Altivar™ 32 variable speed drives

For 3-phase motors from 0.25 hp (0.18 kW) to 20 hp (15 kW)

Catalog
2011



Schneider Electric™



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Go online to www.schneider-electric.us for technical information about products listed in this catalog, including:



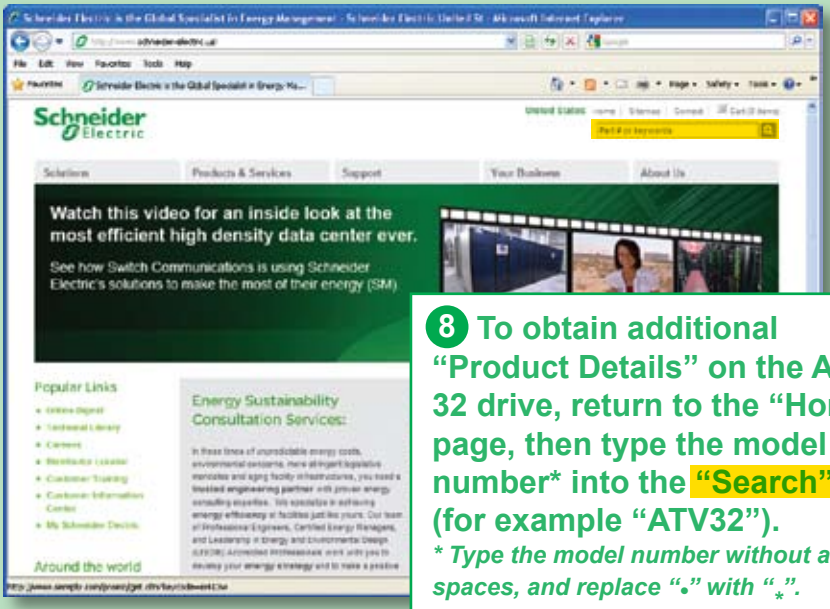
1 From the home page, click on the **Products and Services** tab



2 From the "Products" page choose **"AC Drives and Soft Starts"**

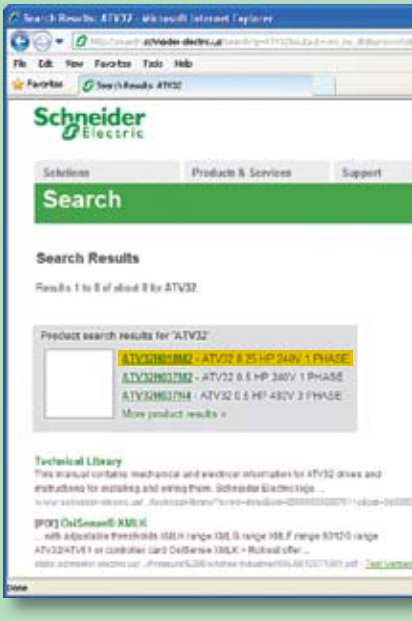


3 From the "Products" > "AC Drives and Soft Starts" page choose **"Altivar 32"**

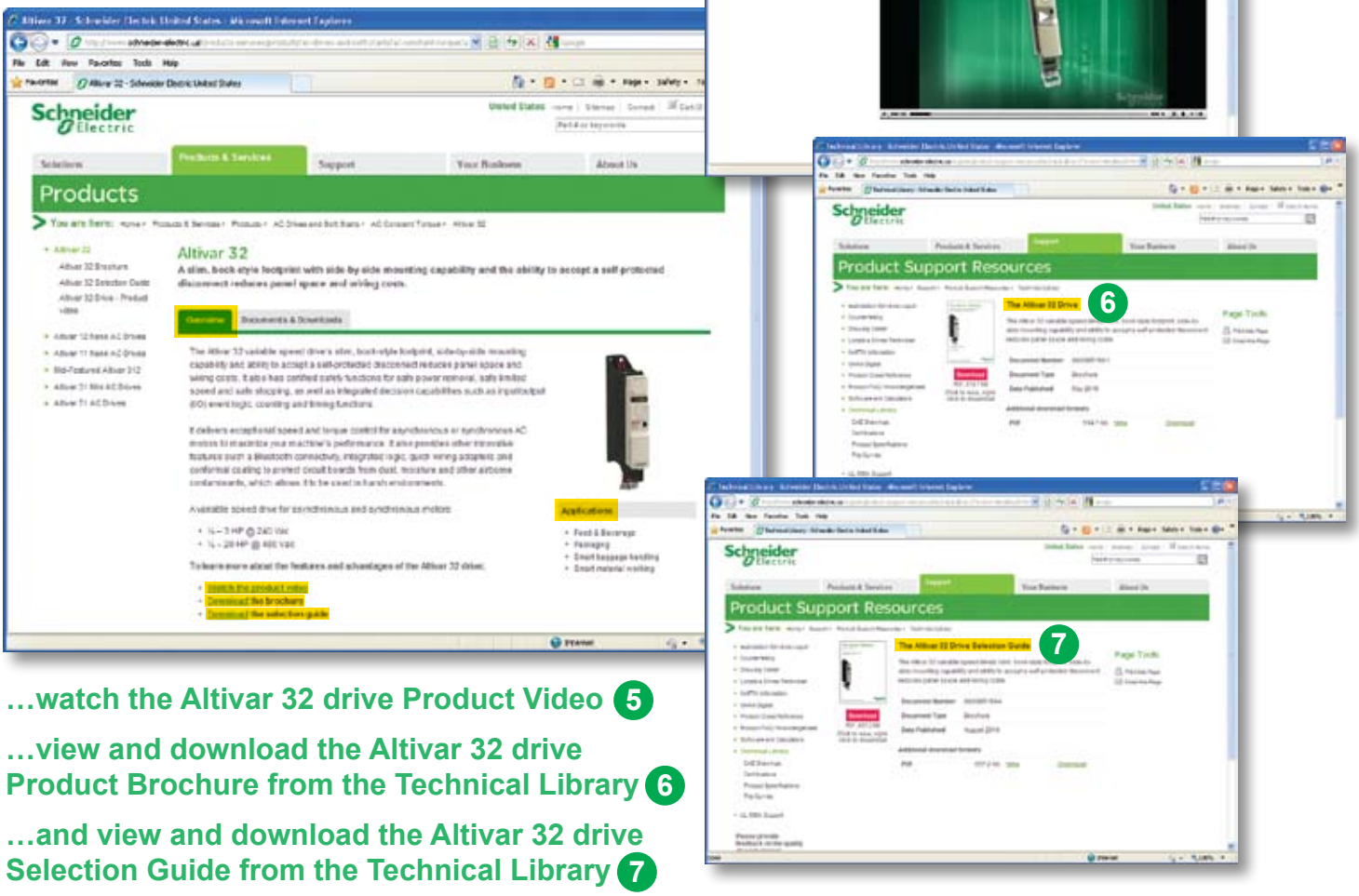


8 To obtain additional "Product Details" on the Altivar 32 drive, return to the "Home" page, then type the model number* into the **"Search"** box (for example "ATV32").

** Type the model number without any spaces, and replace "." with "_".*



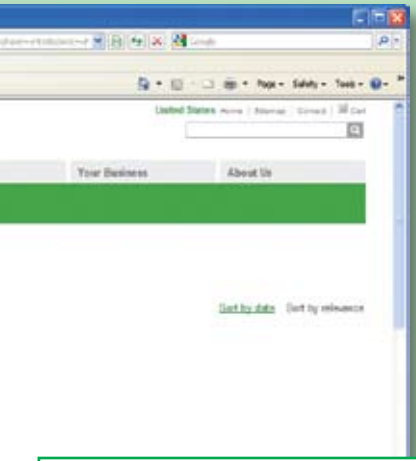
4 Here on the “Products” > “Altivar 32” page you’ll find valuable product information. You’ll find the product **“Overview”** and **“Applications”**, and you can also…



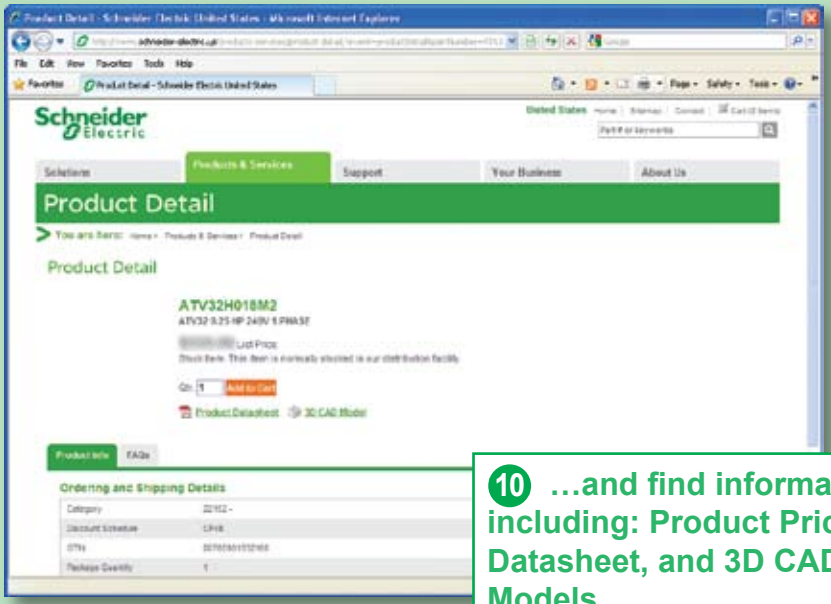
…watch the Altivar 32 drive Product Video **5**

…view and download the Altivar 32 drive Product Brochure from the Technical Library **6**

…and view and download the Altivar 32 drive Selection Guide from the Technical Library **7**



9 From the “Search Results” page choose one of the **product numbers** listed in the shaded gray box…



10 …and find information including: Product Pricing, Datasheet, and 3D CAD Models.

Altivar™ 32 variable speed drives Lexium™ 32 motion control

Application areas	Common		**Material working, material handling, conveying, food and beverage, packaging**
	Specific		**Hoisting, wood-working or metal processing machines**
Technology type			**Altivar 32 variable speed drives without sensor (velocity control)**



Power range for 50 to 60 Hz line supply: hp (kW)			0.25 to 20 (0.18 to 15)
	Single-phase 100 to 120 V: hp (kW)		–
	Single-phase 200 to 240 V: hp (kW)		0.25 to 3 (0.18 to 2.2)
	Three-phase 380 to 480 V: hp (kW)		–
	Three-phase 380 to 500 V: hp (kW)		0.5 to 20 (0.37 to 15)
Drive	Motor speed		0.1 to 599 Hz
	Type of control	Asynchronous motor	Voltage/frequency ratios: U/f and 5-point U/f Sensorless flux vector control ratio Kn^2 quadratic ratio (pump/fan) Energy saving ratio
		Synchronous motor	For synchronous motor without sensor
	Motor sensor	Integrated	–
		Available as an option	–
	Transient overtorque		170 to 200% of the nominal motor torque
	Peak current		–
Number of functions			150
Safety functions	Integrated		1: STO (Safe Torque Off)
	Configure with SoMove™ software		3: SLS (Safe Limited Speed), SS1 (Safe Stop 1)
Number of I/O	Inputs	Analog	3
		Logic	6
	Outputs	Analog	1: configurable as voltage (0-10 V) or current (0-20 mA)
		Logic	1
	Relay outputs		2
Communication	Integrated		Modbus™, CANopen
	Available as an option		DeviceNet, PROFIBUS DP V1, EtherNet/IP, Modbus TCP, EtherCat
	Bluetooth link		Integrated
Options			SoMove™ setup software Multi-Loader configuration tool Graphic display terminal Filters, braking resistors, line chokes
Standards and certifications			IEC 61800-5-1, IEC 61800-3 (environments 1 and 2, category C2), UL 508C, EN 954-1 category 3, ISO/EN 13849-1/- 2 category 3 (PL d), IEC 61508 (parts 1 & 2) SIL 2 level, draft standard EN 50495E
			CE, UL, CSA, C-Tick, NOM, GOST
References			**ATV 32**
Page			14

Material working, material handling, printing, packaging, food and beverage

Clamping, cutting, cutting to length, flying shear, rotary knife, pick and place, winding, marking

Lexium™ 32 servo drives with sensor feedback (position control)



0.15 to 7		
0.15 to 0.8		
0.3 to 1.6		
0.4 to 7		
–		
Nominal speed: ■ BMH servo motors: continuous stall torque range between 1.2 to 84 Nm for nominal speeds between 1200 and 6000 rpm ■ BSH servo motors: continuous stall torque range between 0.5 to 33.4 Nm for nominal speeds between 2500 and 6000 rpm		
–		
Synchronous motor with sensor feedback for BMH and BSH servo motors		
SinCos Hiperface™ sensor		
–		Resolver encoder Analog encoder (motor and machine) Digital encoder (machine only)
–		
Peak current, up to 4 times the drive direct current for 1 second		
–		
1: STO (Safe Torque Off)		
4: SLS (Safe Limited Speed), SS1 (Safe Stop 1), SS2 (Safe Stop 2), SOS (Safe Operating Stop)		
2	–	–
6	4 (1 of which can be used as a capture input)	6 (2 of which can be used as a capture input)
–	–	–
5	2	3
–	–	–
Modbus™	Modbus, CANopen, CANmotion	Modbus
–	–	CANopen, CANmotion, DeviceNet, EtherNet/IP, PROFIBUS DP V1, EtherCat
Available as an option	Available as an option	Available as an option
SoMove™ setup software Multi-Loader configuration tool Graphic display terminal Filters, braking resistors, line chokes		
IEC 61800-5-1, IEC 61800-3 (environments 1 and 2, categories C2 and C3), IEC 61000-4-2/4-3/4-4/4-5, ISO/EN 13849-1 (PL e), IEC 61508 SIL 3 level		
CE, UL, CSA, TÜV		
LXM 32C	**LXM 32A**	**LXM 32M**
Please refer to the "Lexium™ 32 Servo Drives motion control" catalog		

Altivar™ 32 variable speed drives



Example with six 45 mm wide drives mounted side-by-side



Altivar 32 with top mounted GV self-protected disconnect



Synergy between Altivar 32 drive and Lexium 32 servo drive (1)



Conveying application

Introduction

The Altivar™ 32 variable speed drive from Schneider Electric provides high performance and improved connectivity, while reducing panel space, improving uptime and maximizing machine through-put. Its extra-slim, book-style design allows side-by-side mounting, as well as the direct attachment of a self-protected disconnect. The Altivar 32 can be mounted in smaller spaces, minimizing wiring, and reducing machine costs.

The Altivar 32 features embedded Bluetooth™ technology, which enables monitoring, viewing and performing machine diagnostics, while keeping cabinet doors safely closed. It also has an onboard HMI and navigation wheel for easy adjustments, and includes an on-board RJ45 connector. This RJ45 port can be used for Modbus™ or CANopen networks, or to connect a remote LCD graphic display.

The Altivar 32 drive offers built-in functions that meet the demands of multiple applications:
■ Integrated safety functions are certified to safety standards (SIL 2 according to standard IEC 61508) comparable with performance level “d” (PL d) according to ISO/EN 13849-1/-2.
■ The Altivar Logic function offers simple control system functions (such as Boolean, arithmetical operations, comparators) that can reduce panel space and wiring costs by eliminating the need for external relays, timers and counters.

