



Altivar Solar

Variable speed drives for pumps with photovoltaic arrays

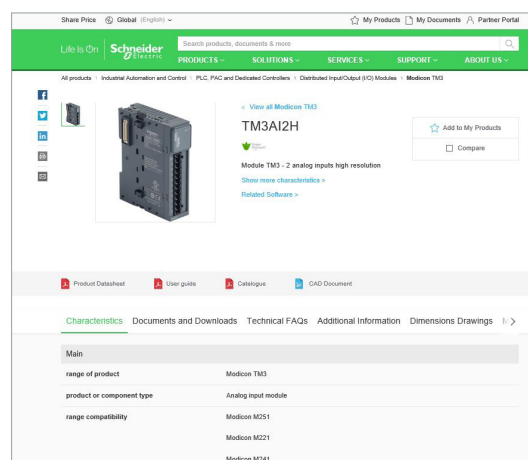
Quick access to product information

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References

Modicon TM3
I/O expansion modules for Modicon controllers
Analog I/O modules

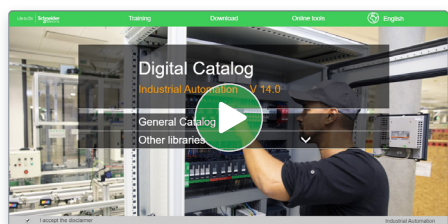
References	Modicon TM3 analog input modules	number and type of channels	Output range	Resolution	Input terminal block (V)	Reference	Weight (kg)
TM3AI2H	2 voltage/current inputs	-10...+10 VDC 0...+10 VDC 0...20 mA / 0...20 mA	10 000 cr	0.001%	TM3AI2H1	0.150	
			10 000 cr	0.002%	TM3AI2H2	0.150	
TM3AI4H	4 voltage/current inputs	-10...+10 VDC 0...+10 VDC 0...20 mA / 0...20 mA	12 000 cr	0.001%	TM3AI4H1	0.200	
			11 000 cr	0.002%	TM3AI4H2	0.200	
TM3AI8H	8 voltage/current inputs	-10...+10 VDC 0...+10 VDC 0...20 mA / 0...20 mA	16 000 cr	0.001%	TM3AI8H1	0.250	
			15 000 cr	0.002%	TM3AI8H2	0.250	
TM3AI16H	16 temperature inputs (I, K, R, S, T, N, E, C)	-200...500 mVDC PT100 (4W/500 mW) RTD (1W/1000 mW)	16 000 cr	0.001%	TM3AI16H1	0.300	
			15 000 cr	0.002%	TM3AI16H2	0.300	
TM3AI32H	32 differential temperature inputs (I, K, R, S, T, N, E, C)	-200...500 mVDC PT100 (4W/500 mW) RTD (1W/1000 mW)	16 000 cr	0.001%	TM3AI32H1	0.350	
			15 000 cr	0.002%	TM3AI32H2	0.350	
TM3AI64H	64 differential temperature inputs	-200...500 mVDC PT100 (4W/500 mW) RTD (1W/1000 mW)	16 000 cr	0.001%	TM3AI64H1	0.400	
			15 000 cr	0.002%	TM3AI64H2	0.400	
TM3AI128H	128 differential temperature inputs	-200...500 mVDC PT100 (4W/500 mW) RTD (1W/1000 mW)	16 000 cr	0.001%	TM3AI128H1	0.450	
			15 000 cr	0.002%	TM3AI128H2	0.450	



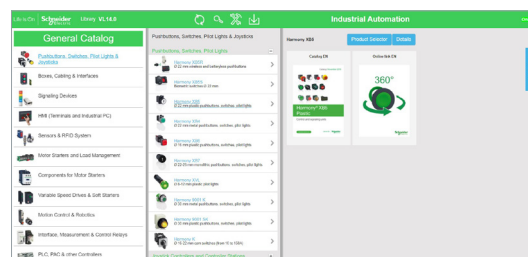
Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

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- Product image, Instruction sheet, User guide, Product certifications, End of life manual

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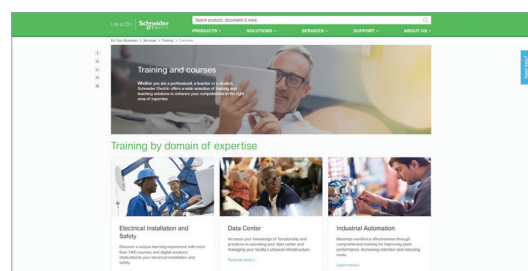


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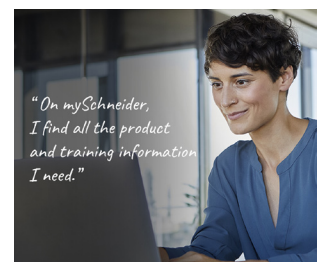
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Digital tools to quickly select your Altivar Solar solution

Product selector for Altivar Solar

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- Drop it into the product cart
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Altivar Solar Sizer tool

- Size the solar array
- Check compatibility of pump and drive
- Select the appropriate Altivar Solar reference
- Define the drive parameters

Contact your local
Schneider Electric representative

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Altivar

Discover [Altivar](#)

Variable speed drives and soft starters

Improve your energy efficiency and sustainability with Altivar variable speed drives and soft starters. Manage motor control applications up to 20 MW with products ranging from compact products to custom-engineered solutions. Our connected devices offer built-in intelligence to improve operational efficiency, availability, and functional safety in various application areas, such as industrial processes, machines, or buildings.

Explore our offer

- [Altivar](#) Process
- [Altivar](#) Machine
- [Altivar](#) Building
- [Altivar](#) Soft Starters

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Green Premium™

Enhance sustainability with Altivar™ Solar drives

Superior environmental performance thanks to upgradability and modernization solutions.

Altivar Solar is **RoHS** and **REACH** compliant

- Transparent environment information
- Life cycle assessment compliant with ISO 14025
- Circular instructions

Altivar Solar drives bring key benefits to solar pump system builders in achieving **superior upgradable performance** by enhancing embedded functionality and capacity performance of both hardware and software.

Altivar Solar's **additional power options** and **firmware upgradability** capabilities help to maximize pump control continuity and operation, as well as cut operating costs, by avoiding the need to change drives or modify existing installations through retrofit.

Benefits

- Maximize **production efficiency**
- Reduce **OPEX**
- Easy **scalability** of automation system
- **Future-ready** solution for **Industry 4.0**
- Improve system **power quality** with a low investment
- Improve the **functional safety**, **integration**, and **performance** of applications
- Optimize **maintenance costs** and **drive service life**



View our offer



Programmable function and embedded safety function

The embedded programmable function ATV Logic can be applied in flexible applications and users can update the integrated safety functions based on need as well. These two functions are software-based, requiring no additional hardware.

Communication

The additional communication module allows Altivar Solar drives to be easily integrated into scalable automation systems. Together with the EtherNet/IP option module, this ensures easy access to the real-time data provided by the drive, facilitating digitalization and easy integration of the drive in Industry 4.0 technologies.

Firmware update and service expertise

Thanks to our global network of service experts, our customers have the option to upgrade the drive firmware and modernize its hardware to extend the drive's service life. As part of our circular ambition, we are currently deploying a **global take-back platform** for End of Use products, which are either refurbished to “as good as new” condition in our agreed repair centers, or dismantled and recycled.



For more information on option compatibility, please visit the Altivar Solar page.

General contents

Altivar Solar variable speed drives

Altivar Solar variable speed drives selection guide page 2

■ Altivar Solar offer

- Dedicated solution for solar application page 4
- Applications page 4

■ Altivar Solar variable speed drive

- Range presentation page 5
- Solar functions page 6
- Innovative functions page 7
- Dedicated tool and software page 8
- Integrated safety functions page 9
- The offer page 10
- Description page 13
- Standards and certifications page 13
- References
 - IP20 wall-mounting drives page 14
 - Nominal power page 15
 - Accessories page 16
 - Replacement parts page 17

■ Options

- Dialog and configuration tools
 - DTM and SoMove software page 18
 - Multi-Loader configuration tool page 19
 - Remote display terminal page 20
 - Remote graphic display terminal page 21
 - Graphic display terminal page 23
 - Configuraton tools page 24
- Combinations
 - Drives and options page 25
 - Option module page 25
- Line chokes page 27
- Motor chokes page 28
- Additional EMC input filters page 29

■ Communication buses and networks

- Presentation page 30
- Functions page 31
- References
 - Modbus serial link page 31
 - Option module adapter page 32
 - CANopen machine bus page 32
 - Modbus TCP network and EtherNet/IP network page 34
 - PROFIBUS DP, DeviceNet bus, EtherCAT bus, page 35
 - POWERLINK network, ProfiNet network page 35

■ Motor starters page 36

■ Dimensions

- Drives page 38
- Options page 39

■ Field services page 40

■ Product reference index page 42

Application segments	General
	Specific

Irrigation, drinking water
Pumps (submersible, surface-mounted, water storage tank), off-grid solar powered water systems, water treatment systems, etc.

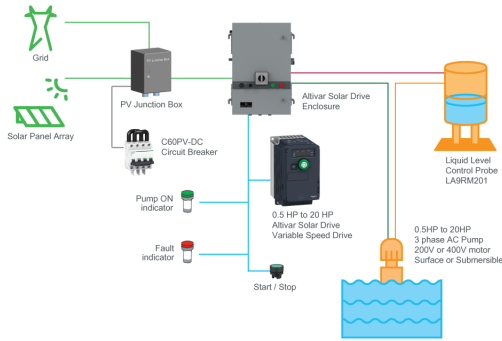


Degree of protection		IP20	IP20	IP20	
Power range for 50...60 Hz supply	Single-phase 200...240 V	0.37...2.2 kW/0.5...3 HP	-	-	
	Three-phase 200...240 V	-	3...15 kW/4...20 HP	-	
	Three-phase 380...500 V	-	-	0.37...7.5 kW/0.5...10 HP	11...15 kW/15...20 HP
Power range for DC supply	150...374 VDC	0.2...2.2 kW/0.25...3 HP	1.6...15 kW/2...20 HP	-	
	280...778 VDC	-	-	0.2...15 kW/0.25...20 HP	
Drive	Output frequency	0.1...599 Hz			
	Control type	Asynchronous motor Synchronous motor			
	Overload torque performance	Up to 200% Tn of over torque and 170% Tn of braking torque for open loop motor control			
	Integrated EMC filter	Class C2	-	Class C2	Class C3
	Functions	Advanced functions <ul style="list-style-type: none"> Control of asynchronous and synchronous motors, including IE2, IE3, and PM motors in open loop Operation in Velocity mode and Torque control mode (with current limitation) Customizable and flexible application functions with ATV Logic (up to 50 function blocks) Numerous application functions for targeted application segments Embedded safety functions dedicated to targeted application segments 			
	Integrated safety functions STO (up to SIL3/PLe), SS1, SLS, SMS, GDL				
	Number of preset speeds 16				
Number of integrated I/O	Analog inputs	3: 1 bipolar differential ±10 V, 1 voltage (0...10 V) and 1 current (0-20 mA)			
	Digital inputs	6: 4 configurable (positive or negative logic), 1 PTC probe input, 1x 20 kHz pulse input			
	Analog outputs	1: Configurable as voltage (0...10 V) or current (0-20 mA)			
	Digital outputs	1: Configurable as sink or source			
	Relay outputs	2: 1 with NO/NC contacts and 1 with NO contacts			
Safety function inputs	1 + 4: 1 with STO and 4 configurable for safety functions from digital inputs				
Communication	Integrated	Single port compatible with CANopen and Modbus serial link			
	Optional	EtherNet/IP and Modbus TCP, CANopen RJ45 Daisy Chain, Sub-D, and screw terminals, PROFIBUS DP V1, DeviceNet, EtherCAT, POWERLINK, and ProfiNet			
Configuration and runtime tools	Integrated	Integrated display, DTM (Device Type Manager), SoMove software			
	Optional	Multiloader and remote graphic terminal			
Standards and certifications		EN/IEC/UL 61800-5-1, EN/IEC 61800-3 (Environments 1 and 2, category C2, C3), IEC 60721-3, IEC 61508, IEC 13849-1			
		CE, UKCA, UR (UL recognized component), UL 61800-5-1, RCM, RoHs EU and China			
References		ATV320●●●M2C412	ATV320●●●M3C412	ATV320●●●N4C412	

Variable speed drives

Altivar Solar

Dedicated solution for solar application



Altivar Solar drive in a solar pumping system



Irrigation



Drinking water

Dedicated variable speed drive solution for solar application

The energy-efficient Altivar Solar is a solar-powered drive solution to cater for water challenges and de-dieselization of irrigation pumping and agri-processing machinery.

The robust and simple-to-use Altivar Solar drive solution is used to supply drinking water at a lower cost for people in rural and remote areas with limited or no access to electrical grids.

Maximum solar utilization

This solution harvests the maximum solar energy to run the pump for the maximum duration in a day by controlling the speed of the motor based on the power available from solar panels. The built-in maximum power point tracking (MPPT) function helps to ensure that you get the most power out of the solar panels and that the pump operates optimally throughout the day.

