

# Altivar 32

Variable speed drives  
for synchronous and asynchronous motors

## POWERLINK Communication Manual VW3A3619

01/2013



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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

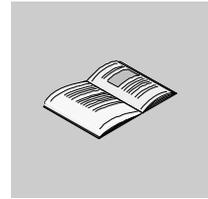
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Failure to observe this information can result in injury or equipment damage.

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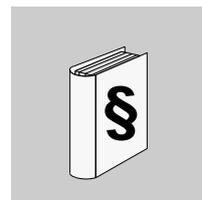
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## Safety Information



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### Important Information

#### NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

#### **DANGER**

**DANGER** indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

#### **WARNING**

**WARNING** indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

#### **CAUTION**

**CAUTION** indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

#### **NOTICE**

**NOTICE** is used to address practices not related to physical injury.

#### PLEASE NOTE

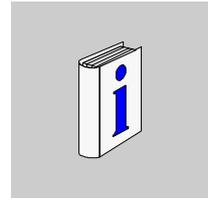
Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.



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# About the Book



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## At a Glance

### Document Scope

The purpose of this document is to:

- show you how to install the POWERLINK module on your Altivar 32
- show you how to configure the Altivar 32 to use POWERLINK fieldbus.

**NOTE:** Read and understand this document and all related documents (see below) before installing, operating, or maintaining your ATV32.

### Validity Note

This documentation is valid for the Altivar 32 POWERLINK fieldbus.

The technical characteristics of the devices described in this manual also appear online. To access this information online:

Step	Action
1	Go to the Schneider Electric home page <a href="http://www.schneider-electric.com">www.schneider-electric.com</a> .
2	In the <b>Search</b> box type the reference of a product or the name of a product range. <ul style="list-style-type: none"><li>• Do not include blank spaces in the model number/product range.</li><li>• To get information on a grouping similar modules, use asterisks (*).</li></ul>
3	If you entered a reference, go to the <b>Product datasheets</b> search results and click on the reference that interests you. If you entered the name of a product range, go to the <b>Product Ranges</b> search results and click on the product range that interests you.
4	If more than one reference appears in the <b>Products</b> search results, click on the reference that interests you.
5	Depending on the size of your screen, you maybe need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click <b>Download XXX product datasheet</b> .

The characteristics that are presented in this manual should be the same as those characteristics that appear online. In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the manual and online information, use the online information as your reference.

### Related Documents

Title of Documentation	Reference Number
ATV32 Quick Start guide	S1A41715
ATV32 Quick Start Annex	S1B39941
ATV32 Installation manual	S1A28686
ATV32 Programming manual	S1A28692
ATV32 Atex manual	S1A45605
ATV32 Safety integrated functions manual	S1A45606
ATV32 Modbus manual	S1A28698
ATV32 CANopen manual	S1A28699
ATV32 PROFIBUS DP manual	S1A28700
ATV32 Modbus TCP - EtherNet/IP manual	S1A28701

ATV32 DeviceNet manual	S1A28702
ATV32 EtherCAT manual	S1A28703
ATV32 communication parameters manual	S1A44568
XDD File	NA
ATV32 certificates, see <a href="http://www.schneider-electric.com">www.schneider-electric.com</a>	NA

You can download these technical publications and other technical information from our website at [www.schneider-electric.com](http://www.schneider-electric.com).

### Product Related Information

**The information provided in this manual supplements the product manuals.**

**Carefully read the product manuals before using the product.**

**Read and understand these instructions before performing any procedure with this drive.**

## DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Only appropriately trained persons who are familiar with and understand the contents of this manual and all other pertinent product documentation and who have received safety training to recognize and avoid hazards involved are authorized to work on and with this product system. Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- The system integrator is responsible for compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment.
- Many components of the product, including the printed circuit boards, operate with mains voltage. Do not touch. Use only electrically insulated tools.
- Do not touch unshielded components or terminals with voltage present.
- Motors can generate voltage when the shaft is rotated. Prior to performing any type of work on the product system, block the motor shaft to prevent rotation.
- AC voltage can couple voltage to unused conductors in the motor cable. Insulate both ends of unused conductors of the motor cable.
- Do not short across the DC bus terminals or the DC bus capacitors or the braking resistor terminals.
- Before performing work on the product system:
  - Disconnect all power, including external control power that may be present.
  - Place a "Do Not Turn On" label on all power switches.
  - Lock all power in the open position.
  - Wait 15 minutes to allow the DC bus capacitors to discharge. The DC bus LED is not an indicator of the absence of DC bus voltage that can exceed 800 Vdc. Measure the voltage on the DC bus between the DC bus terminals using a properly rated voltmeter to verify that the voltage is  $\leq 42$  Vdc
  - If the DC bus capacitors do not discharge properly, contact your local Schneider Electric representative. Do not repair or operate the product.