Optional communication cards allow the Altivar 32 drive to integrate seamlessly into main control system architectures.

The Altivar 32 drive includes various motor control profiles for three-phase asynchronous motors. It also features a control profile for permanent magnet synchronous motors. Compact and highly energy efficient, PM motors are particularly suitable for conveying applications and other equipment with gear boxes. Using a PM motor often eliminates the need for a gear box. This improves efficiency, reduces space required and eliminates the maintenance associated with gear boxes.

Reduced mounting space, with simplified setup and use

The Altivar 32 drive simplifies setup and use with:
■ Compatible HMI and configuration tools for Altivar 32 variable speed drives and
■ Lexium™ 32 servo drives (SoMove™ PC setup software, SoMobile™ software for mobile phones, remote display terminals and the Simple Loader and Multi-Loader configuration tools)
■ Built-in Bluetooth link
■ Easy-fit communication cards in cassette format
■ Option for connection to the CANopen machine bus
■ Side-by-side mounting with no derating. For mounting in shallow cabinets, the control module can be rotated 90 degrees.
■ Quick connect for a TeSys™ GV2 self-protected disconnect
■ Labeled terminals
■ Synergy with Lexium 32 servo drives for controlling applications involving asynchronous and synchronous motors (common tools and options, same shape and dimensions)

The Altivar 32 drive is also compatible with SoMachine™, the software solution for OEMs. This solution can be used to develop, configure and setup an entire machine in a single software environment.

Applications

The Altivar 32 drive incorporates functions suitable for the most common applications, including:
■ Material handling (smart conveyors, diverters and gapping machines)
■ Packing and packaging machines (bagging, labeling, sealing and boxing, plus wrappers and palletizers)
■ Special machines (mixers, kneaders, filling machines, and extruders)
■ Pump, compressor and fan applications requiring a smart drive
■ Hoisting, pick and place
■ Wood-working machinery (saws, gummers, planers, etc.)
■ Metal processing (bending presses, welding machines, cutting machines, etc.)

(1) Please refer to the “Lexium 32 Servo Drives motion control” catalog.

Specifications: page 12
References: page 14
Dimensions: page 15

Main functions

The Altivar™ 32 variable speed drive has six logic inputs, a dedicated Safe Torque Off (STO) input, three analog inputs, one logic and one analog output, one form C relay output and one NO relay output, plus an on-board RJ45 port



Example of an application requiring the use of safety functions

Application functions

The Altivar 32 drive includes over 150 functions, such as:
- Configurations: standard or customizable
- Settings: factory or OEM
- Application-specific functions (conveying, cutting, hoisting, etc.)
- The adjustable switching frequency for optimizing servo control (adjusted motor current, reduced motor noise and temperature rise, etc.)
- Multiple Human/Machine Interfaces (HMIs) and dialog or configuration tools
- Menu parameter setting, using the "My Menu" function to obtain an application-specific Human/Machine Interface (HMI)
- Uploads and downloads of application and drive software, with power on or off

Safety functions

The Altivar 32 drive software includes three safety functions that help machines meet safety requirements, whether or not they are used in conjunction with a Preventa™ safety module *(1)*:
- STO: Safe Torque Off
- SLS: Safely Limited Speed
- SS1: Safe Stop 1

These safety functions are configured via the SoMove™ setup software (see page 34).

***Note**: To set up the safety functions, please refer to the "Safety Integrated function" manual, which is available on our website at "www.schneider-electric.us".*



A scrolling sign is an example of an application that can use Altivar Logic.

Altivar Logic

The integrated control system functions featuring Altivar Logic can be used to perform simple operations, eliminating the mounting space, wiring and installation of external relays, timers and counters.
Altivar Logic is programmed via the SoMove™ setup software (see page 34) and provides access to the following functions:
- Arithmetical operations, Boolean operators, counters and timers
- Programming of up to 50 functions by an automated sequence
- Access to the drive's internal variables

Motor control profiles for asynchronous and synchronous motors

The Altivar 32 drive features different motor control profiles:
- For asynchronous motors:
  - Two voltage/frequency ratios: Volts/Hz and 5-point Volts/Hz
  - Sensorless flux vector control ratio
  - Quadratic ratio for pump and fan loads
  - Energy saving ratio
- For synchronous motors: Permanent Magnet motor control profile

Examples of use (functions/applications)

Functions	Applications				
	Handling	Conveying	Packing	Wood-working machinery	Metal processing
Safety functions	■	■	■	■	■
Communication buses and networks	■	■	■	■	■
Fast response time	■	■	■	■	■
Control profile for synchronous motors	■	■	■	■	■
Application-specific functions	■	■	■	■	■
	■ Typical use for Altivar 32			■ Typical use for Lexium™ 32	

(1) Please refer to the "Safety functions and solutions using Preventa" catalog.

Altivar™ 32 variable speed drives



ATV 32H018M2 to H075M2
ATV 32H037N4 to HU15N4



ATV 32HU11M2 to HU22M2
ATV 32HU22N4 to HU40N4



CANopen communication card with RJ45 connectors



CANopen communication card with SUB-D connector



CANopen communication card with connection via terminals



GV2/Altivar 32 direct mounting

Product offer

The Altivar™ 32 range of variable speed drives covers three-phase motor power ratings from 0.25 hp to 20 hp (0.18 kW to 15 kW) with two power supply ratings:
- 200 V to 240 V single-phase, 0.25 hp to 3 hp (0.18 kW to 2.2 kW) (**ATV 32H●●●M2**)
- 380 V to 500 V three-phase, 0.5 hp to 20 hp (0.37 kW to 15 kW) (**ATV 32H●●●N4**)

The Altivar 32 drive integrates Modbus™ and CANopen as standard communication protocols. Both can be accessed via the RJ45 connector on the front of the drive.
To simplify connection of the Altivar 32 drive to the CANopen machine bus, three communication card options are available with different connectors:
- CANopen daisy chain card with two RJ 45 connectors
- CANopen card with 9-way SUB-D connector
- CANopen card with 5-way terminal block

See pages 30 and 31.

In addition to Modbus and CANopen as standard protocols, the Altivar 32 drive can be connected to industrial communication networks by adding one of the following optional communication cards:
- Modbus/TCP - Ethernet/IP
- PROFIBUS DP V1
- DeviceNet
- EtherCAT

See pages 32 and 33.

Electromagnetic compatibility (EMC)

The built-in EMC filters in **ATV 32H●●●M2** and **ATV 32H●●●N4** drives, and compliance with EMC requirements simplify installation and help ensure these devices meet the criteria for the CE mark. This enables compliance with standard IEC 61800-3, category C2 for a maximum motor cable length of 10 meters.
This filter can be disconnected by removing a jumper, if EMC filtering is undesirable.

Other filters are available as an option and can be installed by the customer to reduce the level of emissions from Altivar 32 drives.

See page 26.

External accessories and options

External accessories and options are available with the Altivar 32 drive. The type of external accessories and options depends on the drive rating.

Accessories

- Bracket for direct mounting of a GV2 self-protecting disconnect to the Altivar 32 Frame A or B. (see page 19)
- Adaptor for mounting the control module at 90°, for mounting the power module on its side, for Frame A and B, allowing side mounting the Altivar 32 for accomodating shallow cabinets.
- Daisy chain DC bus cordsets for daisy chain connection of the DC bus

See page 19.

External options

- Braking resistors
- Line chokes
- Motor chokes
- Additional EMC filters

See pages 23 to 27.



Product offer (continued)

HMI and configuration tools

On-board Human/Machine interface

The 4-digit display 1 displays drive states, faults 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

The Altivar™ 32 drive can be connected to a remote display terminal 4 or a remote graphic display terminal 3, which are available as options.
The remote display terminal can be mounted on an enclosure door with IP 54 or IP 65 degree of protection. It provides access to the same functions as the Human/Machine interface.
The remote graphic display terminal, with its text display in the user's language, provides a user-friendly interface for configuration, debugging or maintenance. It can also be mounted on an enclosure door with IP 54 or IP 65 degree of protection.
See page 20.

SoMove™ setup software for PCs

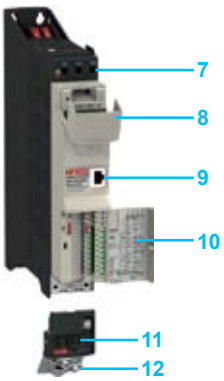
SoMove setup software is used to configure, adjust, debug (using the Oscilloscope function) and maintain the Altivar 32 drive in the same way as for other Schneider Electric drives and starters.
It can be used with a direct cable connection or a Bluetooth™ wireless connection.
See page 34.

SoMobile™ software for mobile phones

SoMobile software is used to view and monitor the drive parameters from a mobile phone via a Bluetooth™ wireless connection. It can also be used to upload and download configurations.
See page 22.

Simple Loader and Multi-Loader configuration tools

The Simple Loader tool 6 enables the configuration from one powered-up drive to be duplicated on another powered-up drive.
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 when using the Multi-Loader tool.
See page 22.



Frame A and B

Description

1 to 6, see “Dialog and configuration tools” above.

7 Power terminals

8 Protective cover to prevent access to the power terminals when closed

9 RJ 45 communication port for access to integrated protocols: Modbus serial link and CANopen machine bus

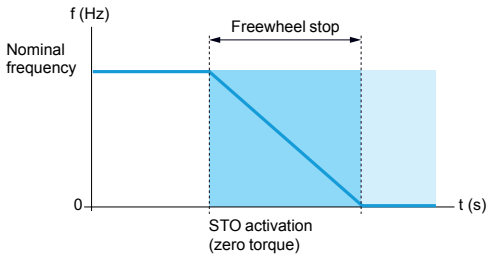
10 Protective cover for access to the control terminals (also includes a label with a wiring diagram)

11 Removable motor power terminal block (allows quick disconnect and re-connect of motor cables during maintenance operations)

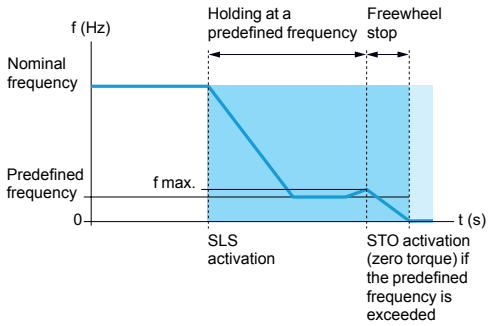
12 EMC mounting plate (integral part of the motor power terminal block). This plate is supplied with a cable guide support, which can be used if required.

Altivar™ 32 variable speed drives

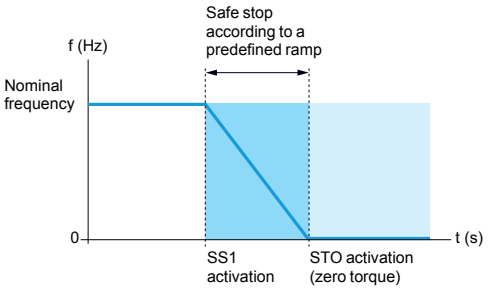
Integrated safety functions



Activation of the STO safety function



Activation of the SLS safety function



Activation of the SS1 safety function

Integrated safety functions *(1)*

The Altivar™ 32 drive includes three safety functions:
- STO: Safe Torque Off
- SLS: Safely Limited Speed
- SS1: Safe Stop 1

These functions allow you to develop applications oriented to the protection of man and machine and are configured with SoMove™ software. These integrated safety functions provide the following benefits:
- Additional standards-compliant safety functions
- Replacement of external safety equipment
- Reduced wiring efforts and space requirements
- Reduced costs

The Altivar 32 drive is compliant with normative requirements to implement the safety functions

These three integrated functions are certified in accordance with IEC 61800-5-2 Ed.1 “Adjustable speed electrical power drive systems - Part 5-2: Safety requirements - Functional”.

IEC 61800-5-2 as a product standard, sets out safety-related considerations of Power Drive Systems Safety Related “PDS(SR)s” in terms of the framework of IEC 61508 series Ed.2 of standards. Compliance with IEC 61800-5-2 standard, for the following described safety functions, will facilitate the incorporation of a PDS(SR) (Power Drive System with safety-related functions) into a safety-related control system using the principles of IEC 61508, or the ISO 13849-1, as well as the IEC 62061 for process-systems and machinery.

The defined safety functions are:
- SIL 2 and SIL 3 capability in compliance with IEC 61800-5-2 and IEC 61508 series Ed.2.
- Performance Level “d” and “e” in compliance with ISO 13849-1.
- Compliant with the Category 3 and 4 of European standard ISO 13849-1 (EN 954-1).

These integration functions make it possible to:
- Simplify setup of machines which require a complex safety device.
- Improve performance during maintenance by reducing machine or installation downtime.

The certificate for functional safety can be printed from SoMove software after configuration.

***Note**: A higher level of compliance is possible with the addition of external Preventa™ safety modules (2).*

Safe Torque Off (STO) safety function *(1)*

The STO integrated safety function causes a motor freewheel stop by eliminating the torque on the motor shaft. This function's purpose is to bring the motor into a no torque condition so it is relevant in terms of safety – since no torque is available at the motor level. Power modules are inhibited, and the motor coasts down or is prohibited from starting.

Safely Limited Speed (SLS) safety function *(1)*

The SLS integrated safety function slows down and then holds the motor at a predefined frequency. If this predefined frequency cannot be held above a certain value, for example in the case of a driving load, the STO function is activated.

Safe Stop 1 (SS1) safety function *(1)*

The SS1 integrated safety function causes a category 1 safe stop. This stop occurs in the following sequence:
- The motor is stopped according to a predefined deceleration ramp.
- The deceleration is monitored to ensure that the motor has stopped or that the frequency has been reached.
- The STO function is activated after standstill has been reached.

Setting up the integrated safety functions *(1)*

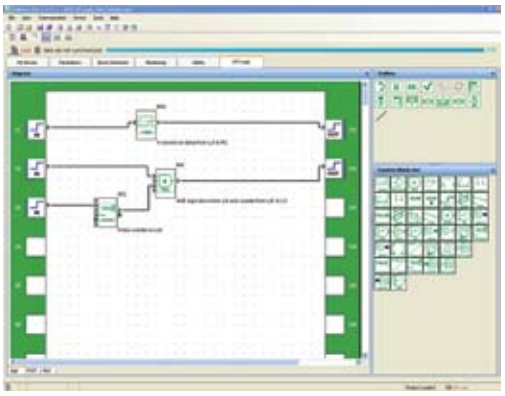
The functions are connected directly to the drive's logic inputs and can be configured using the SoMove™ setup software (see page 34).

(1) For addition information please refer to the Altivar 32 Safety Functions Manual, document number S1A45606_01 which is available on our website at “www.schneider-electric.us”.
(2) Please refer to the Altivar 32 Safety Functions Manual.