Save energy costs and maximize productivity

Easy configuration via a dedicated “Sun” menu. The Altivar Solar drive can connect to the grid and solar PV source, helping to ensure water pumping at night and even on cloudy days. The drive is optimized for pumping applications and can achieve up to 30% energy savings. It is a dedicated solar drive with built-in MPPT function and solar-specific functions menu.

Sustainable solution

An environment-friendly solar pumping solution harnessing the power of the sun, with no CO₂ emissions, utilizing Altivar Solar drives. The Altivar Solar offer is RoHS/ REACH compliant, and Green Premium is labeled by design.

Improving service life

Altivar Solar drives have a built-in monitoring function to help prevent the pump from running dry. If there is no water in the pump, the released heat could damage it over time, potentially shortening its service life.

Wide voltage and power range

The wide DC voltage range (150 to 777 VDC) enables you to connect high wattage panels to Altivar Solar drives. When not connected to solar panels, the drive can be connected to a standard power supply:

- 200 V single-phase: 0.37...2.2 kW/0.5...3 HP
- 200 V three-phase: 3...15 kW/4...20 HP
- 400 V three-phase: 0.37...15 kW/0.5...20 HP

Applications

The Altivar Solar offer incorporates functions suitable for the most common solar applications, including:

Irrigation

- Drip irrigation
- Sprinklers
- Micro-emitters
- Flood irrigation

Drinking water

- Submersible pumps
- Surface-mounted water pumps
- Water storage tank pumps
- Off-grid solar powered water systems
- Water treatment systems

Variable speed drives

Altivar Solar

Range presentation

ATV_SOLAR_ip6_SS_Default_ATV_SOLAR_SF_Default_1271855



Altivar Solar variable speed drive

The Altivar Solar IP20 product is a variable speed drive for three-phase asynchronous and synchronous motors from 0.37 kW/0.5 HP to 15 kW/20 HP. The Altivar Solar drive is robust, simple to commission, and easy to integrate for pumping applications. The drive embeds solar-specific functions to address advanced application requirements and improve pump performance. These functions help to ensure greater pump availability while reducing total system cost.

Flexible

The Altivar Solar drive is compatible with the majority of locally-sourced components and open to most makes of pump or solar array. It is designed to be integrated in compact electrical cabinets.

Cost-effective

The Altivar Solar drive is available worldwide. It is easy to install and maintain using local resources.

High-availability

The Altivar Solar drive offers high availability for improved access to clean water and enables smooth pump operation with built-in monitoring functions to help prevent dry running, overload, and jamming.

Open

The Altivar Solar drive is compatible with any IEC three-phase asynchronous motor and photovoltaic array or grid main supply.

Autonomous

The Altivar Solar variable speed drive provides automatic regulation of pump flow. It has on-board commands and can self-adapt to the pump used in the installation.

Off-roads

Altivar Solar drives are designed for harsh environments. They can be easily integrated with IP cabinets.

Economical

Altivar Solar drives are ready for use with no additional components needed and are specially designed for solar systems with a dedicated "Sun" menu.



Altivar Solar drives can switch from solar to grid power supply

Solar functions (1)

Embedded functions

- Solar power regulation algorithm (MPPT) for power optimization according to available sunshine
- Tank level control probe
- Underload control helping to prevent operation of the pump in the event of water supplies running dry
- All-day Run-Stop-Restart mode management
- Easy-to-use “Sun” menu for fast commissioning
- Diagnostics and self-monitoring functions
- Water flow measurement
- Sensorless flow estimation

Advanced capabilities

- Adjustment to pipe length
- Suitable for all IEC three-phase asynchronous motors
- Full pump management and protection
- Advanced parameters for optimized performance
- Dedicated output for power availability
- Programming with ATV Logic
- Dual supply mode (solar/grid)
- Remote control by I/O
- Optional Ethernet connectivity

Flexible and easy to connect

- Altivar Solar drive controls any three-phase pump and motor
- Compatible with most existing solar panels
- The Altivar Solar Sizer wizard helps you choose the optimized configuration for your installation, whatever the tank volume, bore hole, or pipe length
- SoMove is user-friendly setup software for PC, designed to simplify device configuration to optimize the time spent in the field. SoMove can be used to program and customize the Altivar Solar drive configuration using ATV Logic.

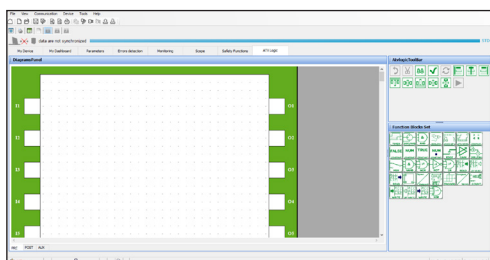
(1) Non-exhaustive list; please consult our [website](#).

Innovative functions (1)

Application functions

Altivar Solar variable speed drives feature pumping functions, including:

- Configurations: standard or customizable
- Application-specific functions for pumping applications
- Adjustable switching frequency (adjusted motor current, reduced motor noise)
- Adjustable monitoring function to create "My Menu" function to obtain user-specific monitoring
- Ability to upload/download drive configurations with the power off



Programming ATV Logic in SoMove

ATV Logic

ATV Logic is used to adapt the Altivar Solar variable speed drive to specific applications by means of customizable integrated control system functions.

The integrated control system functions featuring ATV Logic can be used to perform simple operations without adding further devices, which reduces costs.

ATV Logic is programmed via the SoMove configuration software (consult the [SoMove catalog](#) for more information) and provides access to the following functions:

- Arithmetical operations, Boolean operators, counters, timers, etc.
- Programming of up to 50 functions by an automated sequence
- Access to the drive's internal variables
- Internal function blocks, such as a timer, counter, or logic unit, can be used to achieve customized and advanced functions according to user requirements.

(1) Non-exhaustive list; please consult our [website](#).

Dedicated tool (1)

Altivar Solar Sizer

Configure your installation using the free Altivar Solar Sizer tool. This tool helps you to:

- Size the solar array
- Check compatibility of the pump and drive
- Select the appropriate Altivar Solar reference
- Define the drive parameters

Altivar Solar Selection tool V1.0
English

For more information...

All informations about use of sizer are available on Solar Sizer guide available on [Schneider-Electric.com](#). If you need more help about sizing, please contact your local SE support.

Be sure to use latest version of Solar Sizer official release on SE.com

Software (1)

SoMove

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

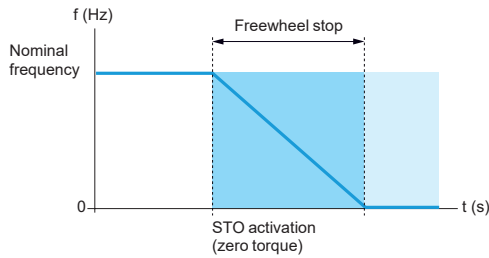
The software can be connected to Altivar Solar variable speed drives via:

- Ethernet Modbus and Wi-Fi connection with the Wi-Fi dongle **TCSEGWB131W**
- Ethernet Modbus TCP connection

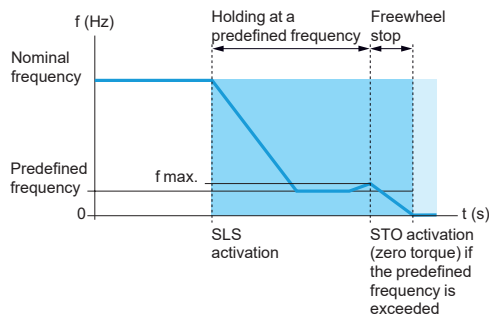
For more information on SoMove setup software, please consult the [SoMove Setup software for motor control devices catalog](#).

(1) Non-exhaustive list; please consult our [website](#).

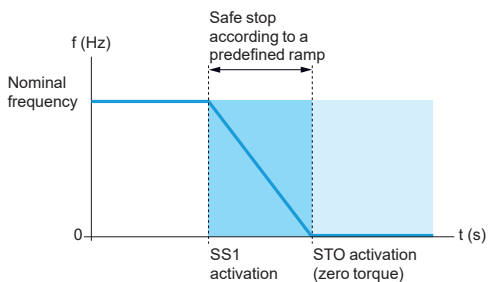




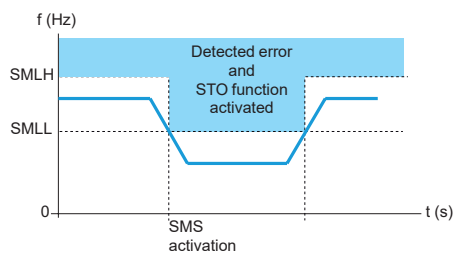
Activation of the STO safety function



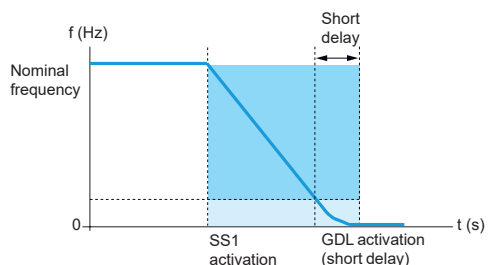
Activation of the SLS safety function



Activation of the SS1 safety function



Activation of the SMS safety function



Activation of the GDL safety function (example of stop type SS1)

Integrated safety functions (1)

The Altivar Solar range of variable speed drives provides integrated safety functions (according to standard IEC 61508) comparable with performance level “e” (PL e) according to standard ISO/EN 13849-1-2.

The Altivar Solar drive software includes 5 safety functions to meet a given performance level (PL) according to standard ISO/EN 13849-1-2, whether or not they are used in conjunction with a Harmony safety module (2).

Safe Torque Off (STO) safety function

This function brings the machine safely into a no-torque state and/or prevents it from starting unexpectedly.

Safely Limited Speed (SLS) safety function

The SLS integrated safety function can be initiated by activation of safety function inputs. This function prevents the motor from exceeding the specified speed limit. If the motor speed exceeds the specified speed limit value, the STO safety function is activated.

Safe Stop 1 (SS1) safety function

The SS1 integrated safety function causes a category 1 safe stop. This function initiates and monitors the motor deceleration rate within set limits to stop the motor.

Safe Maximum Speed (SMS) safety function

This function prevents the speed of the motor from exceeding the predefined speed limit.

- Two different speed limits can be defined and can be selected by logic inputs.
- If the motor speed exceeds the predefined speed limit value, the STO safety function is activated.

Once the SMS function is configured, it is continuously active.

Guard Door Locking (GDL) safety function

This function allows you to release the guard door lock after a specified delay when the motor power is turned off. The specified delay is chosen according to the type of stop.

The front door of the machine can be opened only after the motor has stopped; this function helps to ensure the safety of the machine operator.

Setting up the integrated safety functions

No options or additional accessories are required to set up the integrated safety functions in the Altivar Solar drive.

The functions are connected directly to the drive's digital inputs and can only be configured using SoMove setup software.

For more information, please refer to the [SoMove Setup software for motor control devices catalog](#).

(1) Please refer to the [ATV320 Safety Functions manual](#).

(2) Please refer to our [Machine safety web page](#)

Variable speed drives

Altivar Solar

The offer



ATV320U04M2C412 ATV320U06M2C412...U07M2C412



ATV320U11M2C412...U22M2C412
ATV320U04N4C412...U15N4C412



ATV320U22N4C412...U40N4C412



ATV320U30M3C412...U40M3C412



ATV320U55M3C412...U75M3C412
ATV320U55N4C412...U75N4C412



ATV320D11M3C412...D15M3C412
ATV320D11N4C412...D15N4C412

The offer

The Altivar Solar range of variable speed drives covers motor power ratings in compact control block design:

- With three types of AC power supply:
 - 200...240 V single-phase, 0.37 to 2.2 kW/0.5 HP to 3 HP
 - 200...240 V three-phase, 3 to 15 kW/4 HP to 20 HP
 - 380...500 V three-phase, 0.37 to 15 kW/0.5 HP to 20 HP
- With two DC power supply ranges:
 - 150...374 VDC, 0.2 to 15 kW/0.25 HP to 20 HP
 - 280...778 VDC, 0.2 to 15 kW/0.25 HP to 20 HP

Altivar Solar drives integrate the Modbus and CANopen communication protocols as standard. Both can be accessed via the RJ45 connector on the front of the drive.

In addition to the Modbus and CANopen standard protocols, Altivar Solar drives can be connected to the main industrial communication buses and networks by adding the optional Modbus/TCP - EtherNet/IP communication module.

The offer (continued)

Integrated EMC filters

Altivar Solar drives with built-in EMC filter:

- ATV320●●●M2C412
- ATV320●●●N4C412

The EMC filter enables compliance with standard IEC/EN 61800-3, category C2 or C3 in environment 1 or 2 and the European Electromagnetic Compatibility Directive (EMC).

Drive	Maximum length of shielded cable (1)(2) according to	
	IEC/EN 61800-3 Category C2 m/ft	IEC/EN 61800-3 Category C3 m/ft
ATV320●●●M2C412	10/33	10/33
ATV320U04N4C412...U15N4C412		
ATV320U22N4C412...U40N4C412	10/33	20/66
ATV320U55N4C412...U75N4C412	2/6.6	20/66
ATV320D11N4C412...D15N4C412	–	30/98

(1) If motors are connected in parallel, it is the total cable length that should be taken into account.

