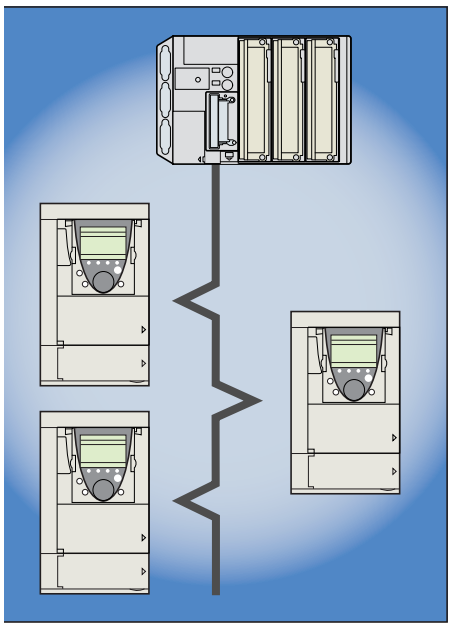
Altivar 61/71
INTERBUS card

User's manual

11/2009



1755871

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NOTE

While every precaution has been taken in the preparation of this document, Schneider Electric SA assumes no liability for any omissions or errors it may contain, nor for any damages resulting from the application or use of the information herein.

The products and options described in this document can be changed or modified at any time, either from a technical point of view or in the way they are operated. Their description can in no way be considered contractual.

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

⚠ DANGER

HAZARDOUS VOLTAGE

- Read and understand this manual before installing or operating the Altivar 61/71 drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical standards in force concerning protective grounding of all equipment.
- Many parts in this variable speed drive, including printed wiring boards, operate at line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals PA and PC or across the DC bus capacitors.
- Install and close all covers before applying power or starting and stopping the drive.
- Before servicing the variable speed drive:
  - Disconnect all power
  - Place a "DO NOT TURN ON" label on the variable speed drive disconnect
  - Lock the disconnect in the open position
- Disconnect all power including external control power that may be present before servicing the drive. WAIT 15 MINUTES for the DC bus capacitors to discharge. Then follow the DC bus voltage measurement procedure given in the Installation Manual to verify that the DC voltage is less than 45 Vdc. The drive LEDs are not accurate indicators of the absence of DC bus voltage.

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

⚠ CAUTION

DAMAGED EQUIPMENT

Do not operate or install any drive that appears damaged.
Failure to follow this instruction can result in equipment damage.

Documentation structure

Installation manual
This manual describes:
- How to assemble the drive
- How to connect the drive

Programming manual
This manual describes:
- The functions
- The parameters
- How to use the drive display terminal (integrated display terminal and graphic display terminal)

Communication parameters manual
This manual describes:
- The drive parameters with specific information (addresses, formats, etc) for use via a bus or communication network
- The operating modes specific to communication (status chart)
- The interaction between communication and local control

Modbus, CANopen, Ethernet, Profibus, INTERBUS, Uni-Telway, FIPIO, Modbus Plus, DeviceNet ... manuals
These manuals describe:
- Connection to the bus or network
- Configuration of the communication-specific parameters via the integrated display terminal or the graphic display terminal
- Diagnostics
- Software setup
- The communication services specific to the protocol

Altivar 58/58F compatibility manual
This manual describes the differences between the Altivar 71 and the Altivar 58/58F.
It explains how to replace an Altivar 58 or 58F, including how to replace drives communicating on a bus or network.

Altivar 38 / Altivar 61 migration manual
This manual describes the differences between the Altivar 61 and the Altivar 38 and explains how to replace an Altivar 38, including how to replace drives communicating on a bus or a network.

Altivar 78 / Altivar 61/71 migration manual
This manual describes the differences between the Altivar 61/71 and Altivar 78 and explains how to replace an Altivar 78.

Software enhancements

Since the INTERBUS communication card (catalog number VW3 A3 304) was first launched, it has benefited from the addition of several new functions. The software version is now V1.3 IE 04. The old versions can be replaced by this new one without any modifications.
Although this documentation relates to version V1.3 IE 04, it can still be used with earlier versions.
The software version is indicated on the nameplate attached to the card.

Evolution :

Regarding old versions, version V1.3 IE 04 offers the possibility to choose 2 input and 2 output periodic words exchanged between INTERBUS communication card and PLC (see “Configuring process words (communication scanner)”, page 13.).