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Altivar™ 32 variable speed drives

Integrated Altivar logic



Configure with SoMove PC software

Embedded Altivar Logic

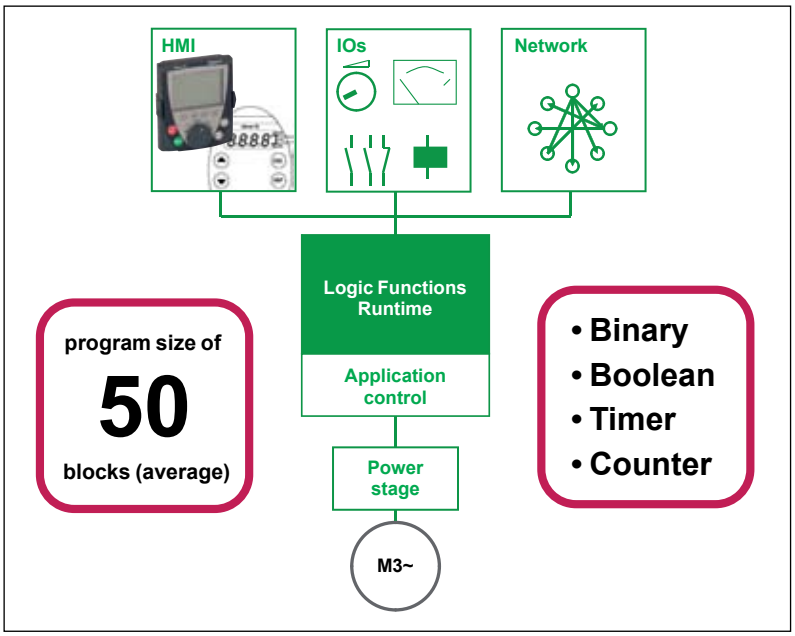
The Altivar™ 32 drive can be used to control a simple process and replace the functions performed by external relays, timers and counters. Eliminating these external devices can reduce cost by minimizing panel space requirements, eliminating components and wiring, and reduce installation time.

Using integrated software function blocks, the Altivar 32 drive can:
- Perform simple control system functions (Boolean, arithmetical operations, timers, counters, comparators, etc.)
- Execute small automated sequences
- Customize the drive to the machine application

The Altivar Logic function is programmed with the SoMove™ software.

Altivar Logic can interact with:
- The drive core control
- The drive I/O
- Communication networks
- The drive HMI

Embedded Altivar Logic reduces the need for other components



References: page 14
Dimensions: page 15

Altivar™ 32 variable speed drives

Standards and certifications
Electrical and environmental specifications

Standards and certifications

Altivar™ 32 drives have been developed to conform to stringent international standards and recommendations relating to industrial electrical control devices.

Electrical specifications

Voltage and hp range		200 -15% to 240 +10%, single-phase input, three-phase output, ¼ hp to 3 hp 380 -15% to 480 +15%, three-phase input, three-phase output, ½ hp to 20 hp
Frequency input range	**Hz**	47.5 to 63
Frequency output range	**Hz**	0.1 to 599
Switching frequency range	**kHz**	2 to 16 adjustable
Speed range		1 to 100 for asynchronous motors
Motor protection		Class 10 electronic overload protection
Motor control profiles		For asynchronous motors: sensorless flux vector, volts/hertz, 5 point volts/hertz, quadratic volts/hertz motor control For synchronous motors in open loop: permananent magnet motor control
Transient over current		150% nominal for 60 s, 200% nominal for 2 s
Embedded functions		150 functions, safety functionality, Altivar logic functions
EMC filter		Integrated Class 2 EMC filter for radiated and conducted emissions, IEC 61800-3 (environments 1 and 2, category C2)
Communication		Embedded Bluetooth for SoMove™ PC software and SoMobile™ smart phone connection. Embedded RJ45 port for Modbus, CANopen, Simple loader, Multi-Loader, SoMove PC software or remote keypad connection
User interface		On board 4 digit, 7 segment LED display with naviagation wheel and ESC key. Option for remote keypads
Compliance		RoHS, WEEE (Waste Electrical and Electronic Equipment) CE marked according to the European low voltage (2006/95/EC) and EMC (2004/108/EC) directives.
Certifications		UL 508C, CSA, C-Tick, NOM, GOST, CE, UL File E116875 ISO/EN 13849 -1/-2 category 3 (PLd) EN 954-1 category 1 and IEC/EN 61508 SIL 1 stopping category 0 per IEC/EN 60204-1 without additional components EN 954-1 category 3 and IEC/EN 61508 SIL 2 stopping category 0 per IEC/EN 60204-1 with Preventa safety module IEC 61800-5-1, Adjustable Speed electrical power drive systems IEC 61800-5-2, Ed.1 “Adjustable speed electrical power drive systems - Part 5-2: Safety requirements - Functional”.

Environmental specifications

Temperature ratings	**°C**	-10 to + 50 operational without de-rating, up to 60 with de-rating
Altitude ratings		Up to 3300 ft (1000 meters) without de-rating, de-rate nominal current by 1% for each additional 330 ft (100 m) up to 10,000 ft (3000 m)
Humidity		up to 95% non-condensing, IEC 60068-2-3
Pollution degree		2 conforming to EN/IEC 61800-5-1. Conformal coating per IEC 60721-3-3 classes 3C2 and 3S2.
Degree of protection		IP20 conforming to EN/IEC 61800-5-1
Vibration resistance		1 gn (f=13...200 hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f=3...13 hz) conforming to EN/IEC 60068-2-6
Shock resistance		15 gn for 11 ms conforming to EN/IEC 60068-2-27
Noise level	**dB**	43 conforming to 86/188/EEC

Altivar™ 32 variable speed drives

I/O specifications

Specifications and functions of the control terminals

Terminal	Function	Type	Electrical specifications
STO	STO (Safe Torque Off) safety function input	I	24 Vdc • Impedance: 1.5 kΩ
P24	Terminal point for external power supply for control circuit/internal power supply for STO	I/O	+24 Vdc • Tolerance: -15 to +20% • Current: 1.1 A max.
+24	Logic input power supply	O	+24 Vdc • Tolerance: -15 to +20% • Current: 100 mA
LI1 **LI2** **LI3** **LI4**	Logic inputs	I	Four programmable logic inputs configurable as sink or source using SW1 switch • + 24 V power supply (max. 30 V) • State 0 if < 5 V, state 1 if > 11 V (in source mode) • State 0 if > 19 V, state 1 if < 13 V (in sink mode) • Response time: 8 ms at stop
LI5 **LI6**	Logic inputs	I	If programmed as logic inputs, same characteristics as LI1 to LI4 • LI5 can be programmed as pulse input 20 kpps (pulse per second) • LI6 can be used as PTC using SW2 switch • Trip threshold 3 kΩ, reset threshold 1.8 kΩ • Short-circuit detection threshold < 50 Ω
COM	Analog I/O common	I/O	0 V
AI1	Analog input voltage	I	Analog input: 0 + 10 V • Impedance: 30 kΩ • Resolution: 10 bits converter • Precision: ±0.5% in 50/60 Hz for 25° C, ±0.2% in 50/60 Hz for -10 to +60° C at Δθ = 60° C • Linearity: ± 0.2% (max. ± 0.5%), of max. value • Sampling time: 2 ms
10 V	Power supply for speed reference potentiometer	O	+10 Vdc • Tolerance: 0 to +10% • Current: 10 mA max
AI2	Analog input voltage	I	Bipolar analog input 0 ± 10 V (maximum voltage ± 30 V) The + or - polarity of the voltage on AI2 affects the direction of the setpoint and therefore the direction of operation. • Impedance: 30 kΩ • Resolution: 10 bits • Precision: ±0.5% in 50/60 Hz for 25° C, ±0.2% in 50/60 Hz for -10 to +60° C at Δθ = 60° C • Linearity: ± 0.2% (max. ± 0.5%), of max. value • Sampling time: 2 ms
AI3	Analog input current	I	Analog input 0–20 mA (or 4–20 mA, X–20 mA, 20–Y mA). X and Y can be programmed from 0 mA to 20 mA • Impedance: 250 Ω • Resolution: 10 bits • Precision: ±0.5% in 50/60 Hz for 25 °C, ±0.2% in 50/60 Hz for -10 to +60° C at Δθ = 60° C • Linearity: ± 0.2% (max. ± 0.5%), of max. value • Sampling time: 2 ms
COM	Analog I/O common	I/O	0 V
COM	Analog I/O common	I/O	0 V
COM	Analog I/O common	I/O	0 V
AO1	Voltage or current analog output (collector)	O	Analog output 0 to 10 V, min. load impedance 470 Ω or Analog output 0 to 20 mA, max. load impedance 800 Ω • Resolution 10 bits • Precision ± 1% in 50/60Hz for 25° C ±10° C, ± 2% in 50/60Hz for -10 to +60° C • Linearity ± 0.3% • Sampling time 2 ms
LO+ **LO-**	Logic output	O	Open collector output configurable as sink or source using SW1 switch • Refresh time: 2 ms • Maximum current: 100 mA • Maximum voltage: 30 V
R1A	N.O. contact of the relay	O	• Min. switching capacity: 5 mA for 24 V ⎓ • Max. switching capacity on resistive load: (cos φ = 1) 3 A for 250 V ∿ and 4 A for 30 V ⎓ • Max. switching capacity on inductive load: (cos φ = 0.4 and L/R =7 ms): 2 A for 250 V ∿ and 30 V ⎓ • Refresh time: 2 ms • Service life: 100,000 operations at max. switching power
R1B	N.O. contact of the relay	O	
R1C	Common point contact of programmable relay R1	O	
R2A **R2C**	NO contact of programmable relay R2	O	• Min. switching capacity: 5 mA for 24 V ⎓ • Max. switching capacity on resistive load: (cos φ = 1) 5 A for 250 V ∿ and 30 V ⎓ • Max. switching capacity on inductive load: (cos φ = 0.4 and L/R = 7 ms): 2 A for 250 V ∿ and 30 V ⎓ • Refresh time: 2 ms • Service life: – 100,000 operations at max. switching power – 1,000,000 operations with 500 mA current to inductive load 58 Vac or 30 Vdc
RJ45 port	Communication port	–	It is used to connect: • a PC using SoMove software • a graphic or LED keypad • Modbus or CANopen network • Configuration loader tools

Altivar™ 32 variable speed drives



ATV 32H018M2 to H075M2
ATV 32H037N4 to HU15N4



ATV 32HU11M2 to HU22M2
ATV 32HU22N4 to HU40N4



ATV 32HU55N4, HU75N4
EMC plate not mounted



ATV 32HD11N4, HD15N4
EMC plate not mounted

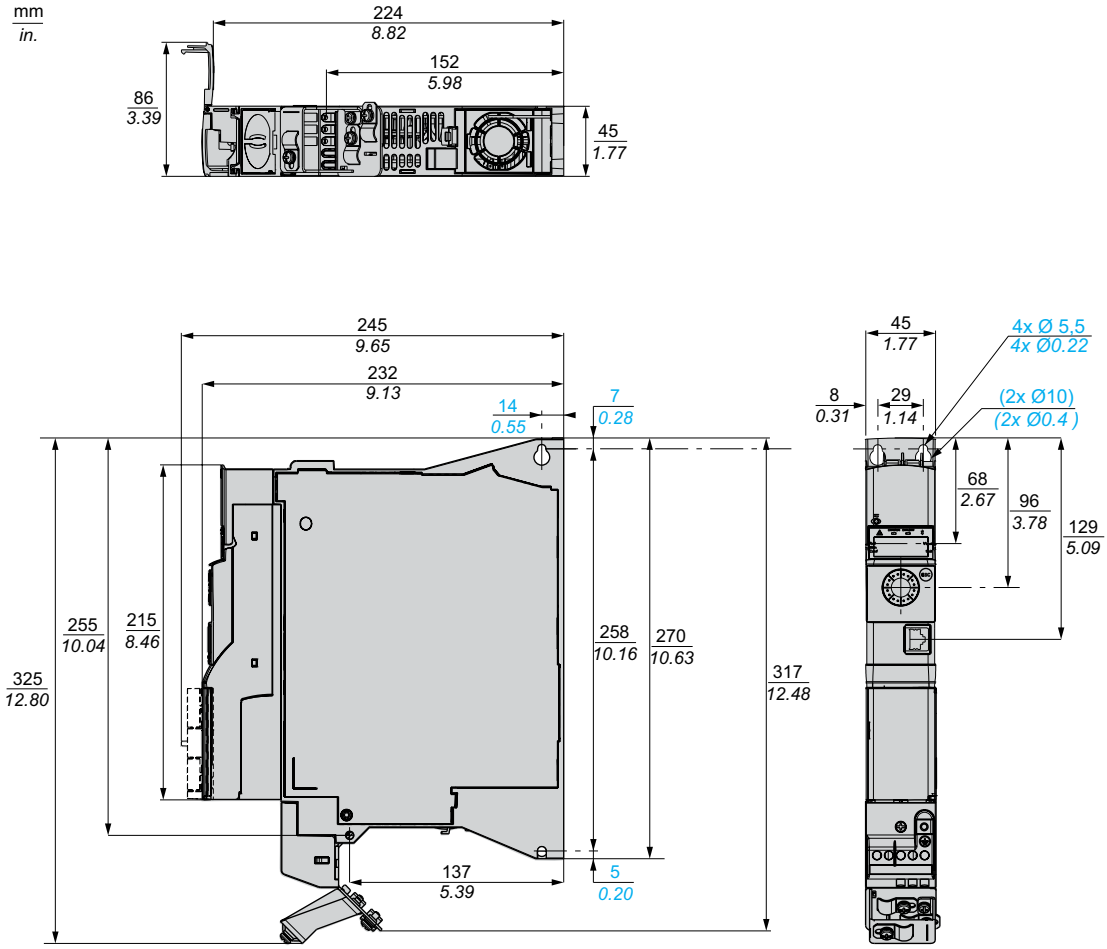
Drives (frequency range from 0.1 to 599 Hz)

Motor		Line supply				Altivar™ 32				
Power indicated on rating plate		Max. line current (1), (2)		Apparent power	Max. prospective line Isc (3)	Max. continuous output current (In) (4)	Maximum transient current for 60 s	Power dissipated at maximum output current (In) (4)	Reference	Weight
		at U1	at U2	at U2		at U2				
kW	hp	A	A	kVA	kA	A	A	W		kg (lbs)
Single-phase supply voltage: 200 to 240 V 50/60 Hz, with integrated EMC filter (2) (5) (6)										
0.18	1/4	3.4	2.8	0.7	1	1.5	2.3	25	**ATV 32H018M2**	1.590 (3.50)
0.37	1/2	6	5	1.2	1	3.3	5	38	**ATV 32H037M2**	1.646 (3.63)
0.55	3/4	7.9	6.7	1.6	1	3.7	5.6	42	**ATV 32H055M2**	1.646 (3.63)
0.75	1	10.1	8.5	2	1	4.8	7.2	51	**ATV 32H075M2**	1.646 (3.63)
1.1	1-1/2	13.6	11.5	2.8	1	6.9	10.4	64	**ATV 32HU11M2**	1.952 (4.30)
1.5	2	17.6	14.8	3.6	1	8	12	81	**ATV 32HU15M2**	1.952 (4.30)
2.2	3	23.9	20.1	4.8	1	11	16.5	102	**ATV 32HU22M2**	2.066 (4.55)
Three-phase supply voltage: 380 to 500 V 50/60 Hz, with integrated EMC filter (2) (5) (6)										
0.37	1/2	2.1	1.6	1.4	5	1.5	2.3	27	**ATV 32H037N4**	1.618 (3.57)
0.55	3/4	2.8	2.2	1.9	5	1.9	2.9	31	**ATV 32H055N4**	1.715 (3.78)
0.75	1	3.6	2.7	2.3	5	2.3	3.5	37	**ATV 32H075N4**	1.715 (3.78)
1.1	1-1/2	5	3.8	3.3	5	3	4.5	50	**ATV 32HU11N4**	1.705 (3.76)
1.5	2	6.5	4.9	4.2	5	4.1	6.2	63	**ATV 32HU15N4**	1.705 (3.76)
2.2	3	8.7	6.6	5.7	5	5.5	8.3	78	**ATV 32HU22N4**	2.320 (5.11)
3	–	11.1	8.4	7.3	5	7.1	10.7	100	**ATV 32HU30N4**	2.122 (4.68)
4	5	13.7	10.5	9.1	5	9.5	14.3	125	**ATV 32HU40N4**	2.176 (4.80)
5.5	7-1/2	20.7	14.5	17.9	22	14.3	21.5	233	**ATV 32HU55N4**	4.410 (9.72)
7.5	10	26.5	18.7	22.9	22	17	25.5	263	**ATV 32HU75N4**	4.410 (9.72)
11	15	36.6	25.6	31.7	22	27.7	41.6	403	**ATV 32HD11N4**	7.000 (15.40)
15	20	47.3	33.3	41	22	33	49.5	480	**ATV 32HD15N4**	7.000 (15.40)