**Failure to follow these instructions will result in death or serious injury.**

## DANGER

### UNINTENDED EQUIPMENT OPERATION

- Read and understand this manual before installing or operating the drive.
- Any changes made to the parameter settings must be performed by qualified personnel.

**Failure to follow these instructions will result in death or serious injury.**

## WARNING

### DAMAGED DRIVE EQUIPMENT

Do not operate or install any drive or drive accessory that appears damaged.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## **WARNING**

### **LOSS OF CONTROL**

- The designer of any wiring scheme must consider the potential failure modes of control channels and, for certain critical control functions, provide a means to achieve a safe state during and after a channel failure.  
Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control channels must be provided for critical control functions.
- Each implementation of a control system must be individually and thoroughly tested for proper operation before being placed into service.
- System control channels may include links carried out by the communication. Consideration must be given to the implications of unanticipated transmission delays or failures of the link<sup>1</sup>.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

1. For additional information, refer to NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control" and to NEMA ICS 7.1 (latest edition), Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems.

### **Qualification of personnel**

Only appropriately trained persons who are familiar with and understand the contents of this manual and all other pertinent product documentation are authorized to work on and with this product. In addition, these persons must have received safety training to recognize and avoid hazards involved. These persons must have sufficient technical training, knowledge and experience and be able to foresee and detect potential hazards that may be caused by using the product, by changing the settings and by the mechanical, electrical and electronic equipment of the entire system in which the product is used.

All persons working on and with the product must be fully familiar with all applicable standards, directives, and accident prevention regulations when performing such work.

### **Intended use**

The functions described in this manual are only intended for use with the basic product; you must read and understand the appropriate product manual. The product may only be used in compliance with all applicable safety regulations and directives, the specified requirements and the technical data. Prior to using the product, you must perform a risk assessment in view of the planned application. Based on the results, the appropriate safety measures must be implemented. Since the product is used as a component in an entire system, you must ensure the safety of persons by means of the design of this entire system (for example, machine design).

Operate the product only with the specified cables and accessories. Use only genuine accessories and spare parts. Any use other than the use explicitly permitted is prohibited and can result in hazards. Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. The product must NEVER be operated in explosive atmospheres (hazardous locations, Ex areas).

### **User Comments**

We welcome your comments about this document. You can reach us by e-mail at [techpub.drives@schneider-electric.com](mailto:techpub.drives@schneider-electric.com).



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# ATV32 POWERLINK Overview



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## What Is in This Chapter?

This chapter contains the following topics:

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## Overview

### Description

The **VW3A3619** communication card enables the integration of an Altivar 32 variable speed drive into an Ethernet POWERLINK fieldbus system specification V2.



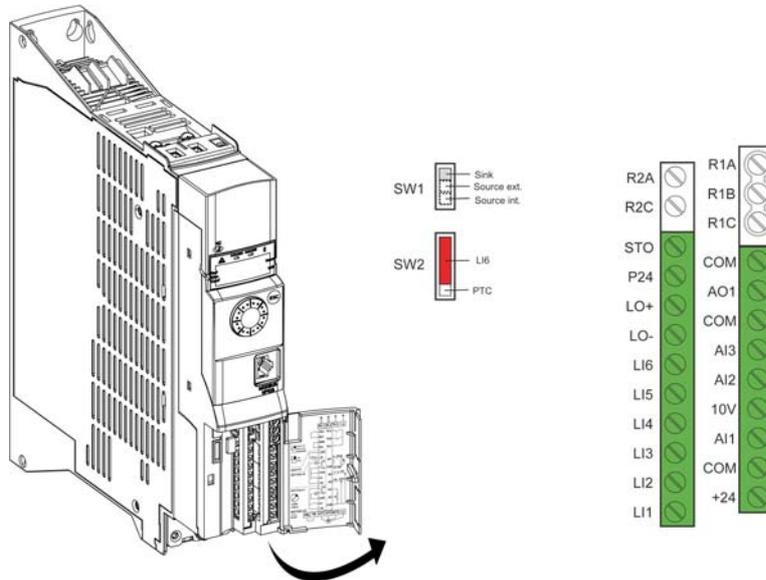
### Software and Protocols Supported

The **VW3A3619** POWERLINK card is compliant with ATV32 minimum version (V1.5)

## Access to the Control Terminals

### Access

Access to the terminals is the same on all products. Open the cover as shown in the example below. All screws are M2 slotted, type, 3.8 mm (0.15 in.) diameter.



## ⚡ ⚠ DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read and understand the precautions in "Product Related Information" chapter before performing the procedure in this section.

**Failure to follow these instructions will result in death or serious injury.**

### Arrangement of the Control Terminals

	Wire Size		Tightening Torque
	Minimum (1) mm <sup>2</sup> (AWG)	Maximum mm <sup>2</sup> (AWG)	N·m (lb.in)
<b>ATV32H Control Terminals</b>			
R1A, R1B, R1C, R2A, R2C	<b>0.75 (18)</b>	1.5 (16)	0.5 (4.4)
All other terminals	<b>0.5 (20)</b>	1.5 (16)	0.5 (4.4)

(1) The value in bold corresponds to the minimum wire gauge to permit secureness.