Introduction

Presentation

The INTERBUS communication card (catalog number VW3 A3 304) is used to connect an Altivar 61/71 drive to an INTERBUS bus.

The data exchanges permit full Altivar 61/71 functionality:

- Configuration of the functions
- Downloading of the adjustment parameters
- Control-signaling
- Monitoring
- Diagnostics

The card has two 9-way SUB-D connectors: one male ("IN" connector) and one female ("OUT" connector) for connecting the INTERBUS remote bus.

The accessories for connection to the INTERBUS network must be ordered separately.

The INTERBUS card is powered via the drive. To avoid interruption of the INTERBUS bus when there is a break in the drive power supply, use a separate ⎓ 24 V control power supply.

Notations

Displays on the drive terminal

The graphic display terminal menus are shown in square brackets.
Example: **[1.9 COMMUNICATION]**.

The integrated 7-segment display terminal menus are shown in round brackets.
Example: (COM-).

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: (LFF).

Formats

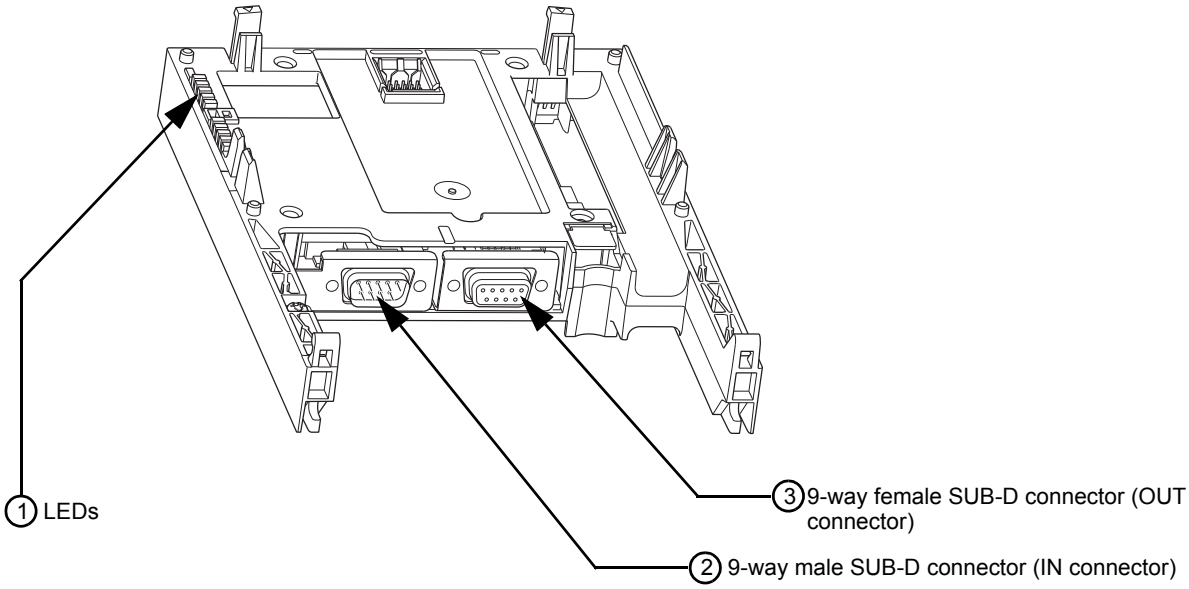
In this manual, hexadecimal values are written as follows: 16#.

Hardware setup

Receipt

- 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 option card from its packaging and check that it has not been damaged in transit.

Hardware description



Installing the card in the drive

See the Installation Manual

Connection to the bus

Description of the connectors

The transmission interface conforms to the RS 485 standard and is electrically isolated from the drive.

Pin	IN connector 9-way male SUB-D	OUT connector 9-way female SUB-D
1	DO1	DO2
2	DI1	DI2
3	GNDI	GNDO
4	not connected	not connected
5	not connected	VCCO
6	DO1/	DO2/
7	DI1/	DI2/
8	not connected	not connected
9	not connected	RBST