(2) The maximum motor cable length is at 4 kHz switching frequency.

EMC standard description

IEC 61800-3 Category	C1	C2	C3	C4
Environment	First environment	First or second environment (user choice)	Second environment	
Supply voltage/current	< 1,000 V	–	–	> 1,000 V, or > 400 A, or IT supply network
Knowledge and requirements	No requirements	Installation and commissioning by EMC expert only	EMC plan required	–

EMC standards

Category	Subcategory	Test standard
Emission	Radiated noise	CISPR11 (EN 55011)
	Conducted noise	CISPR11 (EN 55011)
Immunity	Electrostatic discharge (ESD) test	IEC 61000-4-2
	Radiated, radio-frequency, electromagnetic field	IEC 61000-4-3
	Electrical fast transient (EFT)/burst transients test	IEC 61000-4-4
	Electrical surge test	IEC 61000-4-5
	Immunity to conducted disturbances induced by radio-frequency fields	IEC 61000-4-6
	Voltage dips, short interruptions of power	IEC 61000-4-11

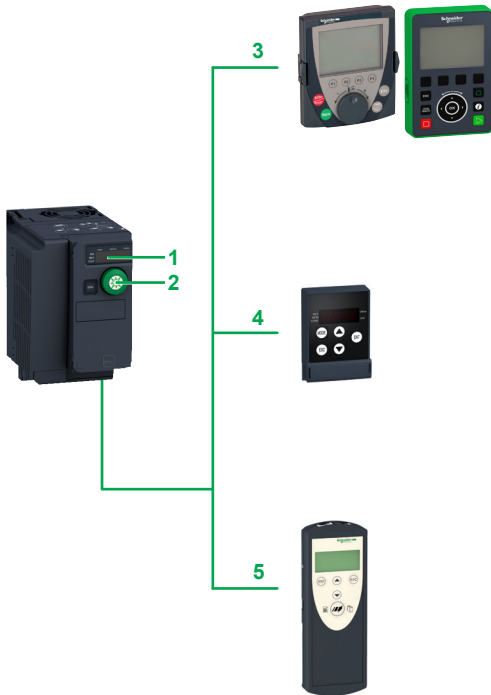
IEC 60068-2

Description	Test and endurance standards
Temperature test	IEC 60068-2-2
Vibration test	IEC 60068-2-6
Shock test	IEC 60068-2-27
Bump test	IEC 60068-2-29

Variable speed drives

Altivar Solar

Accessories, options, dialog and configuration tools



Altivar Solar dialog and configuration tools

The offer (continued)

Accessories and external options

Accessories and external options are available with Altivar Solar drives. The type of external accessories and options depends on the drive rating.

Accessories

- UL Type 1 conformity kits, plates for direct mounting on 35 mm/1.38 in. rails, etc.

External options (1)

- Line chokes
- Motor chokes
- Additional EMC filters

Dialog and configuration tools

Human-Machine interface

The 4-digit display **1** shows drive states, error codes, and parameter values. The navigation button **2** is used to navigate through the menus, modify values, and change the motor speed in local mode.

HMI terminals

Altivar Solar drives can be connected to a graphic display terminal **3** (VW3A1111, VW3A1101) or a remote display terminal **4**, which are available as options. The HMI terminals can be mounted on an enclosure door with IP65 degree of protection. They provide the same level of access as the on-board Human-Machine interface.

The HMI terminal display features the majority of user languages and provides a user-friendly environment for configuration, debugging, or maintenance.

SoMove setup software

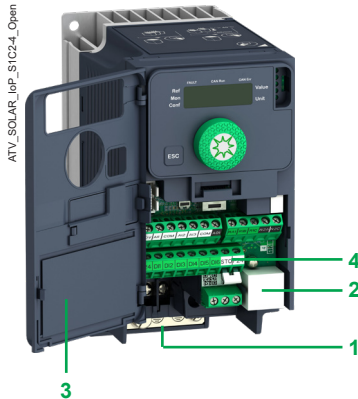
SoMove setup software is used to configure, adjust, debug (using the Oscilloscope function), and maintain Altivar Solar drives in the same way as for other Schneider Electric drives and soft starters.

For more information, please refer to the [SoMove Setup software for motor control devices catalog](#).

Configuration tool

The Multi-Loader tool **5** enables configurations from a PC or drive to be copied and duplicated on another drive; the drives do not need to be powered up. It also supports REMOTE/LOCAL operation (see [page 20](#)).

(1) For braking resistor compatibility, please consult our [Customer Care Teams](#).



Description

- 1 Power terminals
- 2 RJ45 communication port for access to integrated protocols: Modbus serial link and CANopen machine bus
- 3 Protective cover for access to the control terminals (also includes a label with a wiring diagram)
- 4 Control terminals for I/O connection:
 - 6 digital inputs:
 - 4 configurable as positive (Sink) or negative (Source) inputs
 - 1 configurable as PTC probe input
 - 1 x 20 kHz pulse control input, 24 V $\overline{\text{---}}$, impedance 3.5 k Ω , sampling time 8 ms
 - 1 digital output:
 - 24 V $\overline{\text{---}}$, sampling time 2 ms, maximum voltage 30 V, maximum current 100 mA
 - 3 analog inputs:
 - 1 current analog input, by programming X and Y from 0 to 20 mA, impedance 250 Ω
 - 1 bipolar differential analog input ± 10 V, impedance 30 k Ω
 - 1 voltage analog input 0...10 V, impedance 30 k Ω , sampling time 2 ms
 - 1 analog output configurable as:
 - voltage (0...10 V $\overline{\text{---}}$), minimum load impedance 470 Ω
 - current (0...20 mA), maximum load impedance 800 Ω
 - 2 relay outputs:
 - 1 NC contact and 1 NO contact with common point
Minimum switching capacity 5 mA for 24 V $\overline{\text{---}}$, maximum switching capacity 3 A on resistive load, 2 A on inductive load for 250 V \sim or 30 V $\overline{\text{---}}$
 - 1 NO contact, maximum switching capacity 5 A on resistive load

Standards and certifications (1)

Altivar Solar drives have been developed to conform to the strictest international standards and recommendations relating to industrial electrical control devices (IEC), in particular:

- EN/IEC 61800-5-1
- UL 61800-5-1
- IEC 61800-3:
 - EMC immunity: IEC 61800-3, environments 1 and 2
 - Conducted emission compliance:
 - IEC 61800-3, category C2, C3 with integrated EMC filter for ATV320●●●M2C412 and ATV320●●●N4C412 drives
 - IEC 61800-3, category C1, C2, C3 with additional EMC filter for all Altivar Solar range
- IEC 13849-1/-2 category 3 (PL e)
- IEC 60721-3
- IEC 61508

Altivar Solar drives are certified:

- CE - LV EMC
- CE - Machine
- UKCA
- UR (UL Registered Component)
- UL 61800-5-1
- RCM
- RoHS EU
- RoHS China

(1) A complete list of certifications and characteristics is available on [our website](#).

Variable speed drives

Altivar Solar

IP20 wall-mounting drives



ATV320U04M2C412



ATV320U11M2C412



ATV320U22N4C412



ATV320U55N4C412



ATV320D11M3C412

IP20 wall-mounting drives											
Motor		Line supply				Altivar Solar				Reference (1)	Weight
Power indicated on rating plate (1)	Max. line current (2) (3)	Apparent power		Max. prospective line Isc (4)	Max. continuous output current (In) (1)	Max. transient current for 60s	Power dissipated at maximum output current (In) (1)				
		at U1	at U2					at U2	A	A	W
kW	HP	A	A	kVA	kA	A	A	W		kg/lb	
Single-phase supply voltage: 200...240 V 50/60 Hz, with integrated EMC filter (5) (6)											
0.37	0.5	5.9	4.9	1.2	1	3.3	5	30	ATV320U04M2C412	1.000/2.204	
0.55	0.75	7.8	6.6	1.6	1	3.7	5.6	33	ATV320U06M2C412	1.100/2.425	
0.75	1	10	8.4	2	1	4.8	7.2	45	ATV320U07M2C412		
1.1	1.5	13.7	11.5	2.8	1	6.9	10.4	61	ATV320U11M2C412	1.600/3.527	
1.5	2	17.8	14.9	3.6	1	8	12	76	ATV320U15M2C412		
2.2	3	24	20.2	4.8	1	11	16.5	99	ATV320U22M2C412		
Three-phase supply voltage: 200...240 V 50/60 Hz, without integrated EMC filter											
3	4	18.7	15.7	6.5	5	13.7	20.6	105	ATV320U30M3C412	2.200/4.850	
4	5	23.8	19.9	8.3	5	17.5	26.3	140	ATV320U40M3C412		
5.5	7.5	35.4	29.8	12.4	22	27.5	41.3	242	ATV320U55M3C412	3.500/7.716	
7.5	10	45.3	38.2	15.9	22	33	49.5	293	ATV320U75M3C412	3.600/7.937	
11	15	60.9	51.4	21.4	22	54	81	468	ATV320D11M3C412	6.800/14.991	
15	20	79.7	67.1	27.9	22	66	99	551	ATV320D15M3C412	6.900/15.212	
Three-phase supply voltage: 380...500 V 50/60 Hz, with integrated EMC filter (5) (6)											
0.37	0.5	2.1	1.6	1.4	5	1.5	2.25	23	ATV320U04N4C412	1.200/2.646	
0.55	0.75	2.8	2.2	1.9	5	1.9	2.85	27	ATV320U06N4C412		
0.75	1	3.6	2.8	2.4	5	2.3	3.45	32	ATV320U07N4C412		
1.1	1.5	5	3.8	3.3	5	3	4.5	40	ATV320U11N4C412	1.300/2.866	
1.5	2	6.4	4.9	4.2	5	4.1	6.15	56	ATV320U15N4C412		
2.2	3	8.7	6.6	5.7	5	5.5	8.25	74	ATV320U22N4C412	2.100/4.630	
3	4	11.1	8.4	7.3	5	7.1	10.65	93	ATV320U30N4C412		
4	5	13.7	10.6	9.2	5	9.5	14.25	111	ATV320U40N4C412	2.200/4.850	
5.5	7.5	20.7	14.5	12.6	22	14.3	21.45	195	ATV320U55N4C412	2.200/4.850	
7.5	10	26.5	18.7	16.2	22	17	25.5	229	ATV320U75N4C412	2.200/4.850	
11	15	36.6	25.6	22.2	22	27.7	41.6	370	ATV320D11N4C412	6.800/14.991	
15	20	47.3	33.3	28.8	22	33	49.5	452	ATV320D15N4C412	6.900/15.211	

(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 to 16 kHz. Above 4 kHz, derate the nominal drive current. The nominal motor current should not exceed this value (see derating curves in the [Installation Manual](#)).

(2) Typical value for a 4-pole motor and a maximum switching frequency of 4 kHz, with no line choke for maximum line current.

(3) Nominal supply voltage, min. U1, max. U2: 200 (U1)...240 V (U2), 380 (U1)...500 V (U2).

(4) If line Isc is greater than the values in the table, add line chokes.

(5) Drives supplied with category C2 integrated EMC filter. This filter can be disconnected.

(6) Drives are supplied with an EMC plate, for assembly by the customer.