### Characteristics and Functions of the Control Terminals

Terminal	Function	Type	Electrical Characteristics
R1A	NO contact of the relay	I/O	<ul style="list-style-type: none"> <li>Min. switching capacity: 5 mA for 24 Vdc</li> <li>Max. switching capacity on resistive load: (cos φ = 1) 3 A for 250 Vac and 4 A for 30 Vdc</li> <li>Max. switching capacity on inductive load: (cos φ = 0.4 and L/R = 7 ms): 2 A for 250 Vac and 30 Vdc</li> <li>Refresh time: 2 ms</li> <li>Service life: 100,000 operations at max. switching power</li> </ul>
R1B	NC contact of the relay	I/O	
R1C	Common point contact of programmable relay R1	I/O	
COM	Analog I/O common	I/O	

Terminal	Function	Type	Electrical Characteristics
AO1	Voltage or current analog output (collector)	O	Analog output 0 to 10 V, min. load impedance 470 $\Omega$ Or analog output 0 to 20 mA, max. load impedance 800 $\Omega$ <ul style="list-style-type: none"> <li>Resolution 10 bits</li> <li>Precision <math>\pm 1\%</math> in 50/60Hz for 25 <math>\pm 10</math> <math>^{\circ}\text{C}</math>, <math>\pm 2\%</math> in 50/60Hz for <math>-10</math> <math>^{\circ}\text{C}</math> to <math>+60</math> <math>^{\circ}\text{C}</math></li> <li>Linearity <math>\pm 0.3\%</math></li> <li>Sampling time 2 ms</li> </ul>
COM	Analog I/O common	I/O	0 V
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 0...20 mA <ul style="list-style-type: none"> <li>Impedance 25 <math>\Omega</math></li> <li>Resolution: 10 bits</li> <li>Precision <math>\pm 0.5\%</math> in 50/60 Hz for 25 <math>^{\circ}\text{C}</math>, <math>\pm 0.2\%</math> in 50/60 Hz for <math>-10</math> <math>^{\circ}\text{C}</math> to <math>+60</math> <math>^{\circ}\text{C}</math> at <math>\Delta\theta = 60</math> <math>^{\circ}\text{C}</math></li> <li>Precision <math>\pm 0.5\%</math> in 50/60 Hz for 25 <math>^{\circ}\text{C}</math>, <math>\pm 0.2\%</math> in 50/60 Hz for <math>-10</math> <math>^{\circ}\text{C}</math> to <math>+60</math> <math>^{\circ}\text{C}</math> at <math>\Delta\theta = 60</math> <math>^{\circ}\text{C}</math></li> <li>Sampling time 2 ms</li> </ul>
AI2	Analog input voltage	I	Bipolar analog input 0 $\pm 10$ V (maximum voltage $\pm 30$ V) <b>The + or - polarity voltage on AI2 affects the direction of the setpoint and therefore the direction of operation.</b> <ul style="list-style-type: none"> <li>Impedance 30 k<math>\Omega</math></li> <li>Resolution: 10 bits</li> <li>Precision <math>\pm 0.5\%</math> in 50/60 Hz for 25 <math>^{\circ}\text{C}</math>, <math>\pm 0.2\%</math> in 50/60 Hz for <math>-10</math> <math>^{\circ}\text{C}</math> to <math>+60</math> <math>^{\circ}\text{C}</math> at <math>\Delta\theta = 60</math> <math>^{\circ}\text{C}</math>,</li> <li>Linearity <math>\pm 0.2\%</math> (max. <math>\pm 0.5\%</math>), of max. value</li> <li>Sampling time 2 ms</li> </ul>
10 V	Power supply for reference potentiometer	O	+ 10 Vdc <ul style="list-style-type: none"> <li>Tolerance: 0...+10%</li> <li>Current: 10 mA max</li> </ul>
AI1	Analog input voltage	I	Analog input: 0 + 10 V <ul style="list-style-type: none"> <li>Impedance: 30 k<math>\Omega</math></li> <li>Resolution: 10 bits converter</li> <li>Precision: <math>\pm 0.5\%</math> in 50/60 Hz for 25 <math>^{\circ}\text{C}</math>, <math>\pm 0.2\%</math> in 50/60 Hz for <math>-10</math> <math>^{\circ}\text{C}</math> to <math>+60</math> <math>^{\circ}\text{C}</math> at <math>\Delta\theta = 60</math> <math>^{\circ}\text{C}</math>,</li> <li>Linearity <math>\pm 0.2\%</math> (max. <math>\pm 0.5\%</math>), of max. value</li> <li>Sampling time: 2 ms</li> </ul>
COM	Analog I/O common	I/O	0 V
+24	Logic input power supply	O	+24 V <ul style="list-style-type: none"> <li>Tolerance: <math>-15\%</math>...+20%</li> <li>Current: 100 mA</li> </ul>
R2A R2C	NO contact of programmable relay R2	I/O	<ul style="list-style-type: none"> <li>Min. switching capacity: 5 mA for 24 Vdc</li> <li>Max. switching capacity on resistive load: (cos <math>\varphi = 1</math>) 5 A for 250 Vac and 30 Vdc</li> <li>Max. switching capacity on inductive load: (cos <math>\varphi = 0.4</math> and L/R = 7 ms): 2 A for 250 Vac and 30 Vdc</li> <li>Refresh time: 2 ms</li> <li>Service life: <ul style="list-style-type: none"> <li>– 100,000 operations at max. switching power</li> <li>– 1,000,000 operations with 500 mA current to inductive load 58 Vac or 30 Vdc</li> </ul> </li> </ul>
STO	STO (safe torque off) safety function	I	24 Vdc <ul style="list-style-type: none"> <li>Impedance 1.5 k<math>\Omega</math></li> <li>State 0 if <math>&lt; 2</math> V, state 1 if <math>&gt; 17</math> V (sink mode)</li> <li>Response time 4 ms</li> </ul>
P24	External power supply for control circuit/ internal power supply for STO	I/O	+24 Vdc <ul style="list-style-type: none"> <li>Tolerance: <math>-15\%</math>...+20%</li> <li>Current: 1.1 A max.</li> </ul>
LO+ LO-	Logic output	O	Open collector output configurable as sink or source using SW1 switch <ul style="list-style-type: none"> <li>Refresh time: 2 ms</li> <li>Maximum current: 100 mA</li> <li>Maximum voltage: 30 V</li> </ul>