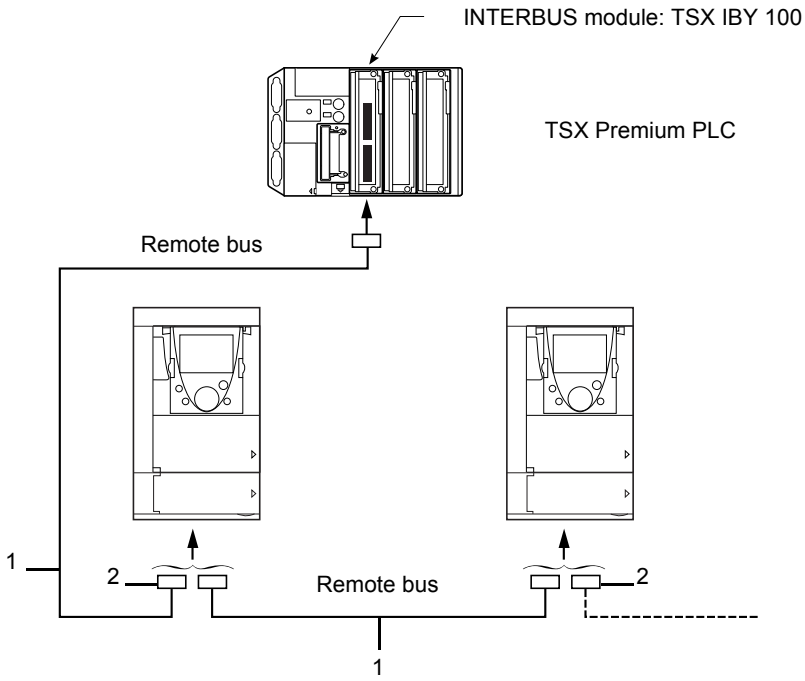
Wiring recommendations

- Use TSX IBS CA•00 cable.
- Maximum length of line: 12,800 m.
- Maximum distance between 2 stations: 400 m.
- Connect a maximum of 256 stations on one bus.
- Keep the bus away from the power cables (at least 30 cm).
- If it is necessary for the bus and power cables to cross each other, be sure they cross at right angles.

INTERBUS bus connection elements

Description	Reference number on the example	Length m	Catalog number
Remote bus cables	1	100	TSX IBS CA 100
		400	TSX IBS CA 400
9-way SUB-D connectors (set of 2)	2		170 XTS 009 00

Example of connection to the remote bus:



Configuring the communication parameters

The drive is configured by default to communicate on the bus with limited services. The data exchanged on the bus is not transmitted to the drive.
On the display terminal, in the **[1.9 COMMUNICATION]** (COM-) menu, **[INTERBUS-S]** (CBO-) submenu, the value of parameter **[Address]** (AdrC) is 0.

To operate in normal mode, in which the data exchanged on the bus is transmitted to the drive by the INTERBUS card, the value of this **[Address]** (AdrC) parameter must be changed to 1.

The drive status can be checked using the Status service, in the Logic status field of the response (see the "Software setup" section).

Control-signal configuration

Numerous control-signal configurations are possible. Please consult the Programming Manual.
The following are examples of some possible configurations.

Control via INTERBUS in Drivecom profile

The command and target come from INTERBUS.
The command is in Drivecom profile.

Configure the following parameters:

Parameter	Value	Comment
Profile	Combined Drivecom profile	The run commands follow the Drivecom profile, and the command and target come from the same channel.
Target 1 configuration	Network card	Command comes from the INTERBUS card.

Configuration via the graphic display terminal or the integrated display terminal:

Menu	Parameter	Value
[1.6 - COMMAND] (CtL-)	**[Profile]** (CHCF)	**[Combined]** (SIM)
	[Ref.1 chan] (Fr1)	**[Com. card]** (nEt)

Control via INTERBUS or the terminals in Drivecom profile

The command and target both come from INTERBUS or from the terminals. Input LI5 on the terminal block is used to switch between INTERBUS and the terminals.
The command is in Drivecom profile.

Configure the following parameters:

Parameter	Value	Comment
Profile	Combined Drivecom profile	The run commands follow the Drivecom profile, and the command and target come from the same channel.
Target 1 configuration	Network card	Target 1 comes from INTERBUS.
Target 2 configuration	Analog input 1 on the terminal block	Target 2 comes from input AI1 on the terminal block.
Target switching	Input LI5	Input LI5 switches the target (1 ↔ 2) and the command.

Caution: Target 2 is directly connected to the drive reference limit. If switching is performed, the functions that affect the target (summing, PID, etc) are inhibited.