(1) Typical value for a 4-pole motor and a maximum switching frequency of 4 kHz, with no line choke for max. prospective line Isc.
(2) Nominal supply voltage, min. U1, max. U2: 200 (U1) to 240 V (U2), 380 (U1) to 500 V (U2).
(3) If line Isc (available short circuit current) is greater than the values in the table, add line chokes (see page 24).
(4) These values are given for a nominal switching frequency of 4 kHz, for use in continuous operation.
The switching frequency is adjustable from 2 to16 kHz. Above 4 kHz, derate the nominal drive current. The nominal motor current should not exceed this value. See the derating curves in the Altivar 32 Installation Manual which can be located on our website "www.schneider-electric.us".
(5) Drives supplied with category C2 integrated EMC filter. This filter can be disconnected if the product is used in isolated or impedance grounded neutral electrical distribution systems.
(6) Connection in compliance with EMC standards:
- ATV 32H●●●M2, ATV 32H037N4 to HU40N4 drives are supplied with an EMC plate. This is an integral part of the power terminals; these 2 components cannot be separated.
- ATV 32HU55N4 to HD15N4 drives are supplied with an EMC plate, for assembly by the customer.

Dimensions and weights

Size A – ATV32H0●●M2, H0●●N4, HU1●N4

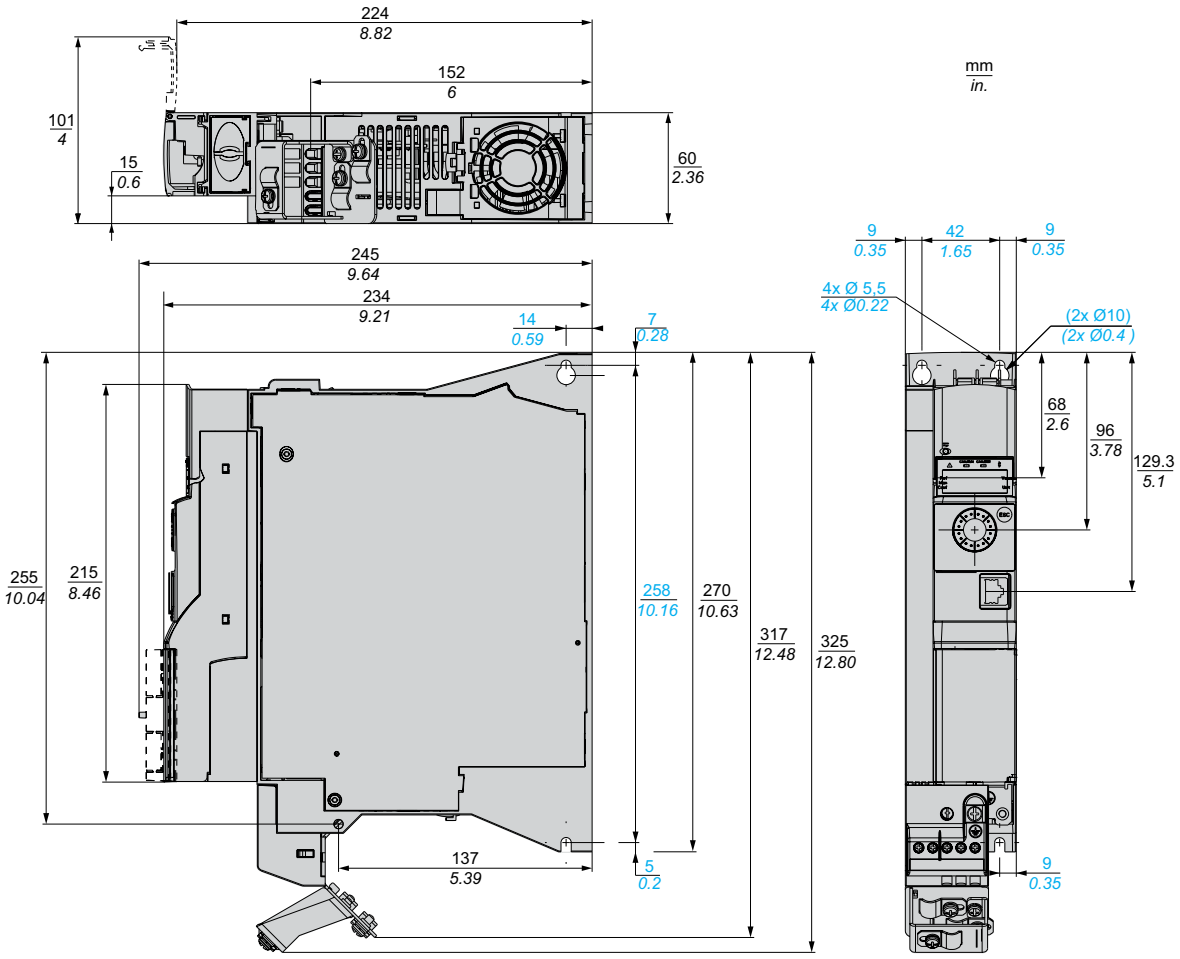


Weights

Reference	Weight (kg) *(lb)*
ATV32H018M2	1.590 *(3.50)*
ATV32H037M2, 055M2, 075M2	1.646 *(3.63)*
ATV32H037N4	1.618 *(3.57)*
ATV32H055N4, 075N4	1.715 *(3.78)*
ATV32HU11N4, U15N4	1.705 *(3.76)*

Dimensions and weights *(continued)*

Size B – ATV32HU11M2, U15M2, U22M2, U22N4, U30N4, U40N4

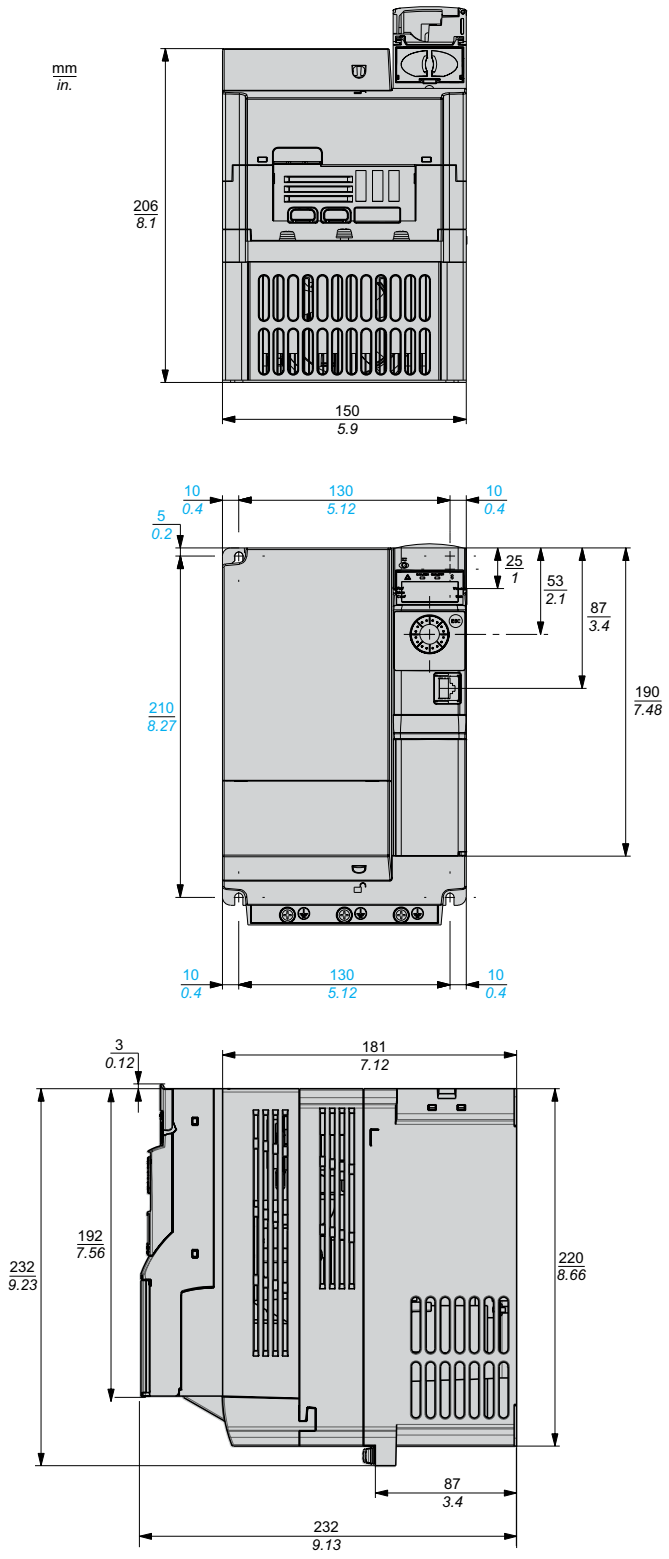


Weights

Reference	Weight (kg) *(lb)*
ATV32HU11M2, U15M2	1.952 *(4.30)*
ATV32HU22M2	2.066 *(4.55)*
ATV32HU22N4	2.320 *(5.11)*
ATV32HU30N4	2.122 *(4.68)*
ATV32HU40N4	2.176 (4.80)

Dimensions and weights *(continued)*

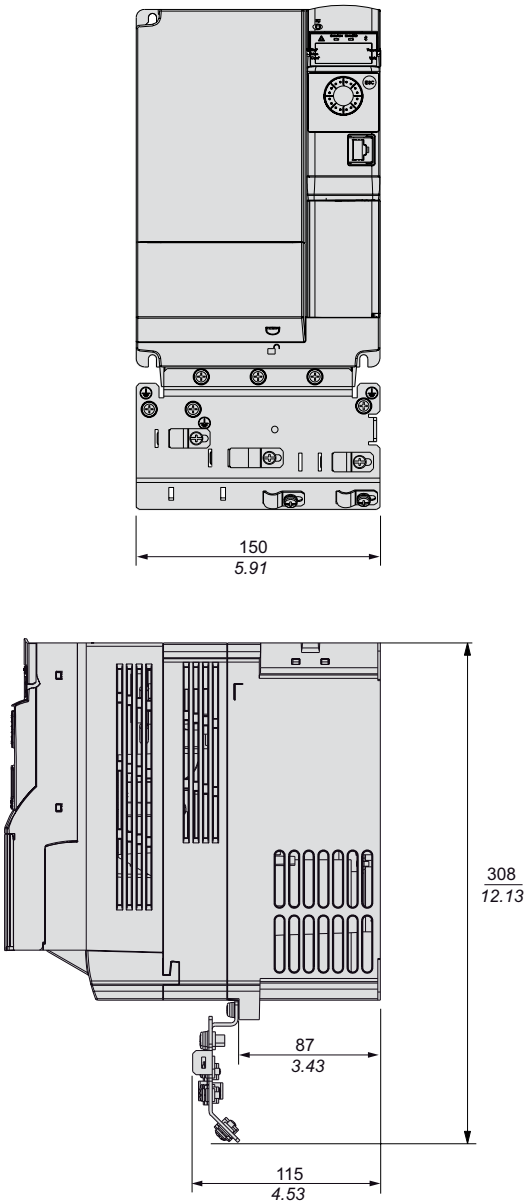
Size C – ATV32HU55N4, U75N4



Weight

4.20 kg (9.26 lb)

Size C with EMC plate – ATV32HU55N4, U75N4

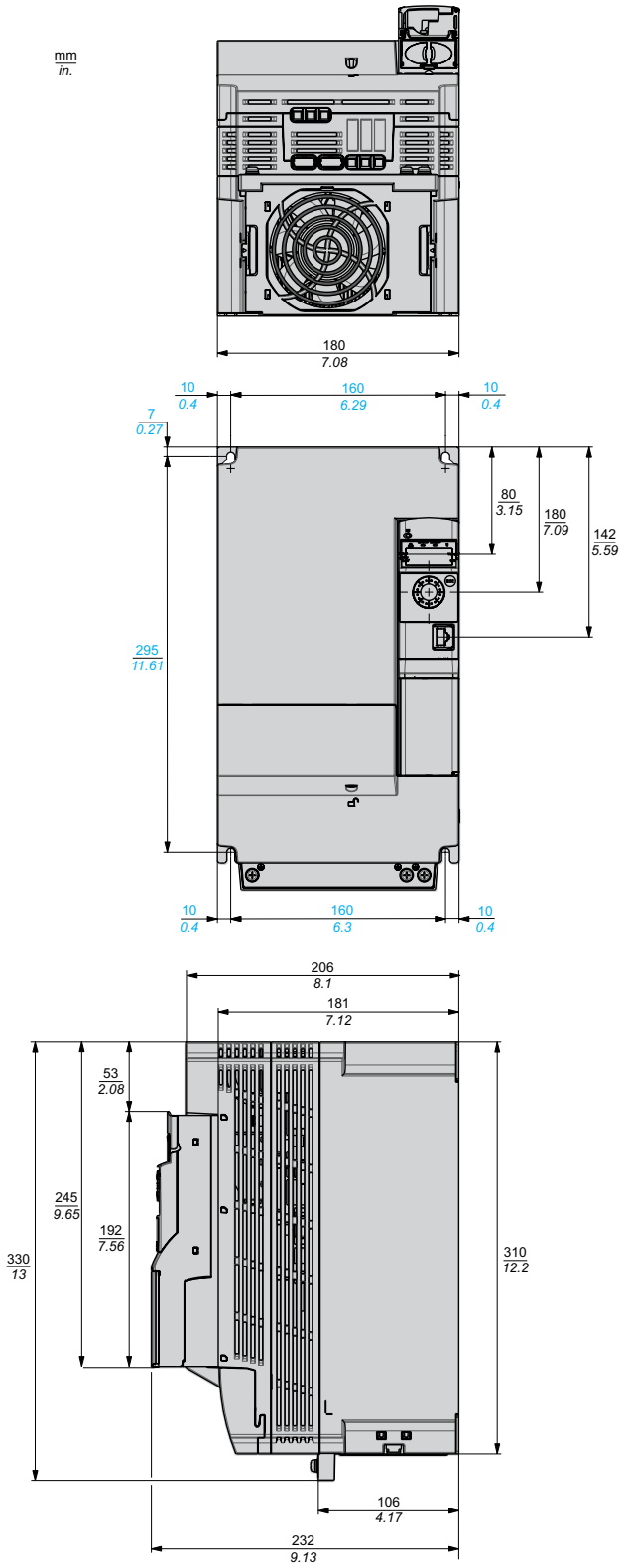


Weight

4.41 kg (9.72 lb)