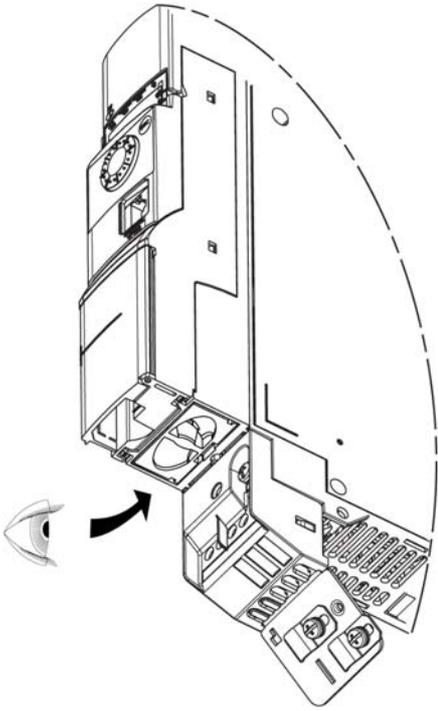
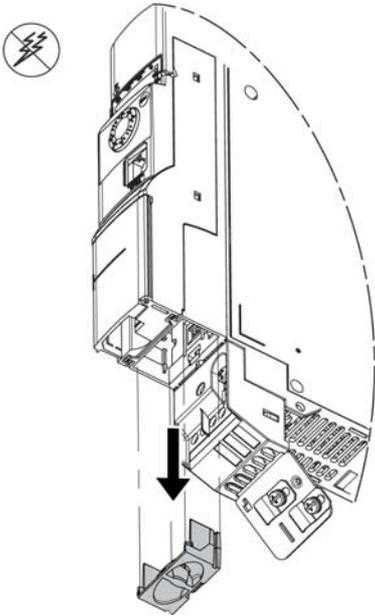
Terminal	Function	Type	Electrical Characteristics
LI6 LI5	Logic inputs	I	If programmed as logic inputs, same characteristics as LI1 to LI4. <ul style="list-style-type: none"> <li>● LI5 can be programmed as pulse input 20 kpps (pulse per second).</li> <li>● LI6 can be used as PTC using SW2 switch.</li> <li>● Trip threshold 3 k<math>\Omega</math>, reset threshold 1.8 k<math>\Omega</math></li> <li>● Short-circuit detection threshold &lt; 50 <math>\Omega</math></li> </ul>
LI4 LI3 LI2 LI1	Logic inputs	I	4 programmable logic inputs configurable as sink or source using SW1 switch <ul style="list-style-type: none"> <li>● + 24 V power supply (max. 30 V)</li> <li>● State 0 if &lt; 5 V, state 1 if &gt; 11 V (in source mode)</li> <li>● State 0 if &gt; 19 V, state 1 if &lt; 13 V (in sink mode)</li> <li>● Response time 8 ms at stop</li> </ul>

