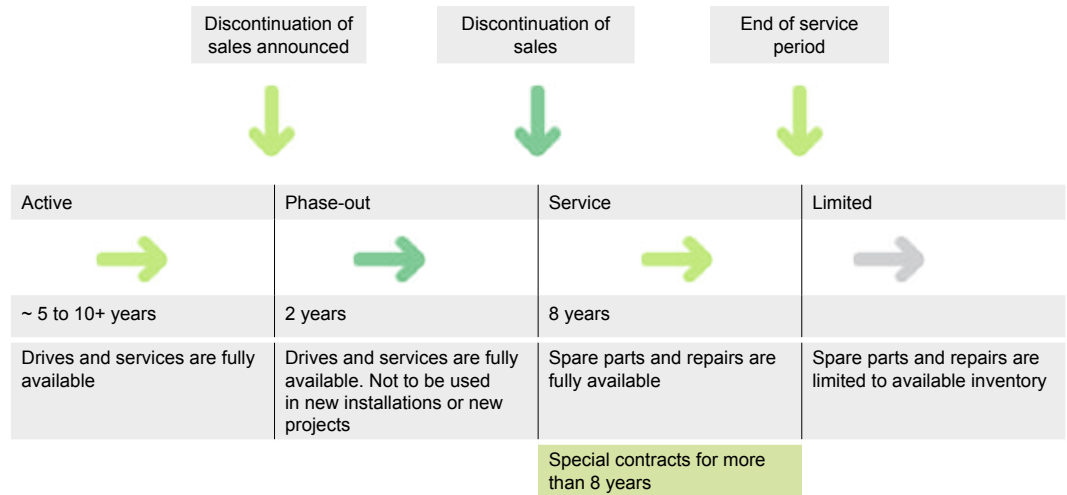
- A worldwide network, 24/7:
- 400 highly qualified and certified experts
  - Our Field Service Engineers follow a proven Drives certification program designed to support you with maximum expertise and efficiency.
  - For fast, in-depth diagnostics and repairs, they are equipped with professional tools and software.

|          | Repair Centers                                                                | Low Voltage (LV)<br>Drives field service engineers | Medium Voltage (MV)<br>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                                                |                                                    |                                                       |



### Schneider Electric drive life cycle policy

- The Schneider Electric drive life cycle model provides optimum support.
  - It is divided into 4 phases : Active, Phase out, Service, Limited
- The total Schneider Electric drive life cycle lasts more than 20 years.
  - Full maintainability: during Active, Phase out and Service periods
  - Optimized performance: during Active, Phase out and Service periods
  - Upgradability: during the Active period
  - Managed transition to new technology: during Phase out and Service periods