Dimensions and weights *(continued)*

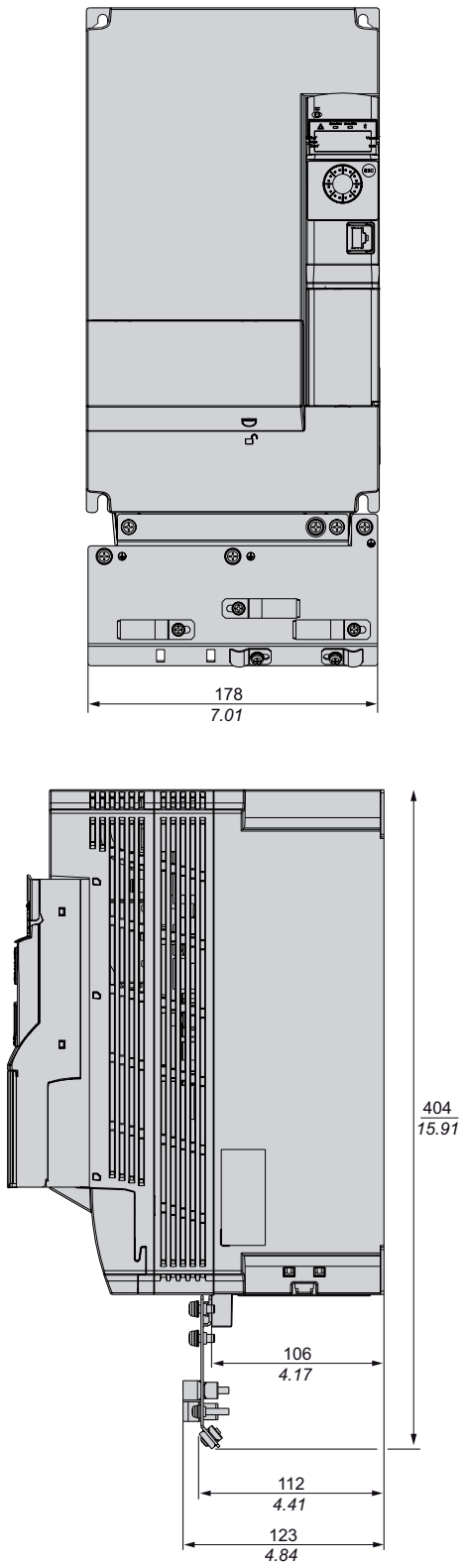
Size D – ATV32HD11N4, D15N4



Weight

6.750 kg (14.88 lb)

Size D with EMC plate – ATV32HD11N4, D15N4



Weight

7.00 kg (15.40 lb)

Altivar™ 32 variable speed drives
Accessories



GV2/ATV 32 direct mounting:
GV2 L08
+
(VW A9 921 + GV2 AF4)
+
ATV 32H075N4



ATV 32HU15N4 with control module mounted at 90°



ATV 32H●●●M2 connected with a Daisy Chain DC bus cordset VW3 M7 101 R01



Example of GV2/Altivar 32 direct mounting in an enclosure:
GV2 P self-protected disconnect + GV2GH7 line spacer
+
ATV 32HU15N4 drives

Accessories

Components for mounting GV2 circuit-breaker directly on Altivar 32 drive

Description	For drives	Sold in lots of	Unit reference	Weight kg (lbs)
Bracket for GV2/Altivar 32 direct mounting Mechanical bracket for holding the GV2 self-protected disconnect in place when directly mounted on Altivar 32 drive. Requires a GV2 AF4 adaptor plate for electrical connection, to be ordered separately.	ATV 32H●●●M2 ATV 32H037N4 to HU40N4	10	**VW3 A9 921**	0.075 (0.17)
Adaptor plate Provides the electrical link between the GV2 self-protected disconnect and Altivar 32. Requires a VW3 A9 921 bracket for direct mounting, to be ordered separately.	ATV 32H●●●M2 ATV 32H037N4 to HU40N4	10	**GV2 AF4**	0.016 (0.04)
Incoming line insulator This insulator mounts on the line side of the GV2P for UL508 Type E applications.	for use on GV2P	10	**GV2 GH7**	0.020 (0.04)

Mounting the control module at 90°

Description	For drives	Reference	Weight kg (lbs)
Adaptor for mounting the control module at 90° This is used to mount the power section on the side, keeping the control module visible and accessible. This allows the drive to be mounted in a shallow enclosure.	ATV 32H●●●M2 ATV 32H037N4 to HU40N4	**VW3 A9 920**	0.125 (0.28)

Daisy Chain connection of the DC bus *(1)*

The DC bus is connected in a Daisy Chain in the following cases:
■ Drives powered by the AC supply with parallel connection of the DC bus in order to balance the loads during braking phases between the drives; used in addition to braking resistors (see page 23)
■ Drives powered by the DC bus only

Requires the cordsets listed below:

Description		Use to connect From:	To:	Length m	Sold in lots of	Reference	Weight kg (lbs)
Daisy chain DC bus cordsets *(1)*	Cable fitted with 2 connectors	LXM/ATV 32H●●●M2 LXM/ATV 32H037N4 to HU40N4	LXM/ATV 32H●●●M2 LXM/ATV 32H037N4 to HU40N4	0.10	5	**VW3 M7 101 R01**	–
DC bus cable		ATV 32H●●●M2 ATV 32H●●●N4	LEX 32●●●●M2 *(2)* LEX 32●●●●N4 *(2)*	15	–	**VW3 M7 102 R150**	–
DC bus connectors *(3)*	Connector housing and contacts	for use with **VW3 M7 102 R150** DC bus cable		–	10	**VW3 M2 207**	–

(1) Setting up several devices on the DC bus requires special precautions, please refer to the installation manual which is available on our website at www.schneider-electric.us.
(2) Lexium™ 32 motion control offer. See page 4 and please refer to our "Lexium 32 motion control" catalog.
(3) Requires crimping tool: Tyco Electronics, part number 18025.

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Altivar™ 32 variable speed drives

Dialog tools, configuration tools



Remote display terminal with cover off



Remote display terminal with cover in place



Remote graphic display terminal

Remote display terminal

This terminal is used to mount a Human/Machine Interface of the Altivar™ 32 drive remotely on the door of an enclosure with IP 54 or IP 65 protection.
It is used to:
- Control, adjust and configure the drive remotely
- Display the drive status and detected faults remotely

Its maximum operating temperature is 50°C.

Description

- 4-digit display
- Navigation ▲, ▼ and selection **ENT**, **ESC** keys
- Motor local control keys:
  - **RUN**: Starts the motor
  - **FWD/REV**: Reverses the direction of rotation of the motor
  - **STOP/RESET** : Stops the motor/resets drive faults
- Operating mode selection key **MODE**
- Snap off cover allowing access to the motor local control keys

References

Designation	Degree of protection	Length	Reference	Weight
		m		kg (lbs)
Remote display terminals A remote-mounting cordset VW3 A1 104 R●● is also required	IP 54	–	**VW3 A1 006**	0.250 (0.55)
	IP 65	–	**VW3 A1 007**	0.275 (0.61)
Remote-mounting cordsets fitted with 2 RJ45 connectors	–	1	**VW3 A1 104 R10**	0.050 (0.11)
		3	**VW3 A1 104 R30**	0.150 (0.33)

Remote graphic display terminal

This graphic display terminal, common to the Altivar 212, 312, 32, 61 and 71 variable speed drive product ranges, provides a user-friendly interface for configuration, debugging and maintenance. This drive can transfer and store up to 4 configurations for Altivar 32s, 61s and 71s. For portable use or mounted on an enclosure door, it can also be used to connect to multiple drives within the same Altivar family of Altivar 32, 61 or 71 drives (see page 21).

Its main functions are as follows:
- Graphic screen displays 8 lines of 24 characters of plain text.
- Navigation button provides quick and easy access to the drop-down menus.
- Supplied with six languages installed (Chinese, English, French, German, Italian and Spanish).

Its maximum operating temperature is 60°C, and it features IP 54 protection; this can be increased to IP 65 when mounted on an enclosure door.

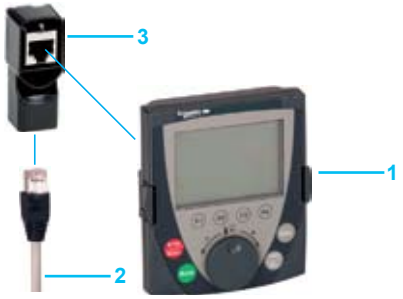
Description

- Graphic display:
  - 8 lines of 24 characters, 240 x 160 pixels, large digit display
- Function keys (for use on the Altivar 61 and Altivar 71)
- Navigation button:
  - Rotate ±: Goes to the next/previous line, increases/decreases the value
  - Press: Saves the current value (**ENT**)
  - **ESC** key: Aborts a value, a parameter or a menu to return to the previous selection
- Motor local control keys:
  - **RUN**: Starts the motor
  - **STOP/RESET** : Stops the motor/resets drive faults
  - **FWD/REV**: Reverses the motor direction of rotation

Specifications:
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Altivar™ 32 variable speed drives

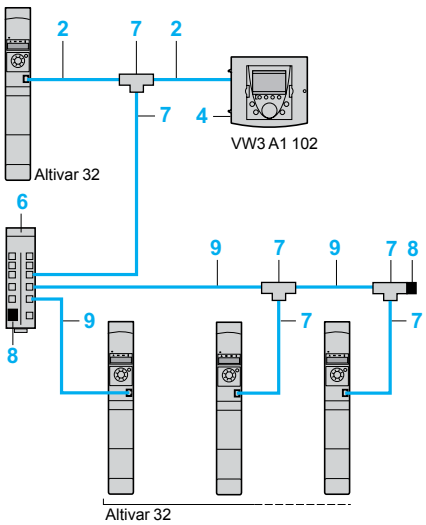
Dialog tools, configuration tools



Portable use of the portable graphic display terminal: 1 + 2 + 3



Using the graphic terminal on enclosure door: 1 + 2 + 4 (+ 5, for IP 65)



Example of connection via multidrop link

Remote graphic display terminal (continued)

Accessories for mounting the graphic display terminal remotely

Description	Item no.	Length m	Reference	Weight kg (lbs)
Remote graphic display terminal A remote-mounting cordset VW3 A1 104 R●●● and an RJ45 adaptor VW3 A1 105 must be provided	1	–	**VW3 A1 101**	0.180 (0.40)
Remote-mounting cordsets fitted with 2 RJ45 connectors For remote mounting of the Altivar™ 71 drive and graphic display terminal VW3 A1 101	2	1	**VW3 A1 104 R10**	0.050 (0.11)
		3	**VW3 A1 104 R30**	0.150 (0.33)
		5	**VW3 A1 104 R50**	0.250 (0.55)
		10	**VW3 A1 104 R100**	0.500 (1.10)
Female/female RJ45 adaptor	3	–	**VW3 A1 105**	0.010 (0.02)
Remote mounting kit For mounting on enclosure door IP 54 degree of protection	4	–	**VW3 A1 102**	0.150 (0.33)
Door Used to increase the degree of protection for remote mounting kit VW3 A1 102 to IP 65 To be mounted on remote mounting kit VW3 A1 102	5	–	**VW3 A1 103**	0.040 (0.09)

Additional accessories for multidrop connection

Description			Item no.	Sold in lots of	Unit reference	Weight kg (lbs)
Modbus™ splitter box 10 RJ45 connectors and 1 screw terminal block			6	–	**LU9 GC3**	0.500 (1.10)
Modbus T-junction boxes	With integrated cable (0.3 m)		7	–	**VW3 A8 306 TF03**	–
	With integrated cable (1 m)		7	–	**VW3 A8 306 TF10**	–
Modbus line terminator	For RJ45 connector	R = 120 Ω, C = 1 nf	8	2	**VW3 A8 306 RC**	0.010 (0.02)

Description	Item no.	Length m	Reference	Weight kg (lbs)
Cordsets for Modbus serial link equipped with 2 RJ45 connectors	9	0.3	**VW3 A8 306 R03**	0.025 (0.06)
		1	**VW3 A8 306 R10**	0.060 (0.13)
		3	**VW3 A8 306 R30**	0.130 (0.29)

Example of connection via multidrop link

All the components described on this page enable a graphic display terminal to be connected to several drives via a multidrop link within the same Altivar family of Altivar 32, Altivar 61 or Altivar 71 drives. This multidrop link is connected to the RJ45 port on the Modbus/CANopen communication port. See the example at the left.

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Altivar™ 32 variable speed drives
Configuration tools



Configuration with SoMove Mobile software for mobile phones via Bluetooth

SoMobile™ software for mobile phones

SoMobile software "transforms" any compatible mobile phone into a remote graphic display terminal that can be used for a Human/Machine Interface.
Particularly suitable for on-site or remote maintenance operations, the SoMobile software can be used to view configurations, send a configuration via MMS, and upload or download to the Altivar 32 via its embedded Bluetooth™ transceiver. This wireless connection allows equipment doors to remain closed while monitoring and performing diagnostics.

The SoMobile software and phone system requirements can be downloaded from our website "www.schneider-electric.us".

References

Description	For drives	Reference	Weight kg (lbs)
SoMobile software for mobile phones Can be downloaded from our website www.schneider-electric.us.	ATV 32H●●●●●	–	–

SoMove™ PC software

SoMove software for PC is used to prepare, upload and download drive configuration files. The software can also be used to monitor and maintain Altivar drives.

For a complete description, see page 34.



VW3 A8 121



VW3 A8 120

Simple Loader and Multi-Loader configuration tools

The Simple Loader tool enables one drive's configuration to be duplicated and transferred to another drive. It is connected through the drive's RJ45 communication port. The drive must be powered up to use the Simple Loader.

The Multi-Loader tool enables a number of configurations from a PC or drive to be copied, stored, and loaded onto other drives. The Altivar 32 does not need to be powered up when using the Multi-Loader tool.

References

Description		Reference	Weight kg (lbs)
Simple Loader configuration tool Supplied with a cordset fitted with 2 RJ45 connectors.	ATV 32H●●●●●	**VW3 A8 120**	–
Multi-Loader configuration tool Supplied with: - 1 cordset fitted with 2 RJ45 connectors - 1 cordset fitted with one type A USB connector and one mini B USB connector - 1 x SD memory card - 1 x female/female RJ 45 adaptor - 4 AA/LR6 1.5 V batteries - 1 anti-shock protection - 1 carrying case	ATV 32H●●●●●	**VW3 A8 121**	–
Cordset for Multi-Loader tool For connecting the Multi-Loader tool to the Altivar 32 drive in its packaging. Fitted with a non-locking RJ45 connector with special mechanical catch on the drive end and an RJ45 connector on the Multi-Loader end.	ATV 32H●●●●● in its packaging	**VW3 A8 126**	–



Configuring an Altivar 32 in its packaging: VW3 A8 121 + VW3 A8 126 cordset

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Altivar™ 32 variable speed drives
Braking resistors

Introduction

The braking resistor enables the Altivar™ 32 drive to manage motor braking to a standstill, and braking during motor deceleration, by dissipating braking energy. Braking resistors enable the Altivar 32 to generate maximum transient braking torque in the motor.