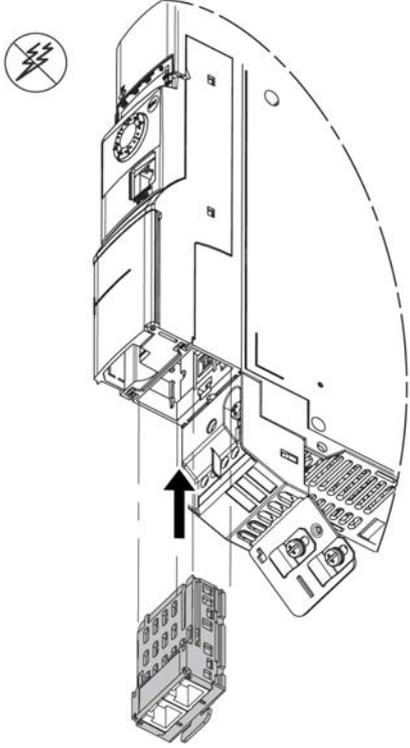
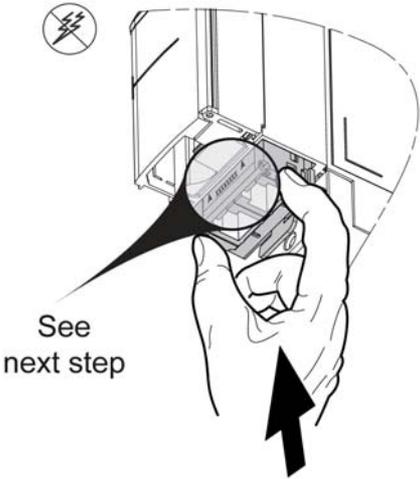
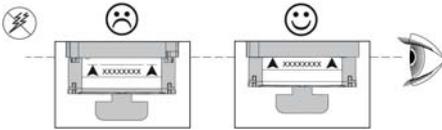
## Communication Module

### Access

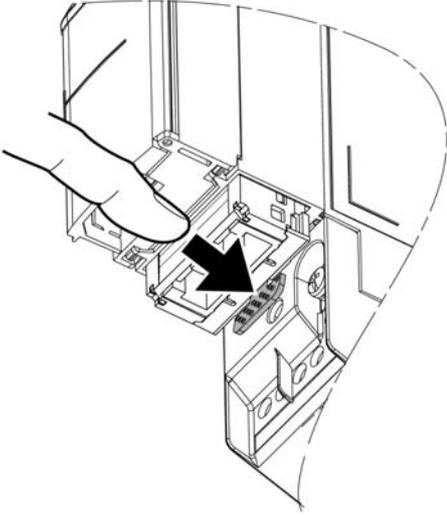
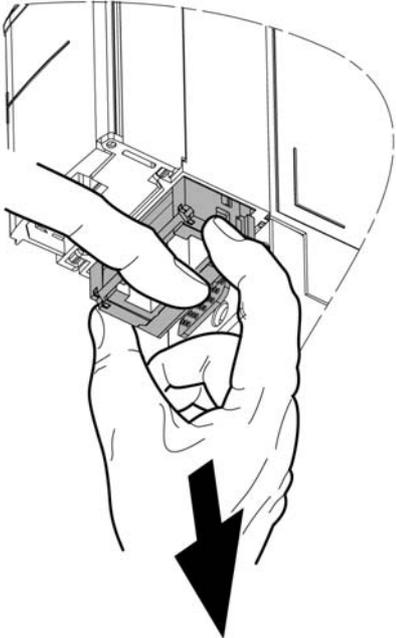
The ATV32 drive is designed to be fitted with optional communication modules. These modules slides directly into the control block as shown below. For further information related to the communication modules, refer to the option module communication guides.

Install the communication module in ATV32 as follows:

Step	Action	Comment
1	Find out the position of the module on the ATV32	
2	Extract the cover	

Step	Action	Comment
3	Insert the VW3A3619 module	
4	Check that the module is inserted and locked mechanically in the drive	
5	Ensure that the markup is in the good position.	

Extract the communication module as follows:

Step	Action	Comments
1	Ensure that the power is off. Press the strip.	 
2	Extract the module while maintaining the strip pressed,	 

## Hardware Setup

### Hardware Presentation

The following figure shows the dual RJ45 connector, POWERLINK module:



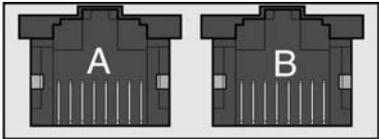
### POWERLINK Module Mounting

- Check that the card catalog number marked on the label is the same as that on the delivery note corresponding to the purchase order.
- Remove the communication module from its packaging and check that it has not been damaged in transit.

### POWERLINK Interface

The VW3A3619 option card is equipped with 2 RJ45 female sockets for the POWERLINK connection.