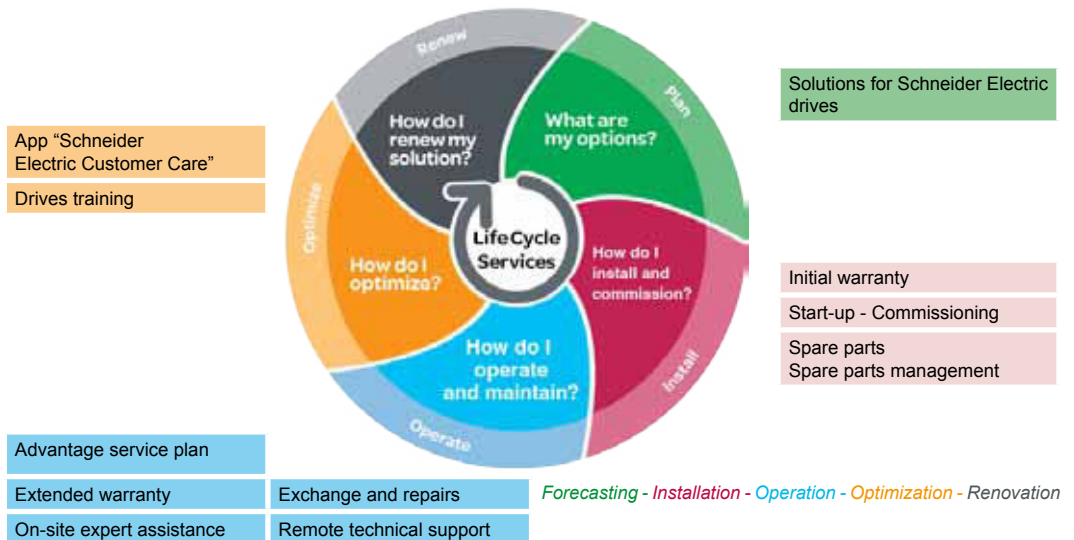
# Variable speed drives

## Altivar Process

A whole world of Services for your Drives by Schneider Electric

### Drives support and services offer by Schneider Electric (continued)

Schneider Electric has developed a generic Services offer to assist you throughout the life cycle of your product. From the Design to Renew phase, whether for standard or critical operations, you'll find the solution you need in our set of standardized offers.



| The offer                               | Contact, How to order                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solutions for Schneider Electric drives | Contact your center<br>local service<br>Schneider Electric | Our Schneider Electric experts can help you design your installation, offering whatever type of assistance you need from technical support to "turnkey" solutions.                                                                                                                                                                                                                                                                                                                           |
| Initial warranty                        | Included                                                   | When you register your drive, Schneider Electric will extend your initial warranty period by 6 months. Let's stay connected: registering allows Schneider Electric to keep you informed about recent innovations and propose Services to optimize your performance.                                                                                                                                                                                                                          |
| Start-up - Commissioning                | Contact your center<br>local service<br>Schneider Electric | 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 center<br>local service<br>Schneider Electric | Our spare parts are available for the full life time 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.<br>Our team can help you identify critical parts and define the right level of the required stock. Whether stored in your premises (on-site) or in a central store (off-site), it's reassuring to know that critical spare parts are available 24/7. |
| Exchange and repairs                    | Contact your center<br>local service<br>Schneider Electric | 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 or exchanges with refurbished products, or on-site repairs (Schneider Electric intervention on your premises).                                                                                                                                                                 |