Configuration via the graphic display terminal or the integrated display terminal:

Menu	Parameter	Value
[1.6 - COMMAND] (CtL-)	**[Profile]** (CHCF)	**[Combined]** (SIM)
	[Ref.1 chan] (Fr1)	**[Com. card]** (nEt)
	[Ref.2 channel] (Fr2)	**[AI1 ref.]** (AI1)
	[Ref. 2 switching] (rFC)	**[LI5]** (LI5)

Command in Drivecom profile via INTERBUS and switching of the target at the terminals

The command comes from INTERBUS.
The target comes either from INTERBUS or from the terminals. Input LI5 on the terminal block is used to switch the target between INTERBUS and the terminals.
The command is in Drivecom profile.

Configure the following parameters:

Parameter	Value	Comment
Profile	Separate Drivecom profile	The run commands follow the Drivecom profile, and the command and target can come from different channels.
Target 1 configuration	Network card	Target 1 comes from INTERBUS.
Target 1B configuration	Analog input 1 on the terminal block	Target 1B comes from input AI1 on the terminal block.
Target switching	Input LI5	Input LI5 switches the target (1 ↔ 1B).
Command configuration 1	Network card	Command 1 comes from INTERBUS.
Command switching	Channel 1	Channel 1 is the command channel.

Target 1B is connected to the functions (Summing, PID, etc) which remain active even after switching.

Configuration via the graphic display terminal or the integrated display terminal:

Menu	Parameter	Value
[1.6 - COMMAND] (CtL-)	**[Profile]** (CHCF)	**[Separate]** (SEP)
	[Ref.1 chan] (Fr1)	**[Com. card]** (nEt)
	[Cmd channel 1] (Cd1)	**[Com. card]** (nEt)
	[Cmd switching] (CCS)	**[ch1 active]** (Cd1)
[1.7 APPLICATION FUNCT.] (FUn-) **[REFERENCE SWITCH.]**	**[Ref.1B chan]** (Fr1b)	**[AI1 ref.]** (AI1)
	[Ref 1B switching] (rCb)	**[LI5]** (LI5)

Configuring process words (communication scanner)

4 process words are configured by configuring the communication scanner.

Important : If the default assignment of these 4 process words is modified, the configuration will not be compatible with Drivecom 21 profil.

The 2 periodic output variables are assigned by means of parameters nCA1 and nCA2. They are configured using the graphic display terminal via the **[1.9 - COMMUNICATION]** (COM-) menu and **[COM. SCANNER OUTPUT]** (OCS-) submenu.

Note: **[COM. SCANNER OUTPUT]** (OCS-) submenu defines the data (parameters nCA1 to nCA2) from the PLC to the drive.
An nCA● parameter with a value of zero does not designate any parameter in the drive. These 2 words are described in the table below:

Parameter name	Profibus variable	Default assignment
[Scan. Out1 address] (nCA1)	ouput process word 1	Command word (CMD)
[Scan. Out2 address] (nCA2)	output process word 2	Speed target (LFRD)

The 2 periodic input variables are assigned by means of parameters nMA1 and nMA2. They are configured using the graphic display terminal via the **[1.9 - COMMUNICATION]** (COM-) menu and **[COM. SCANNER INPUT]** (ICS-) submenu.

Note: **[COM. SCANNER INPUT]** (ICS-) submenu defines the data (parameters nMA1 and nMA2) from the drive to the PLC.
An nMA● parameter with a value of zero does not designate any parameter in the drive. These 2 words are described in the table below:

Parameter name	Profibus variable	Default assignment
[Scan. In1 address] (nMA1)	input process word 1	Status word (ETA)
[Scan. In2 address] (nMA2)	input process word 2	Output speed (RFRD)

Example of configuring process words via the graphic display terminal:

RDY	NET	+0.00Hz	0A
COM. SCANNER INPUT			☐
Scan. In1 address	:		3201
Scan. In2 address	:		8604
Scan. In3 address	:		0
Scan. In4 address	:		0
Scan. In5 address	:		0
Code		Quick	☑
Scan. In6 address	:		0
Scan. In7 address	:		0
Scan. In8 address	:		0

RDY	NET	+0.00Hz	0A
COM. SCANNER OUTPUT			☐
Scan. Out1 address	:		8501
Scan. Out2 address	:		8602
Scan. Out3 address	:		0
Scan. Out4 address	:		0
Scan. Out5 address	:		0
Code		Quick	☑
Scan. Out6 address	:		0
Scan. Out7 address	:		0
Scan. Out8 address	:		0

Note:
All modifications to parameters nMA1, nMA2 or nCA1, nCA2 must be made with the motor stopped.
The master PLC program should be updated to take account of this modification.