The following table describes the pin out of the ATV32 RJ45 connector:

Interface		Pin Assignments	
Application interface POWERLINK		<b>PIN</b>	<b>Ethernet</b>
 Port A / Port B		1	RxD Receive Data
		2	RxD\ Receive Data\ -
		3	TxD Transmit Data
		4	Termination -
		5	Termination -
		6	TxD\ Transmit Data\ -
		7	Termination -
		8	Termination -

### Cable Specifications

- Connection accessories may be ordered separately (consult our catalog).
- Use the Schneider Electric cable with 2 pairs of shielded twisted conductors (reference: TSXCSA100, TSXCSA200, TSXCSA500).
- Keep the Modbus cable separated from the power cables (30 cm (11.8 in.) minimum).
- Make any crossovers of fieldbus cable and the power cables at right-angles, if necessary.

For more information, refer to the TSX DG KBL E manual: "Electromagnetic compatibility of industrial networks and fieldbuses".

## LED Indicators

### Description



### Operation

Figure	LED	Color	Status	Description
1	L/A1	Green	On	A link to the remote station has been established
			Blinking	A link to the remote station 1 has been established. The LED blinks when Ethernet activity is present on the bus.
2	S/E (1)	Green / red	-	Status/Error LED. See Status (see page 20) in the next table
3	E (1)	Green / red	On	Used to indicate critical module failure
4	L/A2	Green	On	A link to the remote station has been established
			Blinking	A link to the remote station 2 has been established. The LED blinks when Ethernet activity is present on the bus.

(1). The status/Error LED is green/Red dual LED.

### Status/Error LED Description

The status/error LED is a green/red dual LED. The colors green (status) is superimposed on the color red (error found)

Color	Figure	Description
-	On	<p>The POWERLINK interface has encountered a detected error (failed Ethernet frames, increased number of collisions on the network, etc.). If an error occurs in the following states, then the green LED blinks over the red LED:</p> <ul style="list-style-type: none"> <li>● BASIC_ETHERNET</li> <li>● PRE_OPERATIONAL_1</li> <li>● PRE_OPERATIONAL_2</li> <li>● READY_TO_OPERATE</li> </ul> <p>① Status Green ② Error Red ③ LED S/E</p>

Color	Figure	Description
Green	OFF NOT_ACTIVE	The bus is monitored for POWERLINK frames. If a frame is not received within the configured time window (timeout), the drive goes directly into BASIC_ETHERNET status (flickering). If, however, POWERLINK communication is detected during this time, the CN goes directly into the PRE_OPERATIONAL_1 status (single flash).
	Flickering green (approx. 10 Hz) BASIC_ETHERNET	The drive is in BASIC_ETHERNET status, and is operated purely as an Ethernet TCP/IP device. If POWERLINK communication is detected while in this status, the CN goes into the PRE_OPERATIONAL_1 state (single flash). A lit red LED in this state indicates manager failure.
	Single flash (approx. 1 Hz) PRE_OPERATIONAL_1	The drive status is PRE_OPERATIONAL_1. The CN waits until it receives an SoC frame and then switches to PRE_OPERATIONAL_2 status (double flash). A lit red LED in this state indicates manager failure.
	Double flash (approx. 1 Hz) PRE_OPERATIONAL_2	The drive status is PRE_OPERATIONAL_2. In this status the CN is normally configured by the manager. After this, a command changes the status to READY_TO_OPERATE (triple flash). A lit red LED in this state indicates manager failure found.
	Triple flash (approx. 1 Hz) READY_TO_OPERATE	The drive status is READY_TO_OPERATE. The configuration of the CN is complete. Normal cyclic and asynchronous communication. The PDO data sent corresponds to the PDO mapping used. However, cyclic data is not yet evaluated. A lit red LED in this state indicates manager failure found.
	On - OPERATIONAL	The drive status is OPERATIONAL.
	Blinking (approx. 2.5 Hz) STOPPED	The drive status is STOPPED. No output data is produced and no input data is received. Only the appropriate command from the manager can enter or leave this state.
Red	Red pulses with following on time in ms:600-150-150-150	Bus Error - Internal interface defect
	Red pulses with following on time in ms:150-600-600-600	Invalid node number configured in the POWERLINK Node ID parameter in drive's HMI
	Off	No error detected

### System Interruption Indication

Incorrect configuration or defective hardware can cause a system failure error. The error found is displayed via the red error LED using 4 switch-on phases. The switch-on phases are either 150 ms or 600 ms long. Error code outputs are repeated cyclically after 2 seconds.

Description	Alarm code Display by the Red Status LED									
	X	X	X	-	Brake	X	X	X	-	Brake
RAM error detected	X	X	X	-	Brake	X	X	X	-	Brake
Bus error (internal interface defect)	-	X	X	X	Brake	-	X	X	X	Brake
Wrong POWERLINK station number has been configured	X	-	-	-	Brake	X	-	-	-	Brake

#### Legend:

- X ... 150 ms
- - ... 600 ms
- brake ... 2 s delay



---

# Parameters



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## What Is in This Chapter?

This chapter contains the following topics:

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## Configuration

### Drive Terminal Displays

The **graphic display terminal** (to be ordered separately - reference VW3A1101) menus are shown in square brackets.

Example: **[Communication]**

The **integrated 7-segment display terminal** menus are shown in round brackets.