## Altivar Process

A whole world of Services for your Drives by Schneider Electric

| Drives support and services offer by Schneider Electric (continued) |                                                         |                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The offer                                                           | Contact, How to order                                   | Description                                                                                                                                                                                                                                                                                                                                                     |
| Remote technical support                                            | Contact your center local service<br>Schneider Electric | 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 support are usually sufficient to help you find the best solution and can reduce your costs by avoiding on-site intervention. |
| On-site technical support                                           | Contact your center local service<br>Schneider Electric | 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 center local service<br>Schneider Electric | Spare parts and repairs performed by Schneider Electric experts on duty.                                                                                                                                                                                                                                                                                        |
| Advantage service plan                                              | Contact your center local service<br>Schneider Electric | 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 center local service<br>Schneider Electric | A full set of training courses to master your Altivar Process drive at any stage in the life cycle of your installation.                                                                                                                                                                                                                                        |
| "Schneider Electric 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>     |    | ATV630U40M3   | 18 | ATV660C71Q4X1  | 61 | VW3A3203  | 33 | VW3A46159 | 45 |
| 490NTC00005  | 36 | ATV630U40N4   | 19 | ATV660C80Q4X1  | 61 | VW3A3204  | 33 | VW3A46160 | 45 |
|              | 37 | ATV630U55M3   | 18 | ATV680C11Q4X1  | 65 | VW3A3607  | 40 | VW3A46161 | 45 |
| 490NTC00005U | 36 | ATV630U55N4   | 19 | ATV680C13Q4X1  | 65 | VW3A3608  | 38 | VW3A46162 | 45 |
|              | 37 | ATV630U75M3   | 18 | ATV680C16Q4X1  | 65 | VW3A3609  | 41 | VW3A46163 | 45 |
| 490NTC00015  | 36 | ATV630U75N4   | 19 | ATV680C20Q4X1  | 65 | VW3A3618  | 38 | VW3A46164 | 45 |
|              | 37 | ATV650C11N4F  | 23 | ATV680C25Q4X1  | 65 | VW3A3627  | 40 | VW3A46165 | 45 |
| 490NTC00015U | 36 | ATV650C13N4F  | 23 | ATV680C31Q4X1  | 65 | VW3A3628  | 39 | VW3A46166 | 45 |
|              | 37 | ATV650C16N4F  | 23 | ATV680C35Q4X1  | 65 | VW3A3720  | 37 | VW3A46167 | 45 |
| 490NTW00002  | 36 | ATV650C20N4F  | 23 | ATV680C40Q4X1  | 65 | VW3A46101 | 42 | VW3A46168 | 45 |
|              | 37 | ATV650C25N4F  | 23 | ATV680C45Q4X1  | 65 | VW3A46102 | 42 | VW3A46169 | 45 |
| 490NTW00002U | 36 | ATV650C31N4F  | 23 | ATV680C50Q4X1  | 65 | VW3A46103 | 42 | VW3A46170 | 45 |
|              | 37 | ATV650D11N4   | 21 | ATV680C56Q4X1  | 65 | VW3A46104 | 42 | VW3A46171 | 45 |
| 490NTW00005  | 36 | ATV650D11N4E  | 22 | ATV680C63Q4X1  | 65 | VW3A46105 | 42 | VW3A46172 | 45 |