Nominal power				
Altivar Solar drive	Maximum continuous output current (In)	Nominal power for voltage input of (Voc = 374 VDC max)		
		150...216 VDC	217...283 VDC	284...374 VDC
	A	W	W	W
Single-phase supply voltage: 200...240 V 50/60 Hz				
ATV320U04M2C412	3.3	196	283	370
ATV320U06M2C412	3.7	292	421	550
ATV320U07M2C412	4.8	398	574	750
ATV320U11M2C412	6.9	583	842	1,100
ATV320U15M2C412	8	795	1,148	1,500
ATV320U22M2C412	11	1,166	1,683	2,200
Three-phase supply voltage: 200...240 V 50/60 Hz				
ATV320U30M3C412	13.7	1,590	2,295	3,000
ATV320U40M3C412	17.5	2,120	3,060	4,000
ATV320U55M3C412	27.5	2,915	4,208	5,500
ATV320U75M3C412	33	3,975	5,738	7,500
ATV320D11M3C412	54	5,830	8,415	11,000
ATV320D15M3C412	66	7,951	11,475	15,000
Nominal power				
Altivar Solar drive	Maximum continuous output current (In)	Nominal power for voltage input of (Voc = 778 VDC max)		
		280...403 VDC	404...536 VDC	537...778 VDC
	A	W	W	W
Three-phase supply voltage: 380...500 V 50/60 Hz				
ATV320U04N4C412	1.5	193	281	370
ATV320U06N4C412	1.9	287	418	550
ATV320U07N4C412	2.3	391	571	750
ATV320U11N4C412	3	574	837	1,100
ATV320U15N4C412	4.1	782	1,141	1,500
ATV320U22N4C412	5.5	1,147	1,674	2,200
ATV320U30N4C412	7.1	1,564	2,282	3,000
ATV320U40N4C412	9.5	2,086	3,043	4,000
ATV320U55N4C412	14.3	2,868	4,184	5,500
ATV320U75N4C412	17	3,911	5,705	7,500
ATV320D11N4C412	27.7	5,736	8,368	11,000
ATV320D15N4C412	33	7,821	11,411	15,000



VW3A980

Accessories

Shielding connection clamp

Description	For use with	Sold in lots of	Unit reference	Weight kg/lb
Shielding connection clamps Attachment and grounding of the cable shielding Pack of 25 clamps including: ■ 20 clamps for Ø 4.8 mm/0.19 in. cable ■ 5 clamps for Ø 7.9 mm/0.31 in. cable	ATV320●●●●●●●●●●	25	TM200RSRC EMC	–

DIN rail mounting kit

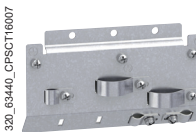
Description	For use with	Reference	Weight kg/lb
Plates for mounting on DIN rail width 35 mm/1.38 in.	ATV320U04M2C412...U07M2C412	VW3A9804	0.290/ 0.639
	ATV320U11M2C412...U22M2C412 ATV320U04N4C412...U15N4C412	VW3A9805	0.385/ 0.849

UL Type 1 conformity kit

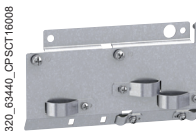
Description	For use with	Reference	Weight kg/lb
UL Type 1 conformity kits Mechanical device for attaching to the lower part of the drive. For direct connection of cables to the drive via tubes or cable glands.	ATV320U04M2C412...U07M2C412	VW3A95811	0.370/ 0.816
	ATV320U11M2C412...U22M2C412 ATV320U04N4C412...U15N4C412	VW3A95812	0.440/ 0.970
	ATV320U22N4C412...U40N4C412	VW3A95814	0.550/ 1.213
	ATV320U30M3C412...U40M3C412	VW3A95815	0.580/ 1.279
	ATV320U55M3C412...U75M3C412 ATV320U55N4C412...U75N4C412	VW3A95816	0.820/ 1.808
	ATV320D11M3C412...D15M3C412 ATV320D11N4C412...D15N4C412	VW3A95818	1.160/ 2.557

EMC conformity kit

Description	For use with	Reference	Weight kg/lb
EMC conformity kits Provide a connection compliant with EMC standards (for further information, please consult our website) The kit consists of: ■ The EMC plate ■ Clamps ■ Fixing accessories	ATV320U30M3C412...U40M3C412	VW3A9525	0.210/ 0.462
	ATV320U55M3C412...U75M3C412 ATV320U55N4C412...U75N4C412	VW3A9532	0.200/ 0.440
	ATV320D11M3C412...D15M3C412 ATV320D11N4C412...D15N4C412	VW3A9533	0.260/ 0.573



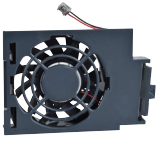
VW3A9532



VW3A9533

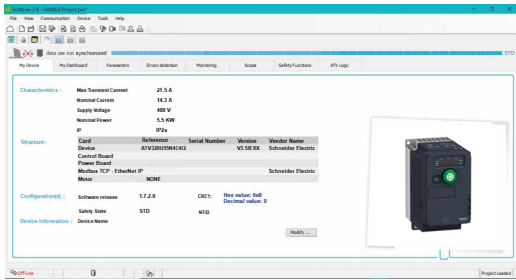
(1) Setting up several devices on the DC bus requires special precautions; please refer to the [Installation Manual](#).

F19_VENTILLATION_CPODA2016002



VZ3V1301

Replacement parts		
Description	For use with	Reference
Fan		
Fan for variable speed drive	ATV320U11M2C412...U22M2C412 ATV320U04N4C412...U15N4C412	VZ3V1301
	ATV320U30M3C412...U40M3C412	VZ3V1302
	ATV320U55M3C412...U75M3C412 ATV320U55N4C412...U75N4C412	VZ3V32C100
	ATV320D11M3C412...D15M3C412 ATV320D11N4C412...D15N4C412	VZ3V32D100
Control card		
I/O control card	ATV320●●●●●C412	VW3A36201



Altivar Solar DTM in SoMove software

DTM

Presentation

Using FDT/DTM technology it is possible to configure, control, and diagnose Altivar Solar drives in 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.

The Altivar Solar 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.

Specific functions of the Altivar Solar DTM

- Offline or online access to drive data
- Transfer of configuration files from and to the drive
- Customization (My Menu)
- Access to drive parameters and option cards
- Oscilloscope function
- Graphic interface to assist with configuration of the Altivar Solar
- Drive parameter monitoring
- Detected error and warning logs

Advantages of the DTM library in SoMove

SoMove is a drive-oriented software environment.

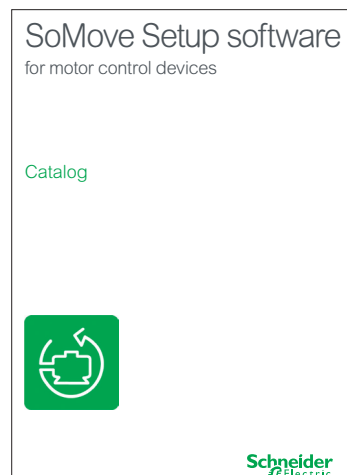
It allows a wired connection directly to the drive Modbus serial port.

SoMove setup software

SoMove Lite setup software for PC is used to prepare drive configuration files.

The USB/RJ45 cable (reference **TCSMCNAM3M002P**) connects to the USB port of the PC running the software and to the RJ45 port on the device.

For more information, refer to the [SoMove Setup software for motor control devices catalog](#).



PF080629



VW3A8121

ATV320_33440_OPF10048



Configuring an Altivar drive in its packaging with Multi-Loader tool VW3A8121

Multi-Loader configuration tool

The Multi-Loader tool enables a number of configurations from a PC or drive to be copied and loaded onto other drives (Altivar Solar drives do not need to be powered up when using the Multi-Loader tool).

References

Description	Reference
Multi-Loader tool Supplied with: <ul style="list-style-type: none"> - 1 cordset equipped with two RJ45 connectors - 1 cordset equipped with one type A USB connector and one mini B USB connector - 1 SD memory card - 1 female/female RJ45 adapter - 4 AA/LR6 1.5 V batteries - 1 anti-shock protector - 1 carrying handle 	ATV320●●●●●●●● VW3A8121
USB/RJ45 cable Equipped with a USB connector and an RJ45 connector. For connecting a PC to the drive. Length: 2.5 m (8.2 ft)	ATV320●●●●●●●● TCSMCNAM3M002P



Remote display terminal with cover open



Remote display terminal with cover closed

Remote display terminal

This terminal is used to locate the Human-Machine Interface of the Altivar Solar drive remotely on the door of an enclosure with IP54 or IP65 protection degree.

It is used to:

- Control, adjust, and configure the drive remotely
- Display the drive status and error codes

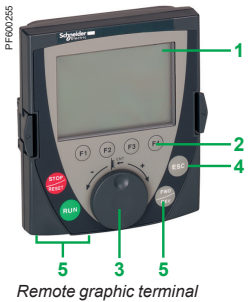
Its maximum operating temperature is 50 °C/122 °F.

Description

- 1 4-digit display
- 2 Navigation ▲, ▼ and selection ENT, ESC keys
- 3 Motor local control keys:
 - RUN: Starts the motor
 - FWD/REV: Reverses the direction of rotation of the motor
 - STOP/RESET: Stops the motor/clears detected errors
- 4 MODE: Operating mode selection key
- 5 Cover for access to the motor local control keys

References

Description	Degree of protection	Length	Reference	Weight
				kg/lb
Remote terminals A remote-mounting cordset, VW3A1104R●●, is also required	IP54	–	VW3A1006	0.250/ 0.551
	IP65	–	VW3A1007	0.275/ 0.606
Remote-mounting cordsets Equipped with two RJ45 connectors	–	1/ 3.28	VW3A1104R10	0.050/ 0.110
	–	3/ 9.84	VW3A1104R30	0.150/ 0.331



Remote graphic terminal



Portable use of the remote graphic terminal: 1 + 2 + 3



Using the remote graphic terminal on enclosure door: 6 + 7 + 9 (+ 10, if IP65)

Remote graphic display terminal

This remote graphic display terminal, common across Schneider Electric's variable speed drive ranges, provides a user-friendly interface for configuration, debugging, and maintenance. In particular, it is possible to transfer and store up to four configurations. For portable use or mounted on an enclosure door, it can also be connected to multiple drives (see [page 22](#)).

Its main functions are as follows:

- The graphic screen displays 8 lines of 24 characters of plain text.
- The navigation button provides quick and easy access to the drop-down menus.
- It is supplied with six languages installed (Chinese, English, French, German, Italian, and Spanish). The available languages can be modified using the Multi-Loader configuration tool (**VW3A8121**).

Its maximum operating temperature is 60 °C/140 °F, and it features IP54 protection degree, which can be increased to IP65 when mounted on an enclosure door.

Description

- 1 Graphic display: 8 lines of 24 characters, 240 x 160 pixels, large digit display
- 2 Function keys F1, F2, F3, and F4 (not operational on the Altivar Solar)
- 3 **Navigation button:**
 - Rotate ±: Goes to the next/previous line, increases/decreases the value
 - Press: Saves the current value (**ENT**)
- 4 **ESC key:** Aborts a value, parameter, or menu to return to the previous selection
- 5 **Motor local control keys:**
 - **RUN:** Starts the motor
 - **STOP/RESET:** Stops the motor/clears detected errors
 - **FWD/REV:** Reverses the direction of rotation of the motor

References

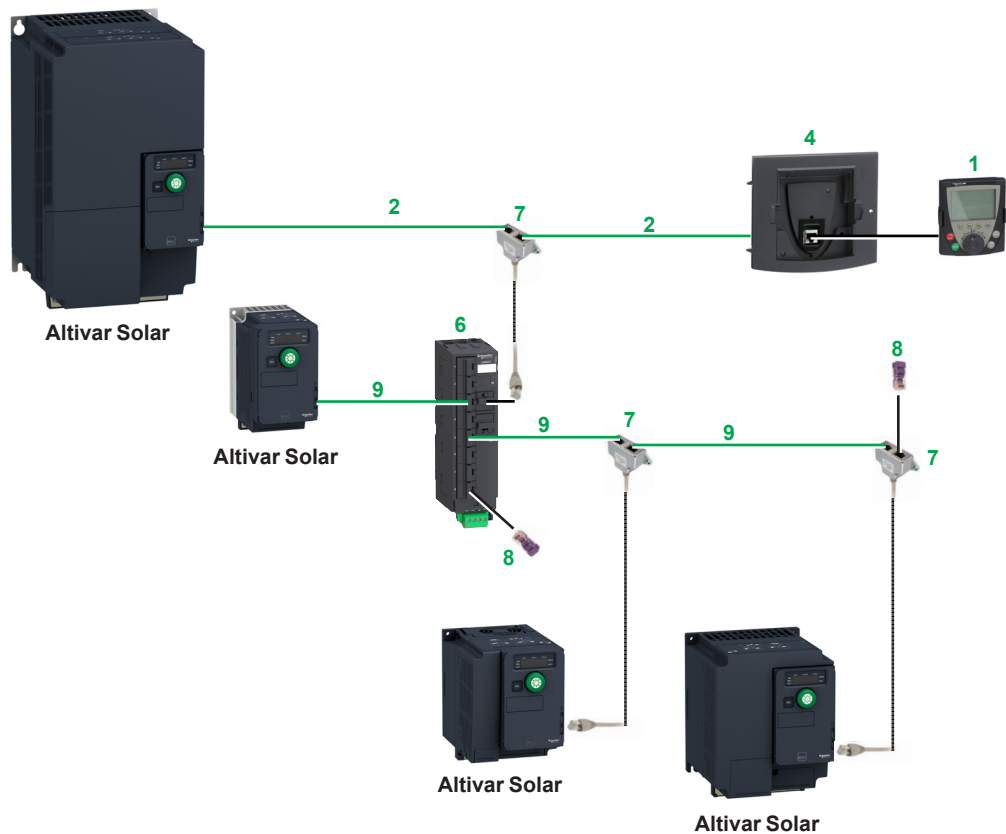
Item no.	Description	Length m/ft	Reference	Weight kg/lb
6	Remote graphic terminal A remote-mounting cordset, VW3A1104R●●●, and an RJ45 adapter, VW3A1105, are required	–	VW3A1101	0.180/0.396
7	Remote-mounting cordsets Equipped with two RJ45 connectors Remote operation of the drive and the remote graphic display terminal VW3A1101	1/3.28	VW3A1104R10	0.050/0.110
		3/9.84	VW3A1104R30	0.150/0.331
		5/16.4	VW3A1104R50	0.250/0.551
		10/32.8	VW3A1104R100	0.500/1.102
8	Female/female RJ45 adapter	–	VW3A1105	0.010/0.022
9	Door mounting kit For mounting on enclosure door IP54 degree of protection	–	VW3A1102	0.150/0.331
10	Transparent door Used to increase the degree of protection for door mounting kit VW3A1102 to IP65 To be mounted on door mounting kit VW3A1102	–	VW3A1103	0.040/0.088

Remote graphic display terminal (continued) Additional accessories for multidrop connection

Item no.	Description	Unit reference	Weight kg/lb	
6	Modbus splitter box: 10 RJ45 connectors and 1 screw terminal block	LU9GC3	0.500/1.102	
7	Modbus "T" tap-off	With integrated cable (0.3 m/0.98 ft)	VW3A8306TF03	
		With integrated cable (1 m/3.28 ft)	VW3A8306TF10	
8	Modbus line terminator	For RJ45 connector R = 120 Ω, C = 1 nf	0.010/0.022	
Item no	Description	Length m/ft	Reference	Weight kg/lb
9	Cordsets for Modbus serial link Equipped with two RJ45 connectors	0.3/0.98	VW3A8306R03	0.025/0.055
		1/3.28	VW3A8306R10	0.060/0.132
		3/9.84	VW3A8306R30	0.130/0.287

Example of connection via multidrop link

All the components described on this page enable a remote graphic display terminal to be connected to several drives via a multidrop link. This multidrop link is connected to the RJ45 port on the Modbus/CANopen communication port. See the example opposite.