Example: ( C 0 0 - )

**Parameter names** are displayed on the graphic display terminal in square brackets.

Example: **[Fallback speed]**

**Parameter codes** are displayed on the integrated 7-segment display terminal in round brackets.

Example: ( L F F )

### Formats

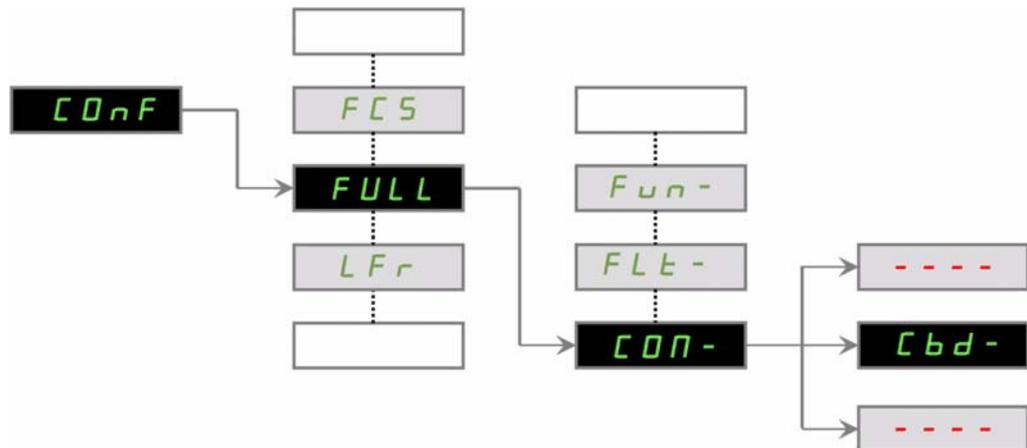
In this manual, hexadecimal values are written as follows: 16#

### Configuring the Communication Parameters

The parameters described are accessible with the ATV32 integrated display terminal, the graphic display terminal option or with SoMove software. The parameters are visible only if a POWERLINK card is plugged in the drive.

The configuration of the POWERLINK communication functions on the Altivar 32 is reachable with the drive menu;

**[1.3 CONFIGURATION] ( C 0 0 F ) → [FULL] ( F U L L ) → [COMMUNICATION] ( C 0 0 - ) → [COMMUNICATION CARD] ( C b d - )**



### The POWERLINK Station Number

Station numbers in the range 0 to 239 are allowed. The POWERLINK station number is set via the integrated display terminal or the scroll wheel. The parameter is called as follows:

Code	Name	Possible Values	Default Value
<i>R d r C</i>	[Address]	0 to 239	0

#### NOTE:

- The configuration can only be modified when the motor is stopped and the drive stopped.
- This menu is only visible if a communication card is plugged in the drive

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## Communication Parameters

The MAC address appears on the label attached on the POWERLINK card

Parameter Description	Range or Listed Values	Default Value	Access	Parameter Address
[MAC @] (MAC) MAC address display	[00-80-F4-XX-XX-XX]	-	R	64267 64268 64269

## Configuration I/O Scanning

The I/O scanning service is used to exchange periodic I/O data between:

- A controller or PLC (I/O scanner)
- Devices (I/O scanning servers).

## I/O Scanner Setting

The communication scanner is accessible via the following menus: **[COMMUNICATION]** ( *C O M M -* ) and **[COMMUNICATION CARD]** ( *C b d -* ) submenus. They are 4 output variables and 4 input variables available.

## Parameters

### Factory Setting

The Altivar 32 is factory-set for common operating conditions:

- Display: drive ready [Ready] (rdY) when motor is ready to run and motor frequency when motor is running.
- The LI3 to LI6 logic inputs, AI2 and AI3 analog inputs, LO1 logic output, AO1 analog output, and R2 relay are unassigned.
- Stop mode when fault detected: freewheel.

Code	Description	Factory Settings Values
<i>b F r</i>	[Standard mot. freq]	[50Hz IEC] (50)
<i>t C C</i>	[2/3 wire control]	[2 wire] (2C): 2-wire control (level commands)
<i>C t t</i>	[Motor control type]	[Standard] (Std): U/F 2 points (Volts/Hz) without internal speed loop
<i>A C C</i>	[Acceleration]	3.0 seconds
<i>d E C</i>	[Deceleration]	3.0 seconds
<i>L S P</i>	[Low speed]	0 Hz
<i>H S P</i>	[High speed]	50 Hz
<i>I t H</i>	[Mot. therm. current]	Nominal motor current (value depending on drive rating)
<i>S d C I</i>	[Auto DC inj. level 1]	0.7 x nominal drive current, for 0.5 seconds
<i>S F r</i>	[Switching freq.]	4 kHz
<i>F r d</i>	[Forward]	[LI1] (LI1): Logic input LI1
<i>r r S</i>	[Reverse assign.]	[LI2] (LI2): Logic input LI2
<i>F r I</i>	[Ref.1 channel]	[AI1] (AI1): Analog input AI1
<i>r I</i>	[R1 Assignment]	[No drive fit] (FLt): The contact opens when a fault is detected or when the drive has been switched off
<i>b r A</i>	[Dec ramp adapt.]	[Yes] (YES): Function active (automatic adaptation of deceleration ramp)
<i>A t r</i>	[Automatic restart]	[No] (nO): Function inactive
<i>S t t</i>	[Type of stop]	[Ramp stop] (rMP): On ramp
<i>C F G</i>	[Macro configuration]	[Start/Stop] (StS)