Depending on the environment, two types of resistors are available:
■ Enclosed model (IP 20 casing) designed to comply with the EMC standard and protected by a temperature-controlled switch or thermal overload relay.
■ Enclosed model (IP 65 casing) with an attached cord that can be cut to length and connected to the drive, for ATV 32H●●●M2 and ATV 32H037N4 to HU75N4 drives.

***Note**: To optimize the size of the braking resistor, the DC buses on Altivar 32 drives in the same application can be connected in parallel (see page 19).*

Applications

For use with high intertia motor loads, generating motor loads and machines with fast cycle times.



VW3 A7 608 R●●



VW3 A7 701

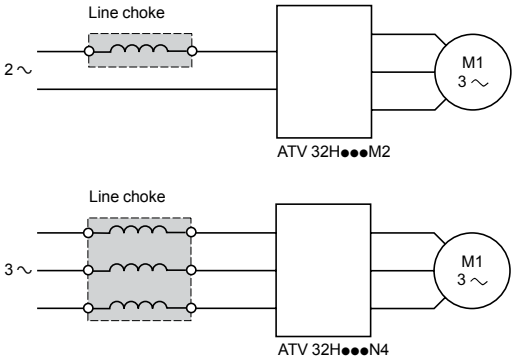
References

For drives	Minimum value of the resistor to be connected	Ohmic value	Average power available at 50°C *(1)*	Length of connection cable	Reference	Weight
	Ω	Ω	W	m		kg (lbs)
IP 65 braking resistors						
ATV 32H018M2 to H075M2	40	100	100	0.75	**VW3 A7 608 R07**	0.410 (0.90)
ATV 32H037 to H075N4	80			3	**VW3 A7 608 R30**	0.760 (1.68)
ATV 32HU11N4 to HU22N4	54					
ATV 32HU11M2, HU15M2	27	72	100	0.75	**VW3 A7 605 R07**	0.620 (1.37)
				3	**VW3 A7 605 R30**	0.850 (1.87)
ATV 32HU22M2	25	27	200	0.75	**VW3 A7 603 R07**	0.930 (2.05)
				3	**VW3 A7 603 R30**	1.200 (2.65)
ATV 32HU30N4	54	72	200	0.75	**VW3 A7 606 R07**	0.930 (2.05)
ATV 32HU40N4	36			3	**VW3 A7 606 R30**	1.200 (2.65)
ATV 32HU55N4, HU75N4	27	27	400	0.75	**VW3 A7 604 R07**	1.420 (3.13)
				3	**VW3 A7 604 R30**	1.620 (3.57)
IP 20 braking resistors						
ATV 32H018M2 to H075M2	40	100	50	–	**VW3 A7 701**	2.000 (4.41)
ATV 32HU11M2, HU15M2	27					
ATV 32H037N4 to H075N4	80					
ATV 32HU11N4 to HU30N4	54					
ATV 32HU40N4	36					
ATV 32HU22M2	25	60	100	–	**VW3 A7 702**	2.400 (5.29)
ATV 32HU55N4, HU75N4	27					
ATV 32HD11N4, HD15N4	8	28	200	–	**VW3 A7 703**	3.500 (7.72)

(1) Load factor for resistors: the value of the average power that can be dissipated at 50°C from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:
- 2 s braking with a 0.6 Tn braking torque for a 40 s cycle
- 0.8 s braking with a 1.5 Tn braking torque for a 40 s cycle

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page 12

Altivar™ 32 variable speed drives
Line chokes



Introduction

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

The VZ1L series and VW3 series of chokes have been developed in accordance with international standard IEC 61800-5-1 (VDE 0160 level 1 high-energy overvoltages on the line supply). The RL series of chokes have been developed in accordance with UL and CSA standards.

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

The use of line chokes is recommended in particular under the following circumstances:
- Line supply with significant disturbance from other equipment (interference, overvoltages)
- Line supply with voltage imbalance between phases > 1.8% of nominal voltage
- Drive supplied by a line 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 line
- If the installation includes a power factor correction unit

If the available short-circuit current at the point of connection to the drive exceeds the maximum value indicated in the reference tables on page 14, use chokes to provide thermal protection to the input of the drive. See page 37 for coordinated short circuit ratings.

References

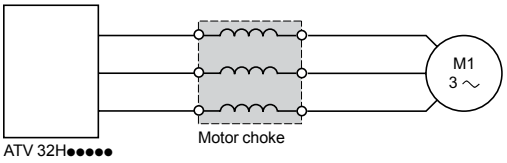
Drive					Choke			
Reference	Line current without choke		Line current with choke		IEC Reference	Weight	UL recognized CSA certified Reference	Weight
	U min. (1)	U max. (1)	U min. (1)	U max. (1)				
	A	A	A	A		kg (lbs)		kg (lbs)
Single-phase supply voltage: 200 to 240 V 50/60 Hz							**Sized for 208 Vac**	
ATV 32H018M2	3.0	2.5	2.1	1.8	**VZ1 L004M010**	0.630 (1.39)	**RL00402**	3.20 (7.05)
ATV 32H037M2	5.3	4.4	3.9	3.3			**RL00802**	3.20 (7.05)
ATV 32H055M2	6.8	5.8	5.2	4.3	**VZ1 L007UM50**	0.880 (1.94)	**RL00802**	3.20 (7.05)
ATV 32H075M2	8.9	7.5	7.0	5.9			**RL01202**	4.10 (9.04)
ATV 32HU11M2	12.1	10.2	10.2	8.6	**VZ1 L018UM20**	1.990 (4.39)	**RL01201**	4.10 (9.04)
ATV 32HU15M2	15.8	13.3	13.4	11.4				
ATV 32HU22M2	21.9	18.4	19.2	16.1			**RL01801**	4.10 (9.04)
Three-phase supply voltage: 380 to 500 V 50/60 Hz							**Sized for 460 Vac**	
ATV 32H037N4	2.2	1.7	1.1	0.9	**VW3 A4 551**	1.500 (3.31)	**RL00201**	1.80 (3.97)
ATV 32H055N4	2.8	2.2	1.4	1.2				
ATV 32H075N4	3.6	2.7	1.8	1.5				
ATV 32HU11N4	4.9	3.7	2.6	2			**RL00402**	2.30 (5.07)
ATV 32HU15N4	6.4	4.8	3.4	2.6				
ATV 32HU22N4	8.9	6.7	5	4.1	**VW3 A4 552**	3.000 (6.61)	**RL00803**	5.00 (11.02)
ATV 32HU30N4	10.9	8.3	6.5	5.2			**RL00802**	5.00 (11.02)
ATV 32HU40N4	13.9	10.6	8.5	6.6				
ATV 32HU55N4	21.9	16.5	11.7	9.3	**VW3 A4 553**	3.500 (7.72)	**RL01202**	8.20 (18.08)
ATV 32HU75N4	27.7	21	15.4	12.1			**RL01802**	7.30 (16.09)
ATV 32HD11N4	37.2	28.4	22.5	18.1	**VW3 A4 554**	6.000 (13.23)	**RL02502**	9.10 (20.06)
ATV 32HD15N4	48.2	36.8	29.6	23.3			**RL03502**	14.00 (30.86)

(1) Nominal supply voltage:

For drives	Nominal voltage	
	U min.	U max.
ATV 32H●●●M2	200	240
ATV 32H●●●N4	380	500

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Altivar™ 32 variable speed drives
Motor chokes



Introduction

Motor chokes, also known as load reactors can be inserted between the Altivar™ 32 drive and the motor to:

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

References

For drives	Losses	For cable length up to *(1)*		Nominal current	IEC Reference	Weight	UL recognized CSA certified Reference	Weight
		Shielded cable	Unshielded cable					
	W	m (ft)	m (ft)	A		kg (lbs)		kg (lbs)
Single-phase supply voltage: 200 to 240 V 50/60 Hz								
ATV 32H018M2	19.5	⩽ 100 (328.08)	⩽ 200 (656.17)	8	–	–	**RL00801**	3.20 (7.05)
ATV 32H037M2	19.5	⩽ 100 (328.08)	⩽ 200 (656.17)	8	–	–		
ATV 32H055M2	26	⩽ 100 (328.08)	⩽ 200 (656.17)	12	–	–	**RL01201**	4.10 (9.04)
ATV 32H075M2	26	⩽ 100 (328.08)	⩽ 200 (656.17)	12	–	–		
ATV 32HU11M2	36	⩽ 100 (328.08)	⩽ 200 (656.17)	18	–	–	**RL01801**	4.10 (9.04)
ATV 32HU15M2	36	⩽ 100 (328.08)	⩽ 200 (656.17)	18	–	–		
ATV 32HU22M2	75	⩽ 100 (328.08)	⩽ 200 (656.17)	16	**VW3 A4 553**	3.500 (7.72)	**RL02501**	5.00 (11.00)
Three-phase supply voltage: 380 to 500 V 50/60 Hz								
ATV 32H037N4	11.3	⩽ 100 (328.08)	⩽ 200 (656.17)	3	–	–	**RL00202**	1.80 (3.97)
ATV 32H055N4	11.3	⩽ 100 (328.08)	⩽ 200 (656.17)	3	–	–		
ATV 32H075N4	11.3	⩽ 100 (328.08)	⩽ 200 (656.17)	3	–	–		
ATV 32HU11N4	20	⩽ 100 (328.08)	⩽ 200 (656.17)	6	–	–	**RL00403**	2.30 (5.07)
ATV 32HU15N4	20	⩽ 100 (328.08)	⩽ 200 (656.17)	6	–	–		
ATV 32HU22N4	65	⩽ 100 (328.08)	⩽ 200 (656.17)	10	**VW3 A4 552**	3.000 (6.61)		
ATV 32HU30N4							**RL00803**	5.00 (11.02)
ATV 32HU40N4								
ATV 32HU55N4	75	⩽ 100 (328.08)	⩽ 200 (656.17)	16	**VW3 A4 553**	3.500 (7.72)	**RL01203**	8.20 (18.08)
ATV 32HU75N4	90	⩽ 100 (328.08)	⩽ 200 (656.17)	30	**VW3 A4 554**	6.000 (13.23)	**RL01803**	7.30 (16.09)
ATV 32HD11N4							**RL02503**	9.10 (20.06)
ATV 32HD15N4	80	⩽ 100 (328.08)	⩽ 200 (656.17)	60	**VW3 A4 555**	11.000 (24.25)	**RL03503**	14.00 (30.86)

(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.

Motor Cable Installation Guidelines in Cable Trays or One Conduit

This information for the 230 Vac / 480 Vac Altivar™ 32 AC drives applies to products rated 5 HP and below operating at 4 kHz switching frequency. These guidelines are for the installation of the output power conductors for AC drive and motor installation where up to three un-shielded motor power cables are in one conduit or cable tray and cable lengths are up to 500 feet in length and inverter duty motors compliant to NEMA MG-1 Part 31 are specified. This type of installation is typical for baggage conveyance applications.

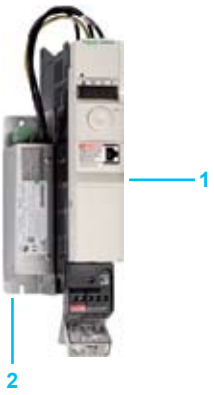
- **Number of conductors:** Use four conductors for each motor, one per phase and one ground wire for each motor.
- **Cable type:** Do not use mineral-impregnated cable as this type of cable increase the likelihood of capacitive coupling between sets of motor cables.
- **Cable installation:** Do not install more than three sets of motor power cables (four wires per set) per conduit or cable tray. Install the cables in a dry location as wet cables increase the likelihood of capacitive coupling between sets of motor cables.
- **Cable length:** The following table shows the recommended cable length with and without filters using un-shielded cable.

Altivar 32: ½ - 5 HP rating, installed with un-shielded cable Maximum of 3 sets of motor power cables per conduit or cable tray	
Cable length: m (ft)	**Filter requirements**
Up to 91 (300)	no filter required
91 (300) to 152 (500)	dv/dt filter recommended

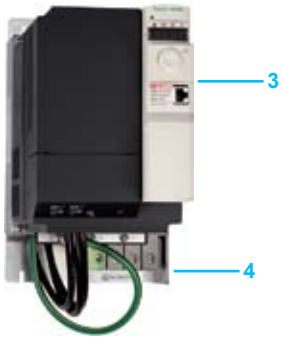
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Altivar™ 32 variable speed drives

Integrated EMC filters and additional EMC input filters



VW3 A4 422 + ATV 32HU11N4



VW3 A4 424 + ATV 32HU55N4

Introduction

Integrated filters

The Altivar™ 32 drive has integrated radio interference input filters to comply with the EMC (Electromagnetic Compatibility) standard for variable speed electrical power drive products, including IEC 61800-3 category C2 and the European EMC Directive.

Additional EMC input filters

Additional EMC input filters enable the drives to meet more stringent requirements. They are designed to reduce conducted emissions on the line supply below the limits of standard IEC 61800-3 category C1 or C2 (see page 27).

Mounting

Depending on the model, the additional EMC filters can be mounted beside or underneath the drive.
They act as a support for the drives and are attached to them via tapped holes.

Mounting the filter on the side of the drive:
ATV 32H●●●M2, ATV 32H037N4 to HU40N4 drives
Additional EMC input filters

Mounting the filter underneath the drive:
ATV 32HU55N4 to HD15N4 drives
Additional EMC input filters

Use according to the type of line supply

Additional EMC filters can only be used on TN (neutral connection) and TT (neutral to ground) 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.
In the case of a machine which needs to be installed on an IT network, the solution would be to insert an isolation transformer and place the machine locally on a TN or TT network.
The radio interference input filters integrated in Altivar 32 drives can easily be disconnected by means of a selector switch – without removing the drive.