PF130899



Graphic display terminal
VW3A1111

ATV340_63441_CP5CT16025



Detected fault: Red
screen when there is a
detected error

Graphic display terminal

This terminal can be:

- 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 22](#))

This terminal is used to:

- Control, adjust, and configure the drive
- Display current values (motor, I/O, and machine 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 should be powered on for the duration of the duplication operations)

Other characteristics:

- Up to 24 languages (complete alphabets) covering the majority of countries around the world (languages can be removed, added, and updated according to user requirements; consult the graphic display terminal page on our website)
- 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: IP65
- The Multipoint Screen feature of the graphic display terminal **VW3A1111** must not be used with Altivar Solar.
- The behavior of the configuration tool is similar to VW3A1101; for more information please consult the ATV320 programming manual

Description

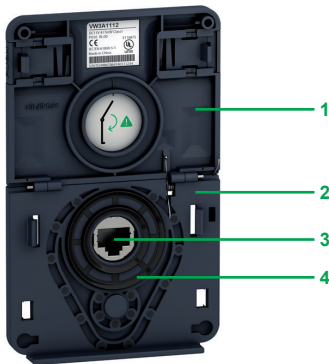
This graphic display terminal is a local control unit that can be either plugged on the drive or mounted on the door of the wall-mounted or floor-standing enclosure. It has a cable with connectors, which is connected to the drive's front Modbus serial link.

- STOP/RESET: Stop/Reset command
- LOCAL/REMOTE: Used to switch between local and remote control of the drive if one of the function keys displays [T/K] (FT), otherwise the key is unused
NOTE: To assign a function key (F1...F4) to the LOCAL/REMOTE function, go to [Command] (CTL-) menu and assign [F1 key assignment] (FN1) or ... or [F4 key assignment] (FN4) to [T/K] (FT).
- ESC: Used to quit a menu/parameter or remove the currently displayed value in order to revert to the previous value retained in the memory
- F1 to F4: Function keys used to access quick view and submenus. Simultaneous press of F1 and F4 keys generates a screenshot file in the graphic display terminal internal memory.
- Graphic display
- Home: Used to directly access the home page if the graphic display terminal displays "Quick" on one of its function keys
- Information: Used to show the code of menus, submenus, and parameters if the graphic display terminal displays "Code" on one of its function keys
- RUN: Executes the function assuming it has been configured
- Touch wheel/OK: Used to save the current value or access the selected menu/parameter. The touch wheel is used to scroll fast into the menus. Up/down arrows are used for precise selections, right/left arrows are used to select digits when setting the numerical value of a parameter.
- RJ45 Modbus serial port: Used to connect the graphic display terminal to the drive in remote control
- Mini USB port: Used to connect the graphic display terminal to a computer
- Battery (10 years service life. Type: CR2032). The battery positive pole points to the front face of the graphic display terminal.

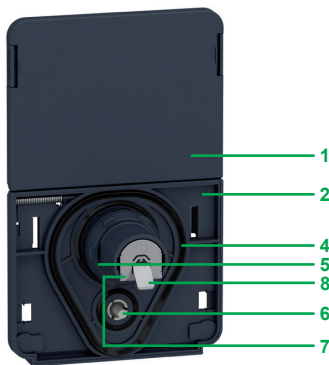
References

Description	Reference	Weight kg/ lb
Graphic display terminal	VW3A1111	0.200/ 0.441

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



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



Door mounting kit for graphic display terminal (rear panel)

Accessories for graphic display terminal

Door mounting kit for mounting on enclosure door with IP65/UL Type 12 protection rating as standard

The kit comprises:

- Tightening tool (also sold separately under the reference **ZB5AZ905**)
- 1** Cover plate to maintain IP65 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/33 ft maximum)
Cordsets should be ordered separately depending on the length required.
- 8** Grounding connector

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

References

Description	Length m/ ft	IP	Reference	Weight kg/ lb
Door mounting kit A remote mounting cordset VW3A1104R●●● is required	–	65/ UL Type 12	VW3A1112	–
Tightening tool For door mounting kit	–	–	ZB5AZ905	0.016/ 0.035
Remote-mounting cordset Equipped with two RJ45 connectors	1/ 3.28	–	VW3A1104R10	0.050/ 0.110
	3/ 9.84	–	VW3A1104R30	0.150/ 0.331
	5/ 16.4	–	VW3A1104R50	0.250/ 0.551
	10/ 32.8	–	VW3A1104R100	0.500/ 1.102
Kit for deport the Ethernet RJ45 port on the front face of the drive (1) $\varnothing 22$ RJ45 female/female adapter with seal	–	65	VW3A1115	0.200/ 0.441

Configuration tools

Connection accessories

Description	Length m/ ft	Reference	Weight kg/ lb
SoMove setup software For configuring, adjusting, and debugging the Altivar Solar drive	–	(2)	–
USB/RJ45 cable Equipped with a USB connector and an RJ45 connector For connecting a PC to the drive	2.5/ 8.2	TCSMCNAM3M002P	–

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

(2) For drive and graphic display terminal firmware compatibility, please refer to the [ATV320 Programming Manual](#).

Combinations of options for Altivar Solar drives

Motor		Drive	Accessories				Options			Replacement parts	
kW	HP		UL Type 1 conformity kits	Shielding connection clamps	DIN rail kit	EMC conformity kits	Line chokes	Motor chokes	Additional EMC filters	Fan	I/O control card

Single-phase supply voltage: 200...240 V 50/60 Hz drives with integrated EMC filter											
0.37	0.5	ATV320U04M2C412	VW3A95811	TM200RSRCEMC	VW3A9804	–	–	VW3A4552	VW3A31401	–	VW3A36201
0.55	0.75	ATV320U06M2C412	VW3A95811	TM200RSRCEMC	VW3A9804	–	VZ1L007UM50	VW3A4552	VW3A31401	–	VW3A36201
0.75	1	ATV320U07M2C412	VW3A95811	TM200RSRCEMC	VW3A9804	–	VZ1L007UM50	VW3A4552	VW3A31401	–	VW3A36201
1.1	1.5	ATV320U11M2C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VZ1L018UM20	VW3A4552	VW3A31403	VZ3V1301	VW3A36201
1.5	2	ATV320U15M2C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VZ1L018UM20	VW3A4552	VW3A31403	VZ3V1301	VW3A36201
2.2	3	ATV320U22M2C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VZ1L018UM20	VW3A4553	VW3A31405	VZ3V1301	VW3A36201

Three-phase supply voltage: 200...240 V 50/60 Hz drives without integrated EMC filter											
3	4	ATV320U30M3C412	VW3A95815	TM200RSRCEMC	–	VW3A9525	VW3A4553	VW3A4553	VW3A31406	VZ3V1302	VW3A36201
4	5	ATV320U40M3C412	VW3A95815	TM200RSRCEMC	–	VW3A9525	VW3A4554	VW3A4554	VW3A31406	VZ3V1302	VW3A36201
5.5	7.5	ATV320U55M3C412	VW3A95816	TM200RSRCEMC	–	VW3A9532	VW3A4554	VW3A4554	VW3A31407	VZ3V32C100	VW3A36201
7.5	10	ATV320U75M3C412	VW3A95816	TM200RSRCEMC	–	VW3A9532	VW3A4554	VW3A4554	VW3A31407	VZ3V32C100	VW3A36201
11	15	ATV320D11M3C412	VW3A95818	TM200RSRCEMC	–	VW3A9533	VW3A4555	VW3A4556	VW3A31408	VZ3V32D100	VW3A36201
15	20	ATV320D15M3C412	VW3A95818	TM200RSRCEMC	–	VW3A9533	VW3A4555	VW3A4556	VW3A31408	VZ3V32D100	VW3A36201

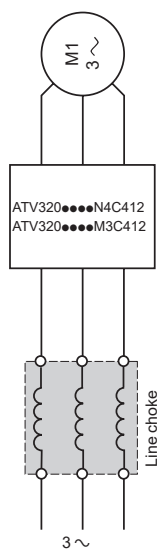
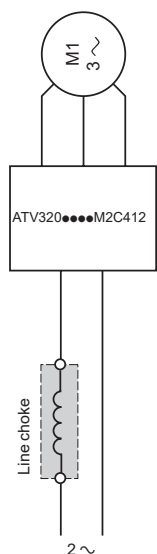
Three-phase supply voltage: 380...500 V 50/60 Hz drives with integrated EMC filter											
0.37	0.5	ATV320U04N4C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VW3A4551	VW3A4552	VW3A31404	VZ3V1301	VW3A36201
0.55	0.75	ATV320U06N4C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VW3A4551	VW3A4552	VW3A31404	VZ3V1301	VW3A36201
0.75	1	ATV320U07N4C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VW3A4551	VW3A4552	VW3A31404	VZ3V1301	VW3A36201
1.1	1.5	ATV320U11N4C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VW3A4551	VW3A4552	VW3A31404	VZ3V1301	VW3A36201
1.5	2	ATV320U15N4C412	VW3A95812	TM200RSRCEMC	VW3A9805	–	VW3A4551	VW3A4552	VW3A31404	VZ3V1301	VW3A36201
2.2	3	ATV320U22N4C412	VW3A95814	TM200RSRCEMC	–	–	VW3A4552	VW3A4552	VW3A31406	–	VW3A36201
3	4	ATV320U30N4C412	VW3A95814	TM200RSRCEMC	–	–	VW3A4552	VW3A4552	VW3A31406	–	VW3A36201
4	5	ATV320U40N4C412	VW3A95814	TM200RSRCEMC	–	–	VW3A4552	VW3A4552	VW3A31406	–	VW3A36201
5.5	7.5	ATV320U55N4C412	VW3A95816	TM200RSRCEMC	–	VW3A9532	VW3A4553	VW3A4553	VW3A4424	VZ3V32C100	VW3A36201
7.5	10	ATV320U75N4C412	VW3A95816	TM200RSRCEMC	–	VW3A9532	VW3A4553	VW3A4554	VW3A4424	VZ3V32C100	VW3A36201
11	15	ATV320D11N4C412	VW3A95818	TM200RSRCEMC	–	VW3A9533	VW3A4554	VW3A4554	VW3A4425	VZ3V32D100	VW3A36201
15	20	ATV320D15N4C412	VW3A95818	TM200RSRCEMC	–	VW3A9533	VW3A4554	VW3A4555	VW3A4425	VZ3V32D100	VW3A36201

Option modules (1) (2)

Description	Reference	Adapter (1)	Page
Communication module			
CANopen daisy chain communication module	VW3A3608	VW3A3600	32
CANopen SUB-D9 communication module	VW3A3618	VW3A3600	32
CANopen open style communication module	VW3A3628	VW3A3600	33
Ethernet TCP/IP communication module	VW3A3616	VW3A3600	34
EtherCAT 2 x RJ45 communication module	VW3A3601	VW3A3600	35
Profibus DP communication module	VW3A3607	VW3A3600	35
DeviceNet communication module	VW3A3609	VW3A3600	35
POWERLINK communication module	VW3A3619	VW3A3600	35
ProfiNet communication module	VW3A3627	VW3A3600	35

(1) To use with Altivar Solar drives the option module adapter is required (to be ordered separately).

(2) Only one module can be connected at once.



Presentation

Line chokes

Line chokes, also known as line reactors, provide improved immunity against overvoltages on the mains supply and can reduce harmonic distortion of the current produced by the drive.

The recommended chokes limit the line current. They have been developed in line with standard IEC 61800-5-1 (VDE 0160 level 1 high-energy overvoltages on the line supply).