|              | 37 | ATV650D15N4   | 21 | ATV680C71Q4X1  | 65 | VW3A46106 | 42 | VW3A46173 | 45 |
| 490NTW00005U | 36 | ATV650D15N4E  | 22 | ATV680C80Q4X1  | 65 | VW3A46107 | 42 | VW3A4701  | 46 |
|              | 37 | ATV650D18N4   | 21 |                |    | VW3A46108 | 42 |           | 47 |
| 490NTW00012  | 36 | ATV650D18N4E  | 22 | <b>L</b>       |    | VW3A46109 | 42 | VW3A4702  | 46 |
|              | 37 | ATV650D22N4   | 21 | LU9AD7         | 40 | VW3A46110 | 42 |           | 47 |
| 490NTW00012U | 36 | ATV650D22N4E  | 22 | LU9GC3         | 25 | VW3A46111 | 42 | VW3A4703  | 46 |
|              | 37 | ATV650D30N4   | 21 |                | 36 | VW3A46112 | 42 |           | 47 |
| <b>A</b>     |    | ATV650D30N4E  | 22 | <b>N</b>       |    | VW3A46113 | 42 | VW3A4704  | 46 |
| ATV630C11N4  | 20 | ATV650D37N4   | 21 | NSYAEFPFPTD    | 23 | VW3A46114 | 42 |           | 47 |
| ATV630C11N4F | 20 | ATV650D37N4E  | 22 | NSYPTDS1       | 23 | VW3A46115 | 42 | VW3A4705  | 46 |
| ATV630C13N4  | 20 | ATV650D45N4   | 21 | NSYPTDS2       | 23 | VW3A46116 | 42 |           | 47 |
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| ATV630C20N4F | 20 | ATV650D75N4   | 21 |                |    | VW3A46123 | 43 |           | 47 |
| ATV630C25N4F | 20 | ATV650D75N4E  | 22 | <b>T</b>       |    | VW3A46124 | 43 | VW3A4708  | 46 |
| ATV630C31N4F | 20 | ATV650D90N4   | 21 | TCSCAR01NM120  | 39 | VW3A46125 | 43 |           | 47 |
| ATV630D11M3  | 18 | ATV650D90N4E  | 22 | TCSCAR013M120  | 38 | VW3A46126 | 43 | VW3A4709  | 46 |
| ATV630D11N4  | 19 | ATV650U07N4   | 21 | TCSEGW13FA0    | 24 | VW3A46127 | 43 |           | 47 |
| ATV630D15M3  | 18 | ATV650U07N4E  | 22 | TCSXCNAMUM3P   | 25 | VW3A46128 | 43 | VW3A4710  | 46 |
| ATV630D15N4  | 19 | ATV650U15N4   | 21 | TSXCANCA50     | 38 | VW3A46129 | 43 |           | 47 |
| ATV630D18M3  | 18 | ATV650U15N4E  | 22 | TSXCANCA100    | 38 | VW3A46130 | 43 | VW3A47901 | 47 |
| ATV630D18N4  | 19 | ATV650U22N4   | 21 | TSXCANCA300    | 38 | VW3A46131 | 43 | VW3A47902 | 47 |
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| ATV630D22N4  | 19 | ATV650U30N4   | 21 | TSXCANCADD03   | 39 | VW3A46133 | 43 | VW3A47904 | 47 |
| ATV630D30M3  | 18 | ATV650U30N4E  | 22 | TSXCANCB50     | 38 | VW3A46134 | 43 | VW3A47905 | 47 |
| ATV630D30N4  | 19 | ATV650U40N4   | 21 | TSXCANCB100    | 38 | VW3A46135 | 43 | VW3A47906 | 47 |
| ATV630D37M3  | 18 | ATV650U40N4E  | 22 | TSXCANCB300    | 38 | VW3A46139 | 44 | VW3A47907 | 47 |
| ATV630D37N4  | 19 | ATV650U55N4   | 21 | TSXCANCBDD3    | 39 | VW3A46140 | 44 | VW3A47908 | 47 |
| ATV630D45M3  | 18 | ATV650U55N4E  | 22 | TSXCANCBDD5    | 39 | VW3A46141 | 44 | VW3A5301  | 48 |
| ATV630D45N4  | 19 | ATV650U75N4   | 21 | TSXCANCD50     | 38 | VW3A46142 | 44 |           | 49 |
| ATV630D55M3  | 18 | ATV650U75N4E  | 22 | TSXCANCD100    | 38 | VW3A46143 | 44 | VW3A5302  | 48 |
| ATV630D55N4  | 20 | ATV660C11Q4X1 | 61 | TSXCANCD300    | 38 | VW3A46144 | 44 |           | 49 |
| ATV630D75M3  | 18 | ATV660C13Q4X1 | 61 | TSXCANKCDF180T | 38 | VW3A46145 | 44 | VW3A5303  | 48 |
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| ATV630D90N4  | 20 | ATV660C20Q4X1 | 61 |                |    | VW3A46147 | 44 | VW3A5304  | 48 |
| ATV630U07M3  | 18 | ATV660C25Q4X1 | 61 | <b>V</b>       |    | VW3A46148 | 44 |           | 49 |
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| ATV630U22M3  | 18 | ATV660C45Q4X1 | 61 | VW3A1104R50    | 25 | VW3A46152 | 44 |           | 49 |
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| ATV630U30N4  | 19 | ATV660C63Q4X1 | 61 | VW3A1115       | 25 | VW3A46158 | 45 | VW3A53901 | 51 |