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Altivar™ 32 variable speed drives

Integrated EMC filters and additional EMC input filters



VW3 A4 422



VW3 A4 424

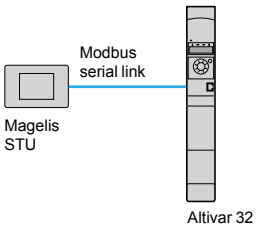
Additional EMC input filters

For drives	Additional EMC input filter						
Reference	Maximum length of shielded cable *(1)*		In *(2)*	Losses *(3)*	Mounting the filter/ Altivar 32	Reference	Weight
	IEC 61800-3 *(4)*						
	Category C2	Category C1					
	m	m	A	W			kg (lbs)
Single-phase supply voltage: 200 to 240 V 50/60 Hz							
ATV 32H018M2 ATV 32H037M2 ATV 32H055M2 ATV 32H075M2	50	20	10.1	3.7	On the side	**VW3 A4 420**	0.600 (1.32)
ATV 32HU11M2 ATV 32HU15M2	50	20	17.6	6.9	On the side	**VW3 A4 421**	0.775 (1.71)
ATV 32HU22M2	50	20	23.9	7.5	On the side	**VW3 A4 426**	1.130 (2.49)
Three-phase supply voltage: 380 to 500 V 50/60 Hz							
ATV 32H037N4 ATV 32H055N4 ATV 32H075N4 ATV 32HU11N4 ATV 32HU15N4	50	20	15	9.9	On the side	**VW3 A4 422**	0.900 (1.98)
ATV 32HU22N4 ATV 32HU30N4 ATV 32HU40N4	50	20	25	15.8	On the side	**VW3 A4 423**	1.350 (2.98)
ATV 32HU55N4 ATV 32HU75N4	50	20	47	19.3	Underneath	**VW3 A4 424**	3.150 (6.94)
ATV 32HD11N4 ATV 32HD15N4	50	20	49	27.4	Underneath	**VW3 A4 425**	4.750 (10.47)

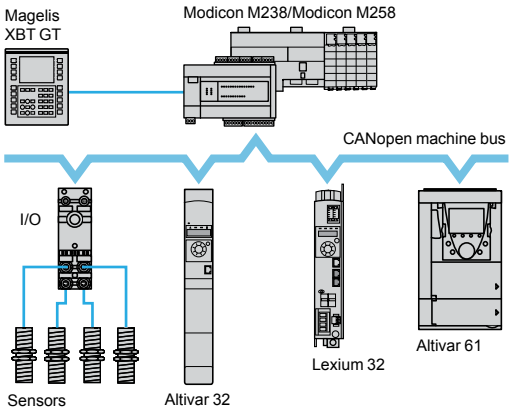
(1) The filter selection tables give the maximum lengths for shielded cables connecting motors to drives. These maximum lengths are given as examples only, as they vary depending on the stray capacitance of the motors and the cables used. If motors are connected in parallel, it is the sum of the cable lengths that should be taken into account.
(2) In: nominal filter current.
(3) Via heat dissipation, at the nominal filter current (In).
(4) Standard IEC 61800-3: EMC immunity and conducted and radiated EMC emissions:
- Category C1: public power supply (residential)
- Category C2: industrial power supply

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Altivar™ 32 variable speed drives
Communication buses and networks



Example of configuration on Modbus serial link



Example of configuration on CANopen machine bus



Example of installing a communication card 3 (view of underside)

Introduction

The Altivar™ 32 drive is designed to meet the network requirements found in industrial communication installations.
The Modbus and CANopen communication protocols integrated into the product can be accessed via the RJ45 communication port located on the front.
The Altivar 32 drive can also be connected to other industrial communication buses and networks by using one of the optional communication cards. Communication cards are supplied in “cassette” format for ease of mounting/removal, and do not require any additional panel space or power supply.

Modbus™ serial link *(1)*

The Modbus serial link is used for connecting the following HMI and configuration tools:
- Magelis™ HMI terminal
- Remote display terminal or remote graphic display terminal
- SoMove™ setup software, Simple Loader or the Multi-Loader configuration tool

CANopen machine bus *(1) (2) (3)*

The CANopen machine bus is used for integration into control system architectures, especially when combined with Modicon™ M238™ and M258™ logic controllers or Lexium™ 32 motion controllers.

Optimized solutions for connection to the CANopen machine bus

To simplify setting up the Altivar 32 drive, three CANopen *(2)* communication cards are available depending on the connector type desired:
- CANopen Daisy chain card with 2 RJ45 connectors offering an optimized solution for daisy chain connection to the CANopen machine bus (see page 30)
- CANopen card for connection to the bus via 9-way SUB-D connector (see page 30)
- CANopen card for connection to the bus via screw terminals (see page 31)

Using one of the CANopen communication cards also reduces the installation dimensions compared to using VW3 CAN TAP 2 and VW3 CAN TDM4 junction boxes.

Optional communication cards for industrial applications *(3)*

The following communication cards are available:
- Modbus TCP or EtherNet/IP network card (software selectable)
- PROFIBUS DP V1 card
- DeviceNet card
- EtherCAT card

Description

The Altivar 32 drive has been designed to simplify connections to communication buses and networks, using:
1. Integrated RJ45 communication port for Modbus/CANopen on the front
2. Slot for the optional communication card
3. Optional communication card

(1) The Modbus serial link always uses the RJ45 communication port located on the front. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication card is needed.
(2) When one of the CANopen communication cards is inserted in the Altivar 32 drive, CANopen communication via the RJ45 communication port on the front is disabled.
(3) The Altivar 32 drive can only accept one communication card.

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Altivar™ 32 variable speed drives

Communication buses and networks

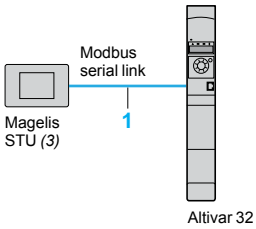
Functions

All Altivar™ 32 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:
- Logic input or analog I/O terminals
- Communication bus or network
- Remote display terminals

The Altivar 32 drive 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 Altivar 32 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 communication fault 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 fault



Example connection of an Altivar 32 drive and a Magelis STU HMI terminal via the Modbus serial link

Modbus™ serial link *(1)*

Connection accessories for remote Human/Machine Interface *(2)*

Description	No.	Length m	Reference	Weight kg (lbs)
Cordsets for Modbus serial link equipped with 2 RJ45 connectors	1	0.3	**VW3 A8 306 R03**	0.025 (0.06)
		1	**VW3 A8 306 R10**	0.060 (0.13)
		3	**VW3 A8 306 R30**	0.130 (0.29)

(1) The Modbus serial link always uses the RJ45 communication port located on the front. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication card is needed.
(2) See page 20 for connection of a remote display terminal or remote graphic display terminal.
(3) Requires a 24 V ⎓ power supply. Please refer to the "Human/Machine Interfaces" catalog.

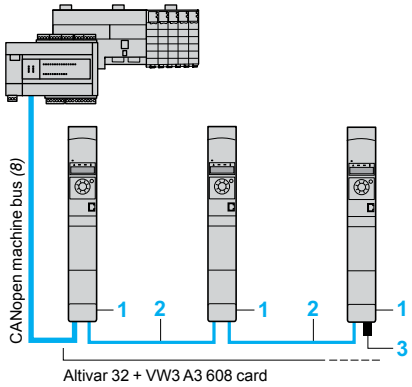
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Altivar™ 32 variable speed drives
Communication buses and networks



VW3 A3 608

Modicon™ M238™ PLC/Modicon™ M258™ PLC *(7)*

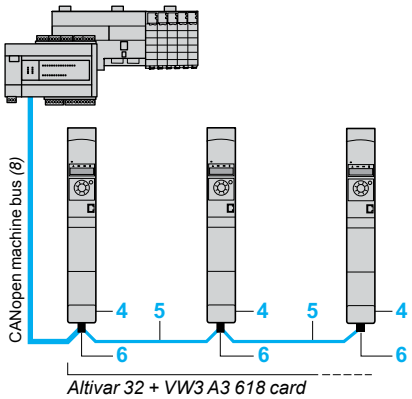


Optimized solution for daisy chain connection to the CANopen machine bus



VW3 A3 618

Modicon M238/Modicon M258 *(7)*



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

CANopen machine bus *(1)*

Description	No.	Length m	Unit reference	Weight kg (lbs)
Connection with VW3 A3 608 CANopen Daisy chain card (optimized solution for daisy chain connection to the CANopen machine bus)				
CANopen Daisy chain communication card *(2) (3)* Ports: 2 RJ45 connectors	1	–	**VW3 A3 608**	–
CANopen cordsets equipped with 2 RJ45 connectors	2	0.3	**VW3 CAN CARR03**	0.050 (0.11)
		1	**VW3 CAN CARR1**	0.050 (0.11)
CANopen line terminator for RJ45 connector *(4)*	3	–	**TCS CAR013M120**	–
Connection via SUB-D connector with VW A3 618 CANopen card				
CANopen communication card *(2) (3)* Port: 1 x 9-way male SUB-D connector	4	–	**VW3 A3 618**	–
CANopen cable Standard cable, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1)	5	50	**TSX CAN CA 50**	4.930 (10.87)
		100	**TSX CAN CA 100**	8.800 (19.40)
		300	**TSX CAN CA 300**	24.560 (54.15)
CANopen cable Standard cable, UL certification, CE marking Flame retardant (IEC 60332-2)	5	50	**TSX CAN CB 50**	3.580 (7.89)
		100	**TSX CAN CB 100**	7.840 (17.28)
		300	**TSX CAN CB 300**	21.870 (48.22)
CANopen cable Cable for harsh environments *(5)* or mobile installations, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1)	5	50	**TSX CAN CD 50**	3.510 (7.74)
		100	**TSX CAN CD 100**	7.770 (17.13)
		300	**TSX CAN CD 300**	21.700 (47.84)
CANopen IP 20 straight connector 9-way female SUB-D with line terminator which can be deactivated	6	–	**TSX CAN KCDF 180T**	0.049 (0.11)
IP 20 CANopen right angle connector *(6)* 9-way female SUB-D with line terminator which can be deactivated	6	–	**TSX CAN KCDF 90T**	0.046 (0.11)

(1) The Modbus™ serial link always uses the RJ45 communication port located on the front. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication card is needed.
(2) The Altivar™ 32 drive can only accept one communication card.
(3) When one of the CANopen communication cards is inserted in the Altivar 32 drive, CANopen communication via the RJ45 communication port on the front is disabled.
(4) Order in multiples of 2.
(5) Standard environment:
- No particular environmental constraints
- Operating temperature between + 5°C and + 60°C
- Fixed installation
Harsh environment:
- Resistance to hydrocarbons, industrial oils, detergents, solder splashes
- Relative humidity up to 100%
- Saline atmosphere
- Operating temperature between - 10°C and + 70°C
- Significant temperature variations
(6) Incompatible with side-by-side mounting.
(7) Please refer to the "M238 logic controller" and "M258 logic controller" catalogs.
(8) Cable dependent on the type of controller or PLC; please refer to the corresponding catalog..

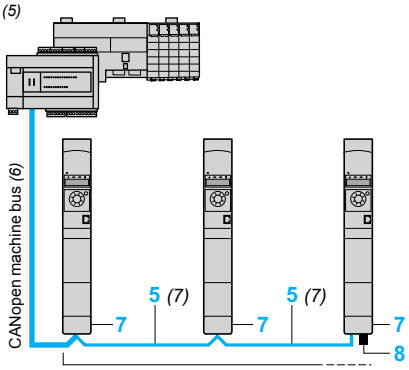
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Altivar™ 32 variable speed drives
Communication buses and networks



VW3 A3 628

Modicon™ M238™/Modicon™ M258™ *(5)*



Example of connection to the CANopen machine bus via screw terminals

CANopen machine bus (continued) *(1)*

Description	No.	Length m	Unit reference	Weight kg (lbs)
Connection via terminals with VW3 A3 628 CANopen card				
CANopen communication card *(2) (3)* Port: 1 5-way screw terminal block	7	–	**VW3 A3 628**	–
CANopen line terminator for screw terminal connector *(4)*	8	–	**TCS CAR01NM120**	–
Other connection accessories and cordsets				
IP 20 CANopen cordsets equipped with two 9-way female SUB-D connectors. Standard cable, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1)	–	0.3	**TSX CAN CADD 03**	0.091 (0.20)
		1	**TSX CAN CADD 1**	0.143 (0.32)
		3	**TSX CAN CADD 3**	0.295 (0.65)
		5	**TSX CAN CADD 5**	0.440 (0.97)
IP 20 CANopen cordsets equipped with two 9-way female SUB-D connectors. Standard cable, UL certification, CE marking Flame retardant (IEC 60332-2)	–	0.3	**TSX CAN CBDD 03**	0.086 (0.19)
		1	**TSX CAN CBDD 1**	0.131 (0.29)
		3	**TSX CAN CBDD 3**	0.268 (0.59)
		5	**TSX CAN CBDD 5**	0.400 (0.88)
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	–	–	**TSX CAN TDM4**	0.196 (0.43)
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	–	–	**VW3 CAN TAP2**	0.480 (1.06)

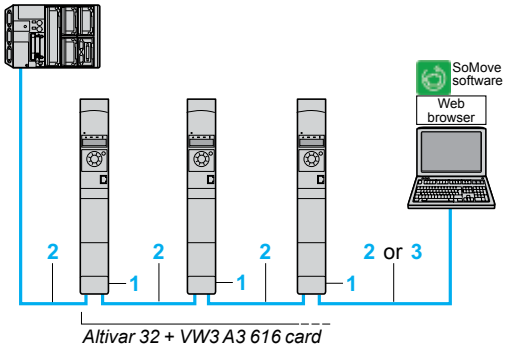
(1) The Modbus™ serial link always uses the RJ45 communication port located on the front. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication card is needed.
(2) The Altivar™ 32 drive can only accept one communication card.
(3) When one of the CANopen communication cards is inserted in the Altivar 32 drive, CANopen communication via the RJ45 communication port on the front is disabled.
(4) Order in multiples of 2.
(5) Please refer to the "M238 logic controller" and "M258 logic controller" catalogs.
(6) Cable dependent on the type of controller or PLC; please refer to the corresponding catalog.
(7) See page 30 for item "5".

Altivar™ 32 variable speed drives
Communication buses and networks



VW3 A3 616

Modicon™ M340™ *(4)*



Example of connection on an EtherNet/IP network

Modbus™ TCP network and EtherNet/IP network *(1)*

Description	No.	Length m *(3)*	Reference	Weight kg (lbs)
Communication card				
Modbus TCP and EtherNet/IP network card For connection to the Modbus TCP network or EtherNet/IP network (software selectable) Ports: 2 RJ45 connectors ■ 10/100 Mbps, half duplex and full duplex ■ Embedded Web server Requires cordsets 490 NTW 000 ●●/●●U or 490 NTC 000 ●●/●●U	1	–	**VW3 A3 616**	0.300 (0.66)
ConneXium™ cordsets *(2) (3)*				
Straight shielded twisted pair cordsets equipped with 2 RJ45 connectors Conforming to EIA/TIA-568 category 5 and IEC 11801/EN 50173-1, class D standards	2	2	**490 NTW 000 02**	–
		5	**490 NTW 000 05**	–
		12	**490 NTW 000 12**	–
Crossed shielded twisted pair cordsets equipped with 2 RJ45 connectors Conforming to EIA/TIA-568 category 5 and IEC 11801/EN 50173-1, class D standards	3	5	**490 NTW 000 05**	–
		15	**490 NTC 000 15**	–
Straight shielded twisted pair cordsets equipped with 2 RJ45 connectors Conforming to UL and CSA 22.1 standards	2	2	**490 NTW 000 02U**	–
		5	**490 NTW 000 05U**	–
		12	**490 NTW 000 12U**	–
Crossed shielded twisted pair cordsets equipped with 2 RJ45 connectors Conforming to UL and CSA 22.1 standards	3	5	**490 NTC 000 05U**	–
		15	**490 NTC 000 15U**	–

(1) The Altivar™ 32 drive can only accept one communication card.
(2) For other ConneXium connection accessories, please refer to our website at "www.schneider-electric.us".
(3) Also available in 40 and 80 meter lengths (2).
(4) Please refer to the "M340 Automation platform" catalog.