Configuring the monitored parameters

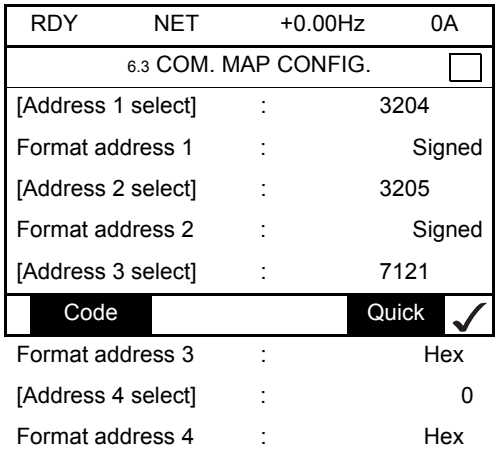
It is possible to select up to 4 parameters to display their values in the **[1.2 - MONITORING]** menu on the graphic display terminal.

The parameters are selected via the **[6 - MONITORING CONFIG.]** menu, **[6.3 - COM. MAP CONFIG.]** submenu.

Each parameter **[Address 1 select] ... [Address 4 select]** is used to choose the logic address of the parameter. A zero address deactivates the function.

In the example given here, the words being monitored are:

- Parameter 1 = Motor current (LCR): logic address 3204, signed decimal format.
- Parameter 2 = Motor torque (OTR): logic address 3205, signed decimal format.
- Parameter 3 = Last fault occurred (LFT): logic address 7121, hexadecimal format.
- Parameter deactivated: 0; default format: hexadecimal format.



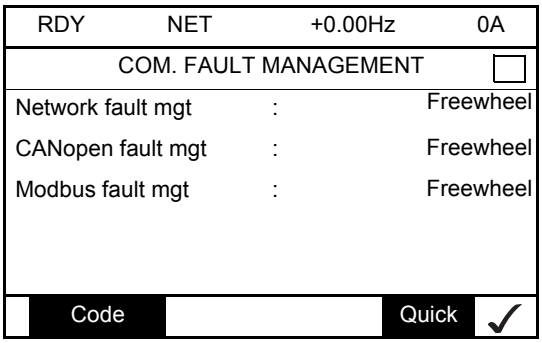
It is possible to assign each word being monitored one of the three following formats:

Format	Range	Terminal display
Hexadecimal	0000 ... FFFF	**[Hex]**
Signed decimal	-32 767 ... 32 767	**[Signed]**
Unsigned decimal	0 ... 65 535	**[Unsigned]**

Configuring communication fault management

It is possible to configure the behavior of the drive when there is an INTERBUS communication fault (CNF fault).

It can be configured via the graphic display terminal or the integrated display terminal, from the **[1.8 – FAULT MANAGEMENT]** (FLt-) menu, **[COM. FAULT MANAGEMENT]** (CLL-) submenu, via the **[Network fault mgt]** (CLL) parameter.



The values of the **[Network fault mgt]** (CLL) parameter, which trigger a drive fault **[Com. network]** (CnF), are:

Value		Meaning
[Freewheel] (YES)	:	Freewheel stop (factory setting).
[Ramp stop] (rMP)	:	Stop on ramp.
[Fast stop] (FSt)	:	Fast stop.
[DC injection] (dCI)	:	DC injection stop.

The values of the **[Network fault mgt]** (CLL) parameter, which do not trigger a drive fault, are:

Value		Meaning
[Ignore] (nO)	:	Fault ignored.
[Per STT] (Stt)	:	Stop according to configuration of **[Type of stop]** (Stt).
[fallback spd] (LFF)	:	Change to fallback speed, maintained as long as the fault persists and the run command has not been removed.
[Spd maint.] (rLS)	:	The drive maintains the speed at the time the fault occurred, as long as the fault persists and the run command has not been removed.

The fallback speed can be configured in the **[1.8 – FAULT MANAGEMENT]** (FLt-) menu using the **[Fallback speed]** (LFF) parameter.