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

The use of line chokes is recommended in particular under the following circumstances:

- Mains supply with significant disturbance from other equipment (interference, overvoltages)
- Mains supply with voltage imbalance between phases > 1.8% of nominal voltage
- Drive supplied by a mains supply with very low impedance (in the vicinity of a power transformer 10 times more powerful than the drive rating)
- Installation of a large number of frequency inverters on the same mains supply
- Reduction of overloads on the cos φ correction capacitors, if the installation includes a power factor correction unit

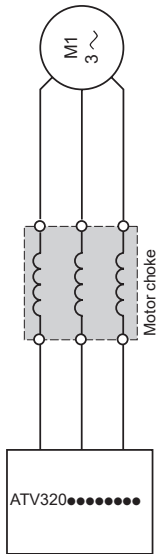
The prospective short-circuit current at the point of connection of the drive must not exceed the maximum value indicated in the reference tables. The use of chokes allows connection to the following mains supply:

- Max. Isc 22 kA for 200/240 V
- Max. Isc 65 kA for 380/500 V

References

Drive reference	Line current, without choke		Line current, with choke		Line choke Reference	Weight kg/lb
	U min. (1) A	U max. (1) A	U min. (1) A	U max. (1) A		
Single-phase supply voltage: 200...240 V 50/60 Hz						
ATV320U04M2C412	–	–	–	–	–	–
ATV320U06M2C412	7.9	6.7	5.8	5.0	VZ1L007UM50	0.880/1.940
ATV320U07M2C412	10.1	8.5	7.5	6.4		
ATV320U11M2C412	13.6	11.5	11.0	9.4	VZ1L018UM20	1.990/4.387
ATV320U15M2C412	17.6	14.8	14.3	12.2		
ATV320U22M2C412	23.9	20.1	19.9	16.8		
Three-phase supply voltage: 200...240 V 50/60 Hz						
ATV320U30M3C412	18.7	15.7	12.5	10.4	VW3A4553	3.500/7.716
ATV320U40M3C412	23.8	19.9	16.3	13.8	VW3A4554	6.000/13.228
ATV320U55M3C412	35.4	29.8	21.8	18.2		
ATV320U75M3C412	45.3	38.2	29.1	24.2		
ATV320D11M3C412	60.9	51.4	41.1	34.4	VW3A4555	11.000/24.251
ATV320D15M3C412	79.7	67.1	54.7	45.6		
Three-phase supply voltage: 380...500 V 50/60 Hz						
ATV320U04N4C412	2.1	1.6	1.1	0.9	VW3A4551	1.500/3.307
ATV320U06N4C412	2.8	2.2	1.5	1.3		
ATV320U07N4C412	3.6	2.7	1.9	1.6		
ATV320U11N4C412	5.0	3.8	2.7	2.1		
ATV320U15N4C412	6.5	4.9	3.5	2.7		
ATV320U22N4C412	8.7	6.6	5.1	4.0	VW3A4552	3.000/6.613
ATV320U30N4C412	11.1	8.4	6.6	5.2		
ATV320U40N4C412	13.7	10.5	8.6	6.6		
ATV320U55N4C412	20.7	14.5	11.5	9.3	VW3A4553	3.500/7.716
ATV320U75N4C412	26.5	18.7	15.3	12.0		
ATV320D11N4C412	36.6	25.6	21.8	17.8	VW3A4554	6.000/13.228
ATV320D15N4C412	47.3	33.3	28.8	22.8		

(1) Nominal supply voltage



Presentation

Motor chokes

Motor chokes, also known as load reactors, can be inserted between the Altivar Solar drive and the motor to:

- Limit the dv/dt at the motor terminals (500 to 1500 V/μs), for cables longer than 50 m/164 ft
- Filter interference caused by the opening of a contactor placed between the filter and the motor
- Reduce the motor ground leakage current
- Smooth the motor current wave form to reduce motor noise

References

Drive reference	Losses W	Cable length (1)		Nominal current A	Motor choke	
		Shielded cable m/ft	Unshielded cable m/ft		Reference	Weight kg/lb
Single-phase supply voltage: 200...240 V 50/60 Hz						
ATV320U04M2C412...U15M2C412	65	≤ 100/328	≤ 200/656	10	VW3A4552	3.000/6.613
ATV320U22M2C412	75	≤ 100/328	≤ 200/656	16	VW3A4553	3.500/7.716
Three-phase supply voltage: 200...240 V 50/60 Hz						
ATV320U30M3C412	75	≤ 100/328	≤ 200/656	16	VW3A4553	3.500/7.716
ATV320U40M3C412...U75M3C412	90	≤ 100/328	≤ 200/656	30	VW3A4554	6.000/13.228
ATV320D11M3C412...D15M3C412	260	≤ 100/328	≤ 200/656	107	VW3A4556	16.000/35.274
Three-phase supply voltage: 380...500 V 50/60 Hz						
ATV320U04N4C412...U40N4C412	65	≤ 100/328	≤ 200/656	10	VW3A4552	3.000/6.613
ATV320U55N4C412	75	≤ 100/328	≤ 200/656	16	VW3A4553	3.500/7.716
ATV320U75N4C412...D11N4C412	90	≤ 100/328	≤ 200/656	30	VW3A4554	6.000/13.228
ATV320D15N4C412	80	≤ 100/328	≤ 200/656	60	VW3A4555	11.000/24.251

(1) For an application with several motors connected in parallel, the total motor cable lengths must be added together. If a cable longer than that recommended is used, the filters may overheat.

105596



VW3A31405

Presentation

Additional EMC filters

The additional EMC input filters enable the drives to meet more stringent requirements:

- They are designed to reduce conducted emissions on the mains supply below the limits of standard IEC 61800-3 category C1 or C2.
- They extend the maximum motor cable length of IEC 61800-3 category C3.

Mounting on ATV320...C412

Additional EMC filters can be mounted beside or underneath the ATV320...C412 drives. They act as a support for the drives and are attached to them via tapped holes.

Use according to the type of mains supply

- Additional EMC filters can only be used on TN (neutral connection) and TT (grounded neutral) type systems.
- Standard IEC 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.
- The effectiveness of additional filters on this type of system depends on the type of impedance between neutral and ground, and therefore cannot be predicted.
- If a machine has to be installed on an IT system, one solution is to insert an isolation transformer and connect the machine locally on a TN or TT system.
- The radio interference input filters integrated in Altivar Solar drives can easily be disconnected by means of a selector switch without removing the drive.

PF08517



VW3A4424

References

Additional EMC input filters

Drive referenc	Additional EMC input filter			In (4)	Losses (5)	Reference	Weight
	Maximum length of shielded cable per category (1) (2) (3)						
	C3	C2	C1				
	m/ft	m/ft	m/ft	A	W		kg/lb
Single-phase supply voltage: 200...240 V 50/60 Hz							
ATV320U04M2C412...U07M2C412	100/ 328	50/ 164	20/ 65.6	9	3.7	VW3A31401	0.600/ 1.323
ATV320U11M2C412...U15M2C412				16	6.9	VW3A31403	0.775/ 1.709
ATV320U22M2C412				22	7.5	VW3A31405	1.130/ 2.491
Three-phase supply voltage: 200...240 V 50/60 Hz							
ATV320U30M3C412...U40M3C412	5/ 16.4	5/ 16.4	1/ 3.28	25	15.8	VW3A31406	1.650/ 3.637
ATV320U55M3C412...U75M3C412				47	19.3	VW3A31407	3.150/ 6.945
ATV320D11M3C412...D15M3C412				83	35.2	VW3A31408	5.300/ 11.684
Three-phase supply voltage: 380...500 V 50/60 Hz							
ATV320U04N4C412...U15N4C412	150/ 492	50/ 164	20/ 65.6	15	9.9	VW3A31404	1.000/ 2.205
ATV320U22N4C412...U40N4C412				25	15.8	VW3A31406	1.650/ 3.637
ATV320U55N4C412...U75N4C412		100/ 328	20/ 65.6	47	19.3	VW3A4424	3.150/ 6.944
ATV320D11N4C412...D15N4C412			5/ 16.4	49	27.4	VW3A4425	4.750/ 10.472

(1) The filter selection tables give the maximum lengths for shielded cables connecting motors to drives. These 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) These values are given for a nominal switching frequency of 4 kHz.

(3) Standard IEC 61800-3: Environment 1 (Residential): C1 or C2
Standard IEC 61800-3: Environment 2 (Industrial): C3 or C4

EN 55011 Group 1: Class B or Class A

EN 55011 Group 2: Class A or N/A

(4) In: nominal filter current.

(5) Via heat dissipation, at the nominal filter current (In).



Presentation

Altivar Solar drives are designed to meet the configuration requirements found in the main industrial communication installations.

The Modbus and CANopen communication protocols are integrated as standard and can be accessed directly via the RJ45 communication port located on the front of the book control block drive and underneath the front door of the compact control block drive.

Altivar Solar variable speed drives can also be connected to other industrial communication buses and networks by using one of the communication modules available as an option. Communication modules are supplied in "cassette" format for ease of mounting and removal.

Modbus serial link (1)

The Modbus serial link is used for connecting the following HMI and configuration tools:

- Harmony HMI terminal
- Remote display terminal, remote graphic display terminal
- SoMove setup software and multi-loader configuration tool

CANopen machine bus (1)

The CANopen machine bus is used for integration into control system architectures, especially when combined with Modicon M241 and M251 logic controllers or Lexium 32 motion controllers.

Communication modules for industrial applications (2)

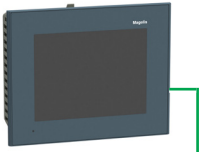
The following communication modules are available:

- Modbus TCP and EtherNet/IP
- PROFIBUS DP V1
- DeviceNet
- EtherCAT
- POWERLINK
- PROFINET

(1) The Modbus serial link always uses the RJ45 communication port. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication module is needed.

(2) The Altivar Solar drive can only take one communication module.

Harmony GTO (3)



Altivar Solar



Example of connection of an Altivar Solar drive and a Harmony GTO advanced touchscreen panel via the Modbus serial link

Functions

All Altivar Solar drive functions can be accessed via the communication buses and networks:

- Control
- Monitoring
- Adjustment
- Configuration

The speed reference and command may come from different sources:

- Digital input or analog I/O terminals
- Communication bus or network
- Remote display terminals

The Altivar Solar drive's advanced functions can be used to manage switching of these drive control sources according to the application requirements.

The communication periodic I/O data assignment can be selected using the network configuration software.

The drive can be controlled:

- According to the CiA 402 native profile
- According to the I/O profile

Communication is monitored according to criteria specific to each protocol.

Regardless of protocol type, the reaction of the drive to a detected communication interruption can be configured as follows:

- Freewheel stop, stop on ramp, fast stop, or braked stop
- Maintain the last command received
- Fallback position at a predefined speed
- Ignore the detected error

Modbus serial link (1)

Connection accessories for remote HMI (2)

Description	Item no.	Length m/ft	Reference	Weight kg/lb
Cordsets for Modbus serial link Equipped with 2 RJ45 connectors	–	0.3/0.98	VW3A8306R03	0.025/ 0.055
		1/3.28	VW3A8306R10	0.060/ 0.132
		3/9.84	VW3A8306R30	0.130/ 0.287

(1) The Modbus serial link always uses the RJ45 communication port. The simultaneous use of the Modbus serial link and the CANopen machine bus is not possible.

(2) See [page 20](#) for connection of a remote display terminal or remote graphic display terminal.

(3) Requires a 24 V \pm power supply. Please refer to the [Harmony GTO catalog](#).

Variable speed drives

Altivar Solar

Communication buses and networks



VW3A3600



VW3A3608



VW3A3618

Harmony SCU (7)



Altivar Solar



CANopen machine bus (8)

Altivar Solar



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

Option module adapter (1)

Description	Item no.	Length m/ft	Unit reference	Weight kg/lb
Mechanical adapter for communication module	1	–	VW3A3600	–

CANopen machine bus (2)

Description	Item no.	Length m/ft	Unit reference	Weight kg/lb
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Connection with VW3A3608 CANopen daisy chain module

(optimized solution for daisy chain connection to the CANopen machine bus)

CANopen daisy chain communication module (2) (3) (4) Ports: 2 RJ45 connectors	2	–	VW3A3608	–
---	----------	---	-----------------	---

CANopen cordsets equipped with 2 RJ45 connectors	3	0.3/ 0.98	VW3CANCARR03	0.050/ 0.110
		1.0/ 3.28	VW3CANCARR1	0.500/ 1.102

CANopen line terminator for RJ45 connector	4	–	TCSCAR013M120	–
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Connection via SUB-D connector with VWA3618 CANopen module

CANopen communication module (2) (3) Port: 1 x 9-way male SUB-D connector	5	–	VW3A3618	–
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CANopen cable Standard cable, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1)	6	50/ 164.04	TSXCANCA50	4.930/ 10.869
		100/ 328.08	TSXCANCA100	8.800/ 19.401
		300/ 984.25	TSXCANCA300	24.560/ 54.145

CANopen cable Standard cable, UL certification, CE marking Flame retardant (IEC 60332-2)	6	50/ 164.04	TSXCANCB50	3.580/ 7.892
		100/ 328.08	TSXCANCB100	7.840/ 17.284
		300/ 984.25	TSXCANCB300	21.870/ 48.215

CANopen cable Cable for harsh environments (5) or mobile installations, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1)	6	50/ 164.04	TSXCANCD50	3.510/ 7.738
		100/ 328.08	TSXCANCD100	7.770/ 17.130
		300/ 984.25	TSXCANCD300	21.700/ 47.840

CANopen IP 20 straight connector 9-way female SUB-D with line terminator that can be deactivated	7	–	TSXCANKCDF180T	0.049/ 0.108
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IP 20 CANopen right angle connector (6) 9-way female SUB-D with line terminator that can be deactivated	7	–	TSXCANKCDF90T	0.046/ 0.101
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(1) Altivar Solar products require the **VW3A3600** option module adapter in order to use any communication option modules.