**Note:** If you want to keep the drive presettings to a minimum, select the macro configuration [Macro configuration] (CFG) = [Start/stop] (StS) followed by [Restore config.] (FCS) = [Config. CFG] (InI). For more information, see ATV32 programming manual (S1A28692)

Check whether the values above are compatible with application.

Code	Description	Settings Values
<i>F r I</i>	[Ref.1 channel]	[Com. card] (nEt): Communication card POWERLINK
<i>C d I</i>	[Cmd channel 1]	[Com. card] (nEt): Communication card POWERLINK
<i>C d 2</i>	[Cmd channel 2]	[Terminals] (tEr): Terminals

### Downloading the XDD File

The XDD file of the VW3A3619 communication card can be downloaded from [www.schneider-electric.com](http://www.schneider-electric.com)

## Diagnostic

Code	Name / Description
<i>d G t -</i>	[DIAGNOSTIC] This menu can only be accessed with the graphic display terminal. It displays detected faults and their cause in plain text and can be used to carry out tests, see the ATV32 programming manual (S1A28692).

## Error Code

Fault detection codes that can be cleared with the automatic restart function after the cause has disappeared

These detected faults can also be cleared by turning on and off or with a logic input or control bit ([Fault reset] (rSF) See in the ATV32 programming manual).

- If the display does not light up, check the power supply to the drive.
- The assignment of the Fast stop or Freewheel functions will help to prevent the drive starting if the corresponding logic inputs are not powered up. The ATV32 then displays [Freewheel] (nSt) in freewheel stop and [Fast stop] (FSt) in fast stop. This is normal since these functions are active at zero so that the drive will be stopped if there is a wire break.
- Check that the run command input is activated in accordance with the selected control mode [2/3 wire control] (tCC) and [2 wire type] (tCt) parameters, See in the ATV32 programming manual).
- If an input is assigned to the limit switch function and this input is at zero, the drive can only be started up by sending a command for the opposite direction. (See in the ATV32 programming manual).
- If the reference channel or command channel is assigned to a communication bus, when the power supply is connected, the drive will display [Freewheel] (nSt) and remain in stop mode until the communication bus sends a command.

Detected Fault	Name	Probable Cause	Remedy
<i>C n F</i>	Com. network]	Communication interruption on communication card.	<ul style="list-style-type: none"> <li>● Check the environment (electromagnetic compatibility).</li> <li>● Check the wiring.</li> <li>● Check the time-out.</li> <li>● Replace the option card.</li> <li>● Contact Schneider Electric Product Support</li> </ul>
<i>I L F</i>	[internal com. link]	Communication interruption between option card and drive.	<ul style="list-style-type: none"> <li>● Check the environment (electromagnetic compatibility).</li> <li>● Check the connections</li> <li>● Replace the option card.</li> <li>● Contact Schneider Electric Product Support</li> </ul>

## Communication Detected Fault: CNF and ILF

After a detected fault occurred, here are the values to read:

Detected Fault	Name	Description	Possible Values
<i>I L F</i>	[int. com.link]	This parameter indicates a detected error and can be cleared: It needs a drive Power Off / Power On.	18: Interface connection timeout 19: EEPROM/NVS detected fault 21: 'No memory' or 'background watchdog' or 'IOC scanner detected fault'

Detected Fault	Name	Description	Possible Values
CnF	[Com. network]	<p>This parameter indicates that a network interruption occurred. A value is recorded depending of the interruption type. When the detected fault has disappeared, the option writes 0.</p> <p>Note: (CnF) is available only in "operational" state and if the motor is running.</p>	<p>0: No network interruption  1: Unspecified interruption  11: lost of link (2ports)  23: invalid Sync Manager configuration  25: No valid outputs  27: Sync Manager watchdog (1port)  29: invalid Sync Manager out configuration  30: invalid Sync Manager in configuration  31: invalid watchdog configuration  36: invalid input mapping  37: invalid output mapping  38: inconsistent settings  43: No valid inputs and outputs  44: Sync error  80: EE no access  81: EE error  96: 0x60</p>

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## Acronyms

<b>Term</b>	<b>Definition</b>
PLK	PowerLink
PLC	Programmable Logic Controller
PDO	Process Data Objects
LED	Light Emitting Diode
CAN	Controller Area Network is an internally standardized serial bus system