LEDs

The INTERBUS card has five LEDs (U, RC, Rd, BA and TR) which can be seen via the window in the Altivar 61/71 cover:

1.1
1.2
1.3
1.4
1.5

2.1
2.2
2.3
2.4
2.5

RD Communication fault

BA Data exchange

RC Bus active

TR PCP messages transmission

U Power present

The following table gives the meaning of the various states of these five LEDs:

LED	Color	Meaning		Corrective actions in the event of malfunction
RD	Red	On:	Communication fault	Check the wiring Check the PLC configuration
		Off:	The bus is operating normally	
BA	Green	On:	Data is being exchanged normally on the bus	Check that the PLC is initializing the bus correctly Check that the communication link is initialized Check the PLC configuration
		Off:	No data exchange on the bus	
RC	Green	On:	The remote bus is connected correctly	Check the wiring Check that the communication link is initialized
		Off:	The remote bus is not connected correctly	
TR	Green	On:	PCP messages being exchanged on the bus	
		Off:	No PCP messages on the bus	
U	Green	On:	The card is supplied with power	The drive must be powered either via the power part or by a separate control supply
		Off:	The card is not supplied with power or is being reset	

Control-signal diagnostics

On the graphic display terminal, the **[1.2 - MONITORING]** menu (**[COMMUNICATION MAP]** submenu) can be used to display control-signal diagnostic information between the Altivar 61/71 drive and the INTERBUS master:

- Active command channel
- Value of the command word (CMD) from the active command channel
- Active target channel
- Value of the target from the active target channel
- Value of the status word
- Values of the four parameters selected by the user
- In the **[CMD. WORD IMAGE]** submenu: command words from all channels
- In the **[FREQ. REF. WORD MAP]** submenu: frequency targets from all channels

Example of the display of communication diagnostic information:

RUN	NET	+50.00Hz	80A
COMMUNICATION MAP			☐
Cmd Channel	:		Com. card
Cmd value	:		000FHex
Active ref. channel	:		Com. card
Frequency ref	:		500.0Hz
Status word	:		8627Hex
Code		Quick	✓
W3204	:		53
W3205	:		725
W7132	:		0000Hex
W0	:		-----
COM. SCANNER INPUT MAP			
COM SCANNER OUTPUT MAP			
CMD. WORD IMAGE			
FREQ. REF. WORD MAP			
MODBUS NETWORK DIAG			
MODBUS HMI DIAG			
CANopen MAP			
PROG. CARD SCANNER			

Command word display

The **[Cmd Channel]** parameter indicates the active command channel.

The **[Cmd value]** parameter indicates the hexadecimal value of the command word (CMD) used to control the drive.

The **[CMD. WORD IMAGE]** submenu is used to display the hexadecimal value of the command word from INTERBUS:

- Command word CMD3.....INTERBUS channel.....field **[Com card cmd.]**

Frequency target display

The **[Active ref. channel]** parameter indicates the active target channel.

The **[Frequency ref]** parameter indicates the value (in 0.1 Hz units) of the frequency target (LFR) used to control the drive.

The **[FREQ. REF. WORD MAP]** submenu is used to display the value (in 0.1 Hz units) of the speed target from INTERBUS:

- Speed target LFR3.....INTERBUS channel.....parameter **[Com. card ref.]**

Status word display

The **[Status word]** parameter gives the value of the status word (ETA).

Display of the parameters selected by the user

The four **[W•••]** parameters give the value of the four monitored words selected by the user.

The address and display format of these parameters can be configured in the **[6 - MONITORING CONFIG.]** menu, **[6.3 - COM. MAP CONFIG.]** submenu (see the "Configuration" section).

The value of a monitored word is equal to "**-----**" if:
- monitoring is not activated (address equal to W0)
- the parameter is protected
- the parameter is not known (eg: W3200)

Communication faults

INTERBUS communication faults are displayed by the red LED RD of the INTERBUS card.

In factory settings, an INTERBUS communication fault triggers a re-settable drive fault **[Com. network] (CnF)** and a freewheel stop.

The response of the drive in the event of a INTERBUS communication fault can be changed (see "Configuring communication fault management"):
- Drive fault **[Com. network] (CnF)** (freewheel stop, stop on ramp, fast stop or DC injection stop).
- No drive fault (stop, maintain, fallback).

The fault management is described in the user guide "Communication parameters", chapter "Communication monitoring":
- After initialization (power up), the drive checks that at least one of the command or target parameters has been written once via INTERBUS.
- Then, if an INTERBUS communication fault occurs, the drive reacts according to the configuration (stop, maintain, fallback ...).

Card fault

The **[Option int link] (ILF)** fault appears when there are serious problems :
- Hardware problem on the INTERBUS card itself.
- Dialog faults between the option card and the drive.