(2) The Modbus serial link always uses the RJ45 communication port. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication module is needed.

(3) The Altivar Solar drive can only take one communication module.

(4) When one of the CANopen communication modules is inserted in the Altivar Solar drive, CANopen communication via the RJ45 communication port on the front is disabled.

(5) Standard environment:

- No particular environmental constraints
- Operating temperature between 5 and 60 °C/41 and 140 °F
- Fixed installation

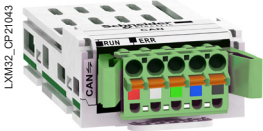
Harsh environment:

- Resistance to hydrocarbons, industrial oils, detergents, solder splashes
- Relative humidity up to 100%
- Saline atmosphere
- Operating temperature between -10 and +70 °C/14 and 158 °F
- Significant temperature variations

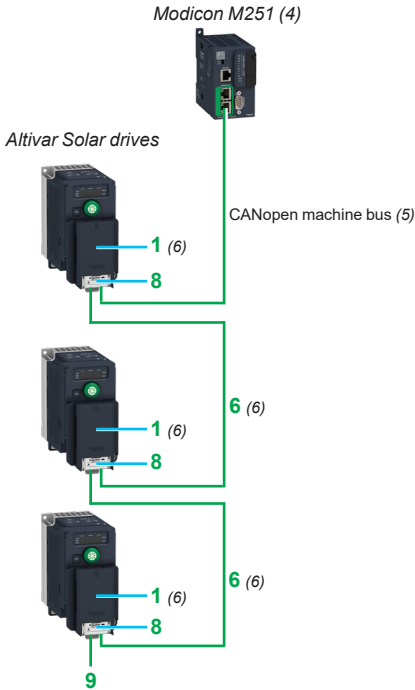
(6) Incompatible with side-by-side mounting.

(7) Please refer to the Harmony SCU catalog.

(8) Cable dependent on the type of controller or PLC; please refer to the corresponding catalog



VW3A3628



Example of connection to the CANopen machine bus via screw terminals (with mechanical adapter 1 for the communication module 8)

CANopen machine bus (continued) (1)(7)

Description	Item no.	Length m/ft	Unit reference	Weight kg/lb
Connection via terminals with VW3A3628 CANopen open style module				
CANopen open style communication module (2) (3) Port: 1 x 5-way spring terminal block	8	–	VW3A3628	–

CANopen line terminator for spring terminal connector	9	–	TCSCAR01NM120	–
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Other connection accessories and cordsets

IP 20 CANopen cordsets equipped with 2 x 9-way female SUB-D connectors. Standard cable, C€ marking Low smoke zero halogen Flame retardant (IEC 60332-1)	–	0.3/ 0.98	TSXCANCADD03	0.091/ 0.201
	–	1.0/ 3.28	TSXCANCADD1	0.143/ 0.315
	–	3.0/ 9.84	TSXCANCADD3	0.295/ 0.650
	–	1.0/ 3.28	TSXCANCBDD1	0.131/ 0.289

IP 20 CANopen cordsets equipped with 2 x 9-way female SUB-D connectors. Standard cable, UL certification, C€ marking Flame retardant (IEC 60332-2)	–	3.0/ 9.84	TSXCANCBDD3	0.268/ 0.591
	–	–	TSXCANTDM4	0.196/ 0.432

IP 20 CANopen junction boxes equipped with: ■ 4 x 9-way male SUB-D connectors + screw terminal block for trunk cable tap link ■ Line terminator	–	–	VW3CANTAP2	0.480/ 1.058
	–	–	–	–

IP 20 CANopen junction boxes equipped with: ■ 2 screw terminal blocks for trunk cable tap link ■ 2 RJ45 connectors for connecting drives ■ 1 RJ45 connector for connecting a PC	–	–	–	–
	–	–	–	–

- (1) The Modbus serial link always uses the RJ45 communication port. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication module is needed.
- (2) The Altivar Solar drive can only take one communication module.
- (3) When one of the CANopen communication modules is inserted in the Altivar Solar drive, CANopen communication via the RJ45 communication port is disabled.
- (4) Please refer to the Modicon M251 catalog.
- (5) Cable dependent on the type of controller or PLC; please refer to the corresponding catalog.
- (6) See page 32 for item "1" and "6".
- (7) Altivar Solar products require the VW3A3600 option module adapter 1 in order to use any communication option modules.

Variable speed drives

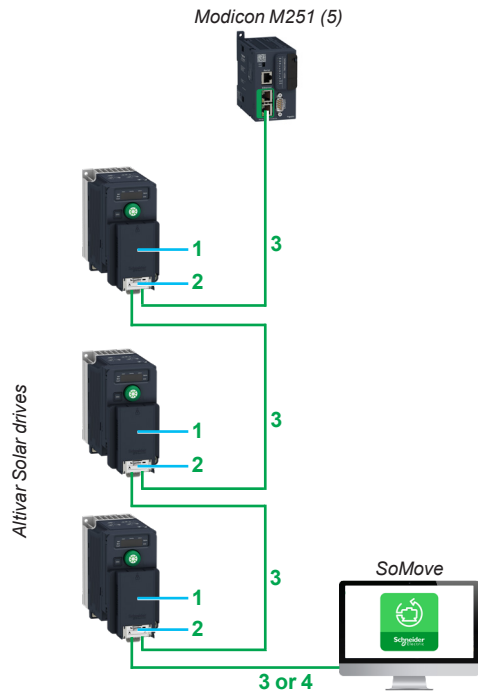
Altivar Solar

Communication buses and networks

Modbus TCP and EtherNet/IP module



VW3A3616



Example of connection on an EtherNet/IP network

Modbus TCP network and EtherNet/IP network (1) (2)

Communication module

Description	Item no.	Reference	Weight kg/lb
Modbus TCP and EtherNet/IP network module	2	VW3A3616	0.300/ 0.661

For connection to the Modbus TCP network or EtherNet/IP network
 Ports: Two RJ45 connectors
 ■ 10/100 Mbps, half duplex and full duplex
 ■ Embedded Web server

Requires cordsets
 490NTW000●●/●●U or
 490NTC000●●/●●U

ConneXium cordsets (3)

Description	Item no.	Length m/ft (4)	Reference
Straight shielded twisted pair cordsets	3	2/ 6.56	490NTW00002
Equipped with two RJ45 connectors Conforming to EIA/TIA-568 category 5 and IEC 11801/EN 50173-1, class D standards		5/ 16.4	490NTW00005
		12/ 39	490NTW00012
	Crossed shielded twisted pair cordsets	4	5/ 16.4
Straight shielded twisted pair cables	3	2/ 6.56	490NTW00002U
		12/ 39	490NTW00012U

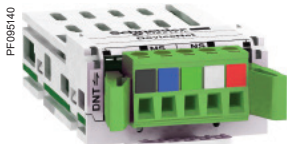
- (1) Only one module can be connected at once.
- (2) Altivar Solar drives require the mechanical adapter for communication module **VW3A3600** (item **1**) to connect the communication module to the drive.
- (3) For other ConneXium connection accessories, please refer to our [website](#).
- (4) Also available in 40 m/131 ft and 80 m/262 ft lengths.
- (5) Please refer to the [Modicon M221 catalog](#) or [Modicon M251 catalog](#).



VW3A3607

PROFIBUS DP V1 bus (1)(2)

Description	Reference	Weight kg/lb
PROFIBUS DP V1 communication module Port: 1 x 9-way female SUB-D connector Conforming to PROFIBUS DP V1 Profiles supported: ■ CiA 402 drive ■ Profidrive Offers several message handling modes based on DP V1	VW3A3607	0.140/ 0.308



VW3A3609

DeviceNet bus (1)(2)

Description	Reference	Weight kg/lb
DeviceNet communication module Port: 1 removable 5-way screw connector Profiles supported: ■ CIP AC DRIVE ■ CiA 402 drive	VW3A3609	—



VW3A3601

EtherCAT bus (1)(2)

Description	Reference	Weight kg/lb
EtherCAT communication module Port: 2 RJ45 connectors	VW3A3601	—



VW3A3619

POWERLINK network (1)(2)

Description	Reference	Weight kg/lb
Ethernet POWERLINK communication module Port: 2 RJ45 connectors	VW3A3619	0.300/ 0.660



VW3A3627

ProfiNet network (1)(2)

Description	Reference	Weight kg/lb
ProfiNet communication module Port: 2 RJ45 connectors	VW3A3627	0.300/ 0.660

(1) The Altivar Solar drive can only take one communication module.

(2) Altivar Solar drive require the **VW3A3600** option module adapter in order to use any communication option modules.

Applications

Two types of combination are possible:

- Circuit breaker + variable speed drive: minimum combination.
- Circuit breaker + contactor + variable speed drive combination. The circuit breaker provides protection against accidental short circuits, disconnection, and isolation.

A contactor can be used downstream of the drive to help ensure the motor is isolated on stopping. In this case, the contactor size should be category AC-3 depending on the associated motor, for operation between 25 Hz and 500 Hz only.

The Altivar Solar drive is designed to provide electronic detection against short circuits between phases and between phase and ground. It therefore provides continuity of service and thermal monitoring of the motor.



GV3L40
+
ATV320U55M3C412

Motor starters: circuit breaker + drive

Standard power ratings of three-phase 4-pole 50/60 Hz motors (1)		Variable speed drive Reference	Circuit breaker (2) Reference
kW	HP		
Single-phase supply voltage: 200...240 V 50/60 Hz			
0.37	0.5	ATV320U04M2C412	GV2L10
0.55	0.75	ATV320U06M2C412	GV2L14
0.75	1	ATV320U07M2C412	GV2L16
1.1	1.5	ATV320U11M2C412	
1.5	2	ATV320U15M2C412	GV2L20
2.2	3	ATV320U22M2C412	GV2L22
Three-phase supply voltage: 200...240 V 50/60 Hz			
3	4	ATV320U30M3C412	GV2L22
4	5	ATV320U40M3C412	
5.5	7.5	ATV320U55M3C412	GV3L40
7.5	10	ATV320U75M3C412	GV3L50
11	15	ATV320D11M3C412	GV3L65
15	20	ATV320D15M3C412	GV3L80
Three-phase supply voltage: 380...500 V 50/60 Hz			
0.37	0.5	ATV320U04N4C412	GV2L07 (3)
0.55	0.75	ATV320U06N4C412	GV2L08 (3)
0.75	1	ATV320U07N4C412	
1.1	1.5	ATV320U11N4C412	GV2L10 (3)
1.5	2	ATV320U15N4C412	GV2L14 (3)
2.2	3	ATV320U22N4C412	
3	4	ATV320U30N4C412	GV2L16 (3)
4	5	ATV320U40N4C412	
5.5	7.5	ATV320U55N4C412	GV2L22
7.5	10	ATV320U75N4C412	GV2L32
11	15	ATV320D11N4C412	GV3L40
15	20	ATV320D15N4C412	GV3L50

(1) The HP values given are NEC-compliant (National Electrical Code).

(2) GV●L●● circuit breaker references are not UL compliant. To achieve UL Type E compliance GV●P●● thermal magnetic circuit breaker must be used.

(3) A GV2P TeSys thermal magnetic circuit breaker with the same rating can also be used with ATV320U04N4C412...U40N4C412 drives. The thermal release should then be set to maximum to inhibit this function.