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Altivar™ 32 variable speed drives

Communication buses and networks



VW3 A3 607



VW3 A3 609

PROFIBUS DP V1 bus *(1)*

Description	References	Weight kg (lbs)
PROFIBUS DP V1 communication card Port: One 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	**VW3 A3 607**	0.140 (0.31)

DeviceNet bus *(1)*

Description	References	Weight kg (lbs)
DeviceNet communication card Port: 1 removable 5-way screw connector Profiles supported: ■ CIP AC DRIVE ■ CiA 402 drive	**VW3 A3 609**	0.140 (0.31)

EtherCAT bus *(1)*

Description	References	Weight kg (lbs)
EtherCAT communication card Port: 2 RJ45 connectors	**VW3 A3 601**	0.140 (0.31)

(1) The Altivar™ 32 drive can only accept one communication card.

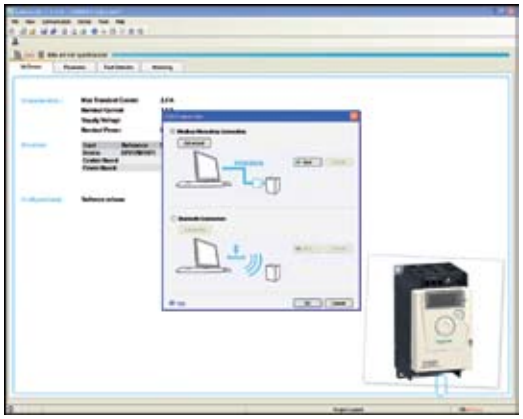
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Altivar™ 32 variable speed drives

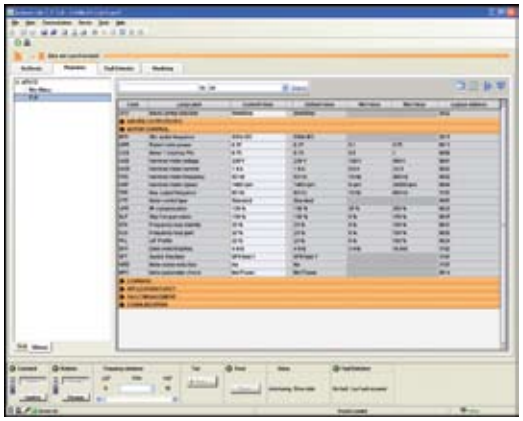
SoMove™ setup software



SoMove start page



Example of connecting SoMove software to an Altivar 12 drive



SoMove control panel

Introduction

SoMove™ software for PCs is user-friendly and is used for setting up the following Schneider Electric motor control devices:
- Altivar™ 12, 312, 31 and 32 variable speed drives. The Altivar 61 and 71 are being added in a later version.
- Altistart™ 22 starters
- Lexium™ 32 servo drives

SoMove software provides various functions for the device setup phases, such as:
- Configuration preparation
- Start-up
- Maintenance

To facilitate setup and maintenance, SoMove software can use a direct USB/RJ45 cable link or a Bluetooth™ wireless link.
SoMove software is also compatible with the Multi-Loader configuration tool and SoMove Mobile software for mobile phones.
These tools can save a significant amount of time when loading, duplicating or editing configurations on a device.

SoMove software and all the DTMs (Device Type Managers) associated with the devices can be downloaded from our website www.schneider-electric.us".

Functions

Configuration preparation in disconnected mode

SoMove software has a disconnected mode which provides access to all the device parameters. This mode can be used to generate the device configuration. The configuration can be saved, printed and exported to office automation software.

SoMove software also checks the consistency of the parameters, validating the configurations created in disconnected mode.

A large number of functions are available in disconnected mode, in particular:
- The configuration comparison function
- Saving, copying, printing and creating configuration files for export to Multi-Loader, SoMove Mobile or Microsoft Excel™ and sending configurations by e-mail.

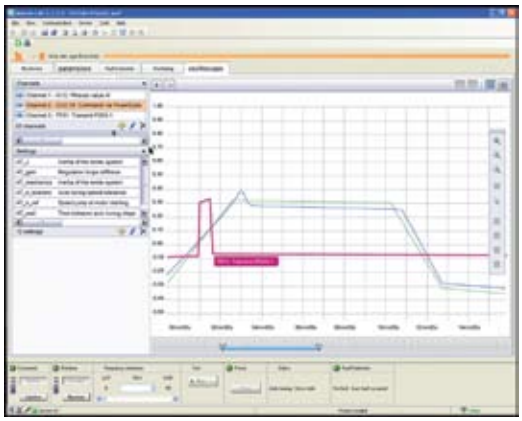
Setup

When the PC is connected to the device, SoMove software can be used for:
- Transferring the configuration that has been generated onto the device
- Adjustment and monitoring. This includes such functions as:
  - The oscilloscope
  - Displaying communication parameters
- Easy control via the control panel user interface
- Saving the final configuration

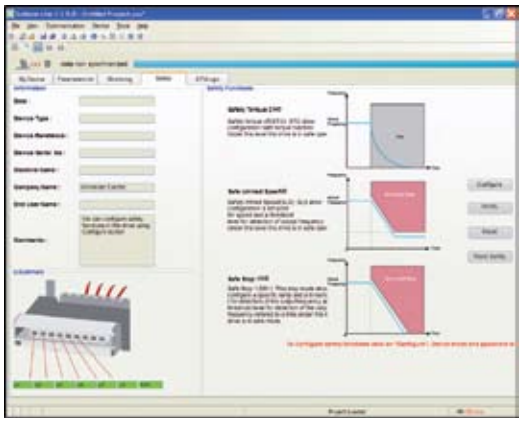
Maintenance

In order to simplify maintenance operations, SoMove software can be used to:
- Compare the configuration of a device currently being used with a configuration saved on the PC
- Transfer a configuration to a device
- Compare oscilloscope curves
- Save oscilloscope curves and detected faults

References:
page 36



SoMove oscilloscope function



SoMove Safety function

Functions (continued)

User interface

SoMove™ software provides fast, direct access to all information on the device via five tabs:
■ My Device: Displays all the information on the device (type, reference, software versions, option cards, etc.)
■ Parameters: Displays all the device adjustment parameters, shown in a table or as diagrams
■ Detected Faults: Displays a list of the detected faults that may be encountered with the device, the detected fault log and any current detected faults or alarms
■ Monitoring: Provides a realtime display of the device status, its I/O and all the monitoring parameters. It is possible to create your own control panel by selecting your parameters and how they are to be represented.
■ Oscilloscope: Provides a high-speed oscilloscope (recording traces in the device) or low-speed oscilloscope (recording traces in the software for devices that do not have an integrated oscilloscope)

SoMove's user interface automatically adapts to the specific configured device by offering additional tabs:
■ Safety: For configuring the Safety functions on Altivar 32 variable speed drives and Lexium™ 32 servo drives. It can also be used to:
□ Display the I/O
□ Compile and print a report
■ Altivar Logic: For accessing the Altivar 32 drive's programmable function blocks. It can also be used to:
□ Develop a program and transfer it to the drive
□ Display and debug the program already on the drive
■ Auto-tuning: For accessing the servo control settings for the three different operating modes of the Lexium 32 servo drive's auto-tuning function:
□ Automatic mode for quick setup, designed for simple applications
□ Semi-automatic mode for quick setup, with the option of optimizing the servo drive/servo motor combination (access to the mechanical and dynamic behavior parameters)
□ Expert mode for optimizing the adjustment parameters, designed for complex applications

Connections

Modbus serial link

The PC running SoMove software can be connected directly via the RJ45 connector on the device and the USB port on the PC using the USB/RJ45 cable.

See the product references on page 36.

Bluetooth™ wireless link

SoMove software can communicate via Bluetooth™ wireless link with any Bluetooth-enabled Altivar drive. This wireless connection allows equipment doors to remain closed while monitoring and performing diagnostics

If the Altivar 32 has an embedded Bluetooth transceiver working with other Altivar drives, the Modbus-Bluetooth adaptor can be used. This adaptor is connected to the terminal port or the Modbus network port on the device. It has a 10 m range (class 2).

If the PC is not Bluetooth-enabled, use a USB-Bluetooth adaptor.

See the product references on page 36.

Altivar™ 32 variable speed drives
SoMove™ setup software



SoMove setup software



VW3 A8 114:
Bluetooth™ adaptor

References

Description	Reference	Weight kg (lbs)
SoMove™ PC software Comprised of: ■ SoMove setup software for PC in English, French, German, Italian, Spanish and Chinese ■ DTMs (Device Type Managers) and technical documentation for variable speed drives, soft-starters and servo motors	*(1)*	–
USB/RJ45 cable Used to connect a PC to the device. This cable is 2.5 m long, and has a USB connector (PC end) and an RJ45 connector (device end).	**TCSM CNAM 3M002P**	–
Modbus™-protocol-to-Bluetooth™ adaptor Used to enable any non-Bluetooth™ device to communicate via Bluetooth™ wireless link *(2)*. Comprised of: ■ 1 Bluetooth adaptor (range 10 m, class 2) with an RJ45 connector ■ For SoMove: 1 x 0.1 m cable with 2 x RJ45 connectors ■ For TwidoSuite™: 1 x 0.1 m cable with 1 RJ45 connector and 1 mini DIN connector	**VW3 A8 114**	0.155 (0.34)

(1) Available on our website "www.schneider-electric.us"
(2) Required for the following devices:
- Altivar™ 12, 212, 312, 31, 61 and 71 drives
- Altistart™ 22 starters
- Lexium™ 32 servo drives

Compatibility of SoMove™ software with specific devices

Device	Range	Version of software on the device
Variable speed drive	Altivar 12, 312, 32	≥ 1.0
	Altivar 31	≥ 1.1
Starter	Altistart 22	≥ 1.0
Servo drive	Lexium™ 32	≥ 1.0

Environments

SoMove operates in the following PC environments and configurations (1):
■ Microsoft Windows™ XP Professional SP3
■ Microsoft Windows™ Vista Business SP2
■ Pentium IV (or equivalent), 1 GHz, hard disk with 1 GB available space, 1 GB of RAM (minimum configuration)

(1) A SoMove release compatible with Microsoft Windows™ 7 is planned.

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Altivar™ 32 variable speed drives

Short circuit current ratings

UL 508C tested combinations

The combinations in the table below have been tested per UL508C. Reference UL File E116875

Altivar 32 AC Drive Short Circuit Ratings								Containment Short Circuit Current Ratings *(2)*					
								with circuit breaker		with GV●P		with fuses	
Input Voltage 60 Hz	kW	hp	Reference	Input AIC rating: kA *(1)*	Minimum inductance mH	Line Reactor Reference	Output Interrupt rating: kA	PowerPact *(3)*	SCCR (kA)	GV2P/3P Type E *(4)*	SCCR (kA)	Fuse (A) 600 V Class J *(6)*	SCCR (kA)
208/230 1 phase	0.18	1/4	**ATV32H018M2**	1	2.5	**RL00402**	100	H●L36015	65	GV2P08	65	7	100
	0.37	1/2	**ATV32H037M2**	1	2.5	**RL00802**	100	H●L36015	65	GV2P10	65	15	100
	0.55	3/4	**ATV32H055M2**	1	2.5	**RL00802**	100	H●L36015	65	GV2P14	65	25	100
	0.75	1	**ATV32H075M2**	1	2.5	**RL01202**	100	H●L36015	65	GV3P13 *(5)*	65	25	100
	1.10	1-1/2	**ATV32HU11M2**	1	0.8	**RL01201**	100	H●L36020	65	GV3P18 *(5)*	65	25	100
	1.50	2	**ATV32HU15M2**	1	0.8	**RL01201**	100	H●L36030	65	GV3P25 *(5)*	65	40	100
	2.20	3	**ATV32HU22M2**	1	0.8	**RL01801**	100	H●L36035	65	GV3P25 *(5)*	65	45	100
480 3 phase	0.37	1/2	**ATV32H037N4**	5	12	**RL00201**	100	H●L36015	65	GV2P07	65	6	100
	0.55	3/4	**ATV32H055N4**	5	12	**RL00201**	100	H●L36015	65	GV2P07	65	6	100
	0.75	1	**ATV32H075N4**	5	12	**RL00201**	100	H●L36015	65	GV2P08	65	6	100
	1.1	1-1/2	**ATV32HU11N4**	5	6.5	**RL00402**	100	H●L36015	65	GV2P08	65	12	100
	1.5	2	**ATV32HU15N4**	5	6.5	**RL00402**	100	H●L36015	65	GV2P10	65	12	100
	2.2	3	**ATV32HU22N4**	5	5	**RL00803**	100	H●L36015	65	GV2P14	65	15	100
	3	4	**ATV32HU30N4**	5	3	**RL00802**	100	H●L36015	65	GV2P14	65	17.5	100
	4	5	**ATV32HU40N4**	5	3	**RL00802**	100	H●L36015	65	GV3P13 *(5)*	65	25	100
	5.5	7-1/2	**ATV32HU55N4**	22	2.5	**RL01202**	100	H●L36020	65	GV3P18	65	40	100
	7.5	10	**ATV32HU75N4**	22	1.5	**RL01802**	100	H●L36030	65	GV3P25	65	40	100
	11	15	**ATV32HD11N4**	22	1.2	**RL02502**	100	H●L36040	65	GV3P32	65	60	100
	15	20	**ATV32HD15N4**	22	0.8	**RL03502**	100	H●L36050	65	GV3P40	65	70	100

*(1) This column shows the maximum input available interrupt current (AIC) rating the Altivar 32 drive can be installed on without adding impedance to the drive. Electrical distribution systems with a higher AIC capability will cause higher input currents in the front end of the drive. Install at least the minimum inductance shown when using an Altivar 32 drive on a system with a higher AIC value shown in this column. Without any additional impedance the column with the Input AIC ratings are the Short Circuit Current Ratings (SCCR) with the listed circuit breakers, GV*P products, and fuses.*

(2) The Altivar 32 drive has a 100kA interrupt rating on the output of the drive. In addition to providing a rating based on shorting the output of the drive, these short circuit current ratings have been obtained by shorting components internal to the Altivar 32. These ratings allow proper coordination of short circuit protection. The amp rating of the short circuit protection devices in the table are maximum values. Smaller amp sizes may be used.

Integral solid state short circuit protection in the drive does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any local codes. Ratings apply to an Altivar 32 drive mounted in a non-ventilated Type 1, 3R, 4(X) or 12 rated enclosure. Minimum enclosure volume is 3.375 times the drive volume. The listed line reactor minimum inductance is required to get these higher ratings.

(3) Circuit Breaker part number designations: ● = short circuit current rating.
For 208 / 230 V range, use: ● = D for 25kA, G for 65kA, J for 65kA, L for 65kA. For 480 V range, use: ● = D for 18kA, G for 35kA, J for 65kA, L for 65kA.

(4) 480 V ratings are for Wye connected electrical distribution systems. GV2P●● self protected manual combination starter must be used with GV2GH7 insulating barrier to meet UL 508 Type E rating. GV3P●● self protected manual combination starter must be used with GV3G66 + GVAM11 insulating barrier to meet UL 508 Type E rating.

(5) GV2P products detailed below can be used in place of the GV3P products for obtaining the ratings listed in the Input AIC ratings column. GV2P16 for GV3P13, GV2P20 for GV3P18, GV2P22 for GV3P25.

(6) Fuse type can be fast acting or time delay Class J, or Class CC.

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