It is not possible to configure the behavior of the drive in the event of a **[Option int link] (ILF)** fault, the drive stops in freewheel.
This type of fault cannot be reset.

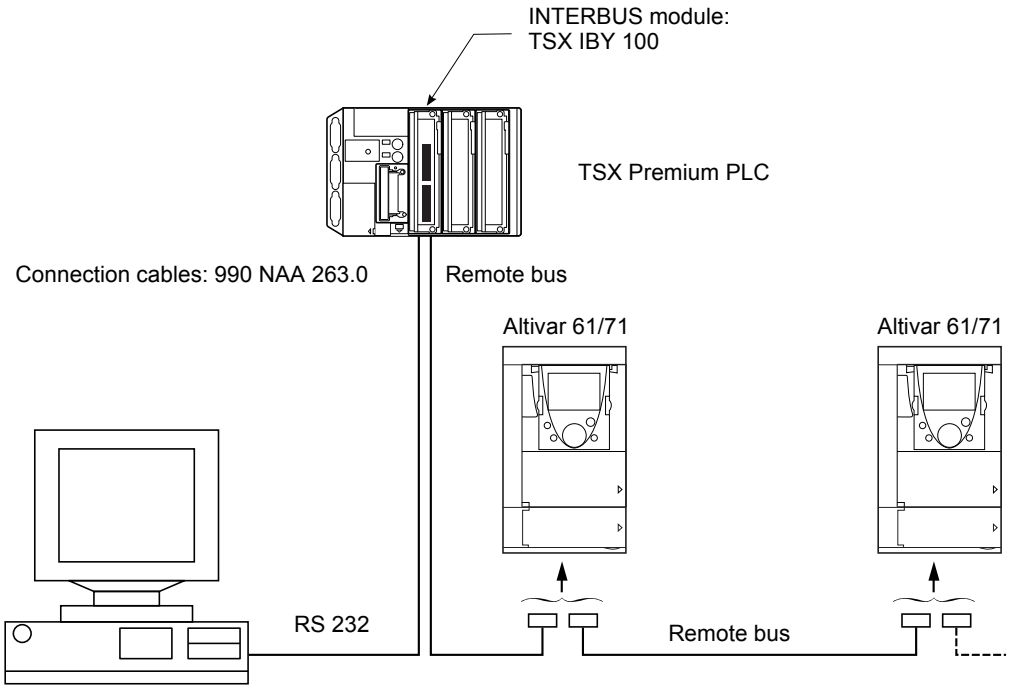
Two parameters display the origin of the last **[Option int link] (ILF)** faults :
- **[Internal link fault 1] (ILF1)** displays the error that occurred on option card no. 1 (directly mounted on the drive),
- **[Internal link fault 2] (ILF2)** displays the error that occurred on option card no. 2 (mounted on the option card no. 1),

The parameters **[Internal link fault 1] (ILF1)** and **[Internal link fault 2] (ILF2)** are displayed on the display terminal (graphic only): **[1.10 DIAGNOSTICS] (DGT-)** menu, **[MORE FAULT INFO] (AFI-)** submenu.

Value	Description of the values of the parameter [Internal link fault 1] (ILF1) and [Internal link fault 2] (ILF2)
0	No fault
1	Loss of internal communication with the drive
2	Hardware malfunction detected
3	Error in the EEPROM checksum
4	Faulty EEPROM
5	Faulty Flash memory
6	Faulty RAM memory
7	Faulty NVRAM memory
8	Faulty analog input
9	Faulty analog output
10	Faulty logic input
11	Faulty logic output
101	Unknown card
102	Dialog faults between the option card and the drive
103	Dialog time out between the option card and the drive

Installing the environment

- The PLC has an INTERBUS module.
- The communication bus is connected to the module.
- The module is connected to a PC running the Phoenix Contact "CMD Tool" configuration software via an RS 232 serial link.



Configuration using the "CMD Tool" software

This section describes those features that are specific to the Altivar 61/71 drive to make the setup easier for users who are already familiar with the Phoenix Contact "CMD Tool" software (IBS CMD G4 > V4.3, English version).

- I**nserting an Altivar 61/71 in a project using the automatic bus configuration read function:** *Read again*

The *Read again* function automatically recognizes the Altivar 61/71 as a variable speed drive conforming to the DRIVECOM 21 (RemoteBus) profile with identification code 227. Right-click on the icon and select the *Description* function in the menu. Then click on the *Parameter Channel* button, change the *Message Lengths Transmit* and *Receive* parameters to 128 bytes and add the Get-OD service to the list of *Supported Parameter Channel Services*.