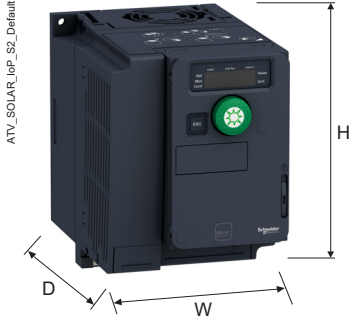
GV2L14
+
LC1D09P7
+
ATV320U06M2C412

Motor starters: circuit breaker + contactor + drive						
Standard power rating of 50/60 Hz 4-pole motors (1)		Variable speed drive Reference	Circuit breaker (2)			Contactor (3)
kW	HP		Reference	Rating	LRM	Reference (4)
Single-phase supply voltage: 200...240 V 50/60 Hz						
0.37	0.5	ATV320U04M2C412	GV2L10	6.3	78	LC1D09●●
0.55	0.75	ATV320U06M2C412	GV2L14	10	138	
0.75	1	ATV320U07M2C412	GV2L16	14	170	
1.1	1.5	ATV320U11M2C412				
1.5	2	ATV320U15M2C412	GV2L20	18	223	
2.2	3	ATV320U22M2C412	GV2L22	25	327	
Three-phase supply voltage: 200...240 V 50/60 Hz						
3	4	ATV320U30M3C412	GV2L22	25	327	LC1D09●●
4	5	ATV320U40M3C412				
5.5	7.5	ATV320U55M3C412	GV3L40	40	560	LC1D32●●
7.5	10	ATV320U75M3C412	GV3L50	50	700	
11	15	ATV320D11M3C412	GV3L65	65	910	LC1D50●●
15	20	ATV320D15M3C412	GV3L80	80	1100	LC1D80●●
Three-phase supply voltage: 380...500 V 50/60 Hz						
0.37	0.5	ATV320U04N4C412	GV2L07	2.5	33.5	LC1D09●●
0.55	0.75	ATV320U06N4C412	GV2L08	4	51	
0.75	1	ATV320U07N4C412				
1.1	1.5	ATV320U11N4C412	GV2L10	6.3	78	
1.5	2	ATV320U15N4C412	GV2L14	10	138	
2.2	3	ATV320U22N4C412				
3	4	ATV320U30N4C412	GV2L16	14	170	
4	5	ATV320U40N4C412				
5.5	7.5	ATV320U55N4C412	GV2L22	25	327	
7.5	10	ATV320U75N4C412	GV2L32	32	416	LC1D18●●
11	15	ATV320D11N4C412	GV3L40	40	560	LC1D25●●
15	20	ATV320D15N4C412	GV3L50	50	700	LC1D32●●

(1) The HP values given are NEC-compliant (National Electrical Code).
 (2) GV●L●● circuit breaker references are not UL compliant. To achieve UL Type E compliance GV●P●● thermal magnetic circuit breaker must be used.
 (3) Composition of TeSys contactors LC1D09/D18/D25/D32/D50/D65: 3 poles + 1 NO auxiliary contact + 1 NC auxiliary contact.
 (4) Replace ●● with the control circuit voltage reference given in the table below:

AC control circuit						
	Volts ~	24	48	115	230	230/240
LC1D●●	50/60 Hz	B7	E7	FE7	P7	U7

For other voltages between 24 V and 660 V, or a DC control circuit, please refer to the TeSys catalog.



ATV_SOLAR_ipF_Sz_Default

IP20 drives with compact control block

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

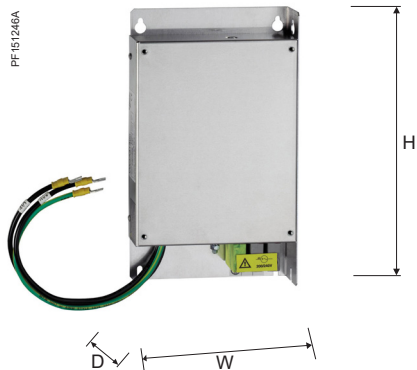
Reference	Accessory	W x H x D	
		mm	in.
ATV320U04M2C412	–	72 x 143 x 128	2.83 x 5.63 x 5.04
	With EMC plate	72 x 188 x 128	2.83 x 7.40 x 5.04
	With UL Type 1 conformity kit	72 x 195.5 x 128	2.83 x 7.70 x 5.04
ATV320U06M2C412	–	72 x 143 x 143	2.83 x 5.63 x 5.63
ATV320U07M2C412	–	72 x 143 x 143	2.83 x 5.63 x 5.63
	With EMC plate	72 x 188 x 143	2.83 x 7.40 x 5.63
	With UL Type 1 conformity kit	72 x 195.5 x 143	2.83 x 7.70 x 5.63
ATV320U11M2C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
ATV320U15M2C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
ATV320U22M2C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
	With EMC plate	105 x 188 x 158	4.13 x 7.40 x 6.22
	With UL Type 1 conformity kit	105 x 210.5 x 158	4.13 x 8.29 x 6.22

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

Reference	Accessory	W x H x D	
		mm	in.
ATV320U30M3C412	–	140 x 184 x 158	5.51 x 7.24 x 6.22
ATV320U40M3C412	–	140 x 184 x 158	5.51 x 7.24 x 6.22
	With EMC plate	140 x 228 x 158	5.51 x 8.97 x 6.22
	With UL Type 1 conformity kit	140 x 236.5 x 158	5.51 x 9.31 x 6.22
ATV320U55M3C412	–	150 x 232 x 178	5.91 x 9.13 x 7.01
ATV320U75M3C412	–	150 x 232 x 178	5.91 x 9.13 x 7.01
	With EMC plate	150 x 308 x 178	5.91 x 12.13 x 7.01
	With UL Type 1 conformity kit	150 x 316 x 178	5.91 x 12.44 x 7.01
ATV320D11M3C412	–	180 x 330 x 198	7.09 x 12.99 x 7.80
ATV320D15M3C412	–	180 x 330 x 198	7.09 x 12.99 x 7.80
	With EMC plate	180 x 404 x 198	7.09 x 15.91 x 7.80
	With UL Type 1 conformity kit	180 x 410.5 x 198	7.09 x 16.16 x 7.80

Three-phase supply voltage: 380...500 V 50/60 Hz

Reference	Accessory	W x H x D (1)	
		mm	in.
ATV320U04N4C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
ATV320U06N4C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
ATV320U07N4C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
ATV320U11N4C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
ATV320U15N4C412	–	105 x 142 x 158	4.13 x 5.60 x 6.22
	With EMC plate	105 x 188 x 158	4.13 x 7.40 x 6.22
	With UL Type 1 conformity kit	105 x 210.5 x 158	4.13 x 8.29 x 6.22
ATV320U22N4C412	–	140 x 184 x 158	5.51 x 7.24 x 6.22
ATV320U30N4C412	–	140 x 184 x 158	5.51 x 7.24 x 6.22
ATV320U40N4C412	–	140 x 184 x 158	5.51 x 7.24 x 6.22
	With EMC plate	140 x 228 x 158	5.51 x 8.97 x 6.22
	With UL Type 1 conformity kit	140 x 236.5 x 158	5.51 x 9.31 x 6.22
ATV320U55N4C412	–	150 x 232 x 178	5.91 x 9.13 x 7.01
ATV320U75N4C412	–	150 x 232 x 178	5.91 x 9.13 x 7.01
	With EMC plate	150 x 308 x 178	5.91 x 12.13 x 7.01
	With UL Type 1 conformity kit	150 x 316 x 178	5.91 x 12.44 x 7.01
ATV320D11N4C412	–	180 x 330 x 198	7.09 x 12.99 x 7.80
ATV320D15N4C412	–	180 x 330 x 198	7.09 x 12.99 x 7.80
	With EMC plate	180 x 404 x 198	7.09 x 15.91 x 7.80
	With UL Type 1 conformity kit	180 x 410.5 x 198	7.09 x 16.16 x 7.80



Line chokes

Reference	W x H x D	
	mm	in.
VW3A4551	100 x 135 x 60	3.94 x 5.31 x 2.36
VW3A4552	130 x 155 x 90	5.11 x 6.10 x 3.54
VW3A4553		
VW3A4554	155 x 170 x 135	5.90 x 6.69 x 5.31
VW3A4555	180 x 210 x 160	7.09 x 8.27 x 6.30
VZ1L007UM50	60 x 100 x 95	2.36 x 9.94 x 3.74
VZ1L018UM20	85 x 120 x 105	3.35 x 4.72 x 4.13

Motor chokes

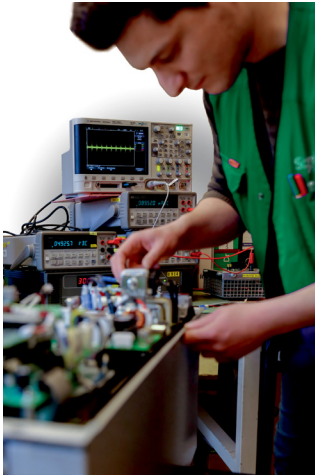
Reference	W x H x D	
	mm	in.
VW3A4552	130 x 155 x 90	5.11 x 6.10 x 3.54
VW3A4553		
VW3A4554	155 x 170 x 135	5.90 x 6.69 x 5.31
VW3A4555	180 x 210 x 160	7.09 x 8.27 x 6.30
VW3A4556	270 x 210 x 180	10.6 x 8.27 x 7.09

Additional EMC input filters

Reference	W x H x D	
	mm	in.
VW3A31403	107 x 195 x 35	4.2 x 7.63 x 1.37
VW3A31404	107 x 195 x 42	4.2 x 7.63 x 1.65
VW3A31405	140 x 235 x 35	5.48 x 9.2 x 1.37
VW3A31406	140 x 235 x 50	5.48 x 9.2 x 1.96
VW3A31408	245 x 395 x 80	9.65 x 15.55 x 3.15
VW3A4424	180 x 305 x 60	7.05 x 11.94 x 2.35
VW3A4425	245 x 395 x 60	9.59 x 15.46 x 2.35

Variable speed drives and soft starters

A whole world of Services for your drives and soft starters by Schneider Electric



Support and services offer by Schneider Electric

Variable speed drives and soft starters are an important part of your operation, with downtime having a significant impact on your business. Protecting that investment through comprehensive services means that you can continue to deliver optimally throughout the lifecycle of your drive and soft starter. Our range of services is designed to help you get more out of your drives and soft starters, your operation, and to improve your environmental impact.



Install

- **Extended Warranty** service helps you control your maintenance costs. Schneider Electric will provide a replacement drive and soft starter or repair the product on site during a period of one or three years more than the standard warranty, in all conditions covered by the extended warranty.
- **Start-up** service is the first essential step in maintenance and optimal operational performance of the drive or soft starter. Our comprehensive review checks up to 100 parameters and is especially designed for drives and soft starters in simple applications.
- **Commissioning** service ensures a reliable start for operations with more complex applications and drive systems. The unique requirements of your process need to be carefully considered to ensure efficient operations.

Operate

- **Preventive Maintenance** service performs predetermined maintenance actions according to a product-specific schedule. The work is carried out by certified technical experts following Schneider Electric instructions. This service minimizes unplanned downtime and extends your equipment lifetime.
- **Remote Technical Support** brings you expert product assistance over the phone, email, chat, or web for any technical questions relating to your drives and soft starters, including configuration, diagnostics, and maintenance. Our global support team is multi-lingual with support available up to R&D level experts if needed.
- **On-Site Expert Assistance** service offers you highly skilled field service experts to troubleshoot and resolve drive or soft starter equipment-related matters at your site, as a back-up source of expertise for your personnel.
- **Spare Part Management** service identifies and manages your critical spare parts either on your site or offsite. This service ensures that you have access to the spares you need without having to invest in capital to maintain the stock.

(1) Services available in countries that have the right structure and capabilities.

Variable speed drives and soft starters

A whole world of Services for your drives and soft starters by Schneider Electric



Support and services offer by Schneider Electric (continued)

Optimize

- **Training** service offers eLearning, classroom, and onsite training provision to enhance the technical installation, commissioning, and maintenance competencies of your personnel. Added competence translates into further process efficiency and reliability, as well as employee satisfaction.
- **EcoStruxure Asset Advisor** service enables you to move from reactive to predictive maintenance and access actionable insight provided by the advisor. The service predicts drive- and motor-related actions through connected devices and advanced algorithms monitored by Schneider Electric's experts.

Renew

- **Drive Revitalization** is an excellent choice if you prefer to use your aging drives longer and want to extend their service life with affordable and comprehensive inspection and replacement of all critical parts.
- **Drive and soft starter replacement** involves modernizing equipment by replacing the previous aged or obsolete product with a new one matched to the purpose. The service can be extended with engineering in case the device and process requires more advanced engineering.

Circular economy

- **Spare Parts** are available from our local, regional, and global stocks. Original equipment parts from Schneider Electric are reliable and easily available. They will help to keep your product in operation for longer.
- **Repair** allows you to extend the life of your drive or soft starter. The affected product can be replaced, or repaired on site or at our repair centers, depending on the type of product in question.
- **Fast Exchange by refurbished drive or soft starter (1)** gives a second life to inoperative drives or soft starters. In this case, we offer an immediate exchange with a replacement refurbished drive or soft starter and take back the product, repair it, and keep it ready for the next exchange.
- **Take-back and recycling (1)** is the last step to improve your environmental impact. Unrepairable products are dismantled, raw materials are collected and given a second life. Up to 85% of the product components can be recycled.

Service contracts secure recovery, availability, and outcome

Service contracts manage the safety and performance of your assets through well-defined maintenance plans tailored to your operational needs. The predefined service contract – Advantage Service Plan – and fully customizable “à la carte” service contract are built from the services in the “Operate” and “Optimize” phases and service levels defining availability, response, and lead times matching your particular needs. You will enjoy priority access to Schneider Electric support when you need it, as well as having an expert partner to plan the long-term evolution of your drives and soft starters.

mySchneider app

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Schneider Electric – helping you succeed

Schneider Electric, the leader in digital transformation of energy management and automation, has operations in more than 100 countries. With this global footprint we have certified field service representatives, regional expert and advanced level support up to product R&D to provide you the right support across the lifecycle of your drives and soft starters. Furthermore, we offer an extensive network of local and global repair centers and a logistics chain that underpins our ability to respond to your needs.

To order services or find out more, please contact your local Schneider Electric service center.

(1) Services available in countries that have the right structure and capabilities.

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