|              |    |           |    |              |    |
|--------------|----|-----------|----|--------------|----|
| VW3A53902    | 49 | VW3AP0353 | 67 | VW3AP0854    | 67 |
|              | 51 | VW3AP0354 | 67 | VW3AP0855    | 67 |
| VW3A53903    | 49 | VW3AP0355 | 67 | VW3AP1502    | 66 |
|              | 51 | VW3AP0401 | 68 | VW3AP1503    | 66 |
| VW3A53904    | 51 | VW3AP0402 | 68 | VW3AP1601    | 66 |
| VW3A53905    | 49 | VW3AP0403 | 68 | VW3AP1801    | 66 |
| VW3A5401     | 50 | VW3AP0404 | 68 | VW3AP1807    | 66 |
|              | 51 | VW3AP0405 | 68 | VW3AP2001    | 66 |
| VW3A5402     | 50 | VW3AP0415 | 66 | VW3AP2002    | 66 |
|              | 51 | VW3AP0421 | 66 | VW3AP2003    | 66 |
| VW3A5403     | 50 | VW3AP0501 | 67 | VW3AP2004    | 66 |
|              | 51 | VW3AP0502 | 67 | VW3AP2101    | 66 |
| VW3A5404     | 50 | VW3AP0503 | 67 | VW3AP3203    | 66 |
|              | 51 | VW3AP0551 | 67 | VW3AP3204    | 66 |
| VW3A5405     | 50 | VW3AP0552 | 67 | VW3AP3607    | 66 |
|              | 51 | VW3AP0553 | 67 | VW3AP3608    | 66 |
| VW3A5406     | 50 | VW3AP0554 | 67 | VW3AP3609    | 66 |
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| VW3A5407     | 50 | VW3AP0561 | 66 | VW3AP3627    | 66 |
|              | 51 | VW3AP0562 | 66 | VW3AP3628    | 66 |
| VW3A8306R03  | 25 | VW3AP0563 | 66 | VW3AP3720    | 66 |
|              | 36 | VW3AP0564 | 66 | VW3CANCARR03 | 38 |
| VW3A8306R10  | 25 | VW3AP0565 | 66 | VW3CANCARR1  | 38 |
|              | 36 | VW3AP0566 | 66 | VW3CANTAP2   | 39 |
| VW3A8306R30  | 25 | VW3AP0567 | 66 | VX5VP50A001  | 23 |
|              | 36 | VW3AP0568 | 66 | VX5VP50BC001 | 23 |
| VW3A8306RC   | 25 | VW3AP0569 | 66 | VX5VPM001    | 23 |
|              | 36 | VW3AP0601 | 68 | VX5VPM002    | 23 |
| VW3A8306TF03 | 25 | VW3AP0602 | 68 | VX5VPS1001   | 23 |
|              | 36 | VW3AP0611 | 68 | VX5VPS2001   | 23 |
| VW3A8306TF10 | 25 | VW3AP0612 | 68 | VX5VPS3001   | 23 |
|              | 36 | VW3AP0613 | 68 | VX5VPS4001   | 23 |
| VW3A9704     | 23 | VW3AP0614 | 68 | VX5VPS5001   | 23 |
| VW3AP0101    | 69 | VW3AP0615 | 68 | VX5VPS6001   | 23 |
| VW3AP0102    | 69 | VW3AP0701 | 68 |              |    |
| VW3AP0103    | 69 | VW3AP0702 | 68 |              |    |
| VW3AP0104    | 69 | VW3AP0704 | 68 |              |    |
| VW3AP0105    | 69 | VW3AP0705 | 68 |              |    |
| VW3AP0106    | 69 | VW3AP0707 | 68 |              |    |
| VW3AP0201    | 69 | VW3AP0708 | 68 |              |    |
| VW3AP0202    | 69 | VW3AP0710 | 68 |              |    |
| VW3AP0251    | 69 | VW3AP0711 | 68 |              |    |
| VW3AP0252    | 69 | VW3AP0751 | 68 |              |    |
| VW3AP0253    | 69 | VW3AP0752 | 68 |              |    |
| VW3AP0254    | 69 | VW3AP0754 | 68 |              |    |
| VW3AP0255    | 69 | VW3AP0755 | 68 |              |    |
| VW3AP0271    | 69 | VW3AP0757 | 68 |              |    |
| VW3AP0272    | 69 | VW3AP0758 | 68 |              |    |
| VW3AP0273    | 69 | VW3AP0760 | 68 |              |    |
| VW3AP0274    | 69 | VW3AP0761 | 68 |              |    |
| VW3AP0275    | 69 | VW3AP0801 | 67 |              |    |
| VW3AP0276    | 69 | VW3AP0802 | 67 |              |    |
| VW3AP0301    | 67 | VW3AP0803 | 67 |              |    |
| VW3AP0302    | 67 | VW3AP0804 | 67 |              |    |
| VW3AP0303    | 67 | VW3AP0805 | 67 |              |    |
| VW3AP0304    | 67 | VW3AP0851 | 67 |              |    |
| VW3AP0305    | 67 | VW3AP0852 | 67 |              |    |
| VW3AP0351    | 67 | VW3AP0853 | 67 |              |    |
| VW3AP0352    | 67 |           |    |              |    |

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Altivar drives



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