- **Inserting an Altivar 61/71 in a project using the Edit/Insert with Device Description function**

Select: *Data Source*: Internal Database
Group: DRIVECOM and *Search* button
Output: Type Profil 21 (RB), OK

The description bookmark appears. Click on the *Parameter Channel* button, change the *Message Lengths Transmit* and *Receive* parameters to 128 bytes and add the Get-OD service to the list of *Supported Parameter Channel Services*.

When all the devices to be added to the project have been edited, the next step depends on whether or not the *controller board* contains a parameterization memory.
If it does, click on *Parameterization Memory* and *Save*. It must have been formatted beforehand using *Format*.
If it does not, right-click on the *Controller Board* icon, then *Parameterization, Execute*.

In both cases, after successful parameterization the "CMD Tool" software changes to *Online* operating status. If you want to access the Altivar 61/71 drive by messaging before changing to *Monitoring* operating status, right-click on the *Controller Board* icon, then *Control, Other*... and select the messages, starting with an I*NITIATE* service.

If you are already in *Monitoring* operating status, and you return to send messages to the drive, the communication link is already established and it is not necessary to send an *INITIATE* service.

In *Monitoring* operating status, you can control the drive using the *DRIVECOM Monitor* and the *Digital Process Data Monitor*.

For more detailed information on using the "CMD Tool" software, refer to the Phoenix Contact user manual (reference IBS CMD SWT G4 UM E).

Process data

The Altivar 61/71 INTERBUS card supports two input process words and two output process words (1):

Type	Index	Meaning	Altivar 61/71 parameter codes
Input	16#6041 16#6044	Status word Output speed	ETA RFRD
Output	16#6040 16#6042	Command word Speed target	CMD LFRD

(1) Words showed in this table are default values. It is possible to modify these values (see “Configuring process words (communication scanner)”, page 13.)

Important : If the default assignment of these 4 process words is modified, the configuration will not be compatible with Drivecom 21 profil.

PCP messaging

The messaging services conform to the Peripheral Communications Protocol (PCP) communication services.
The maximum message length is 128 bytes.

The PCP communication services supported by the Altivar 61/71 INTERBUS card are as follows:

Initiate : Initialization of the communication link
Abort : Abort the communication link
Status : Communication and drive status
Get-OV : Read the description of an object
Identify : Identification of the device
Read : Read a parameter
Write : Write a parameter

List of links (KBL)

This list only contains one item, as the Altivar 61/71 INTERBUS card only supports a single communication link between a device (server) and the bus master.
A communication link defines the data that can be exchanged between two devices using the transmission/reception buffers and services. The services supported and the lengths of the buffers must be known to both devices.

The Altivar 61/71 INTERBUS card communication link is as follows:

Communication reference	2
Max. transmission buffer length (low priority)	128
Max. transmission buffer length (high priority)	0
Max. reception buffer length (low priority)	128
Max. reception buffer length (high priority)	0
Services supported (client)	00 00 00 hex
Services supported (server)	80 30 00 hex
Maximum number of services in parallel	1

Initiate

The parameters of this service are as follows:

Version of the object dictionary	10
Profile number	21hex
Access rights supported	true
Password	0
Group access rights supported	0

Sending an INITIATE service message when the communication link has already been established stops communication (equivalent to sending an ABORT service message).

Status

The status consists of 2 items of information:

Information	Size	Possible values
Logic status	1 byte	Communication status: 0 = Ready to communicate, **[Address]** (AdrC) = 1 2 = Limited number of services, **[Address]** (AdrC) = 0 4 = Not ready to communicate
Physical status	1 byte	Drive status: 0 = Drive ready 2 = Drive not ready
Local details	3 bytes	Reserved

Identify

Identification consists of 2 items of information:

Brand name	Schneider-Electric
Catalog number	ATV71●●●●●●

Read/Write

The parameters exchanged by messaging are described in the parameters manual.

The command word and the speed target are exchanged by the process data. Messaging must therefore not be used to send these parameters as they would be immediately modified by the next periodic exchange.

The following codes are used in response to read/write errors:

Error class	Error code	Additional code	Meaning
6	7	0	Parameter does not exist
6	6	0	Write request for an object that is read-only
5	3	0	Write request for a parameter in local forcing
8	0	0	No response (time out = 1 s)