Altivar 71

User's manual

"Controller Inside" Card

Retain for future use

VW3 A3 501

Telemecanique

efesotomasyon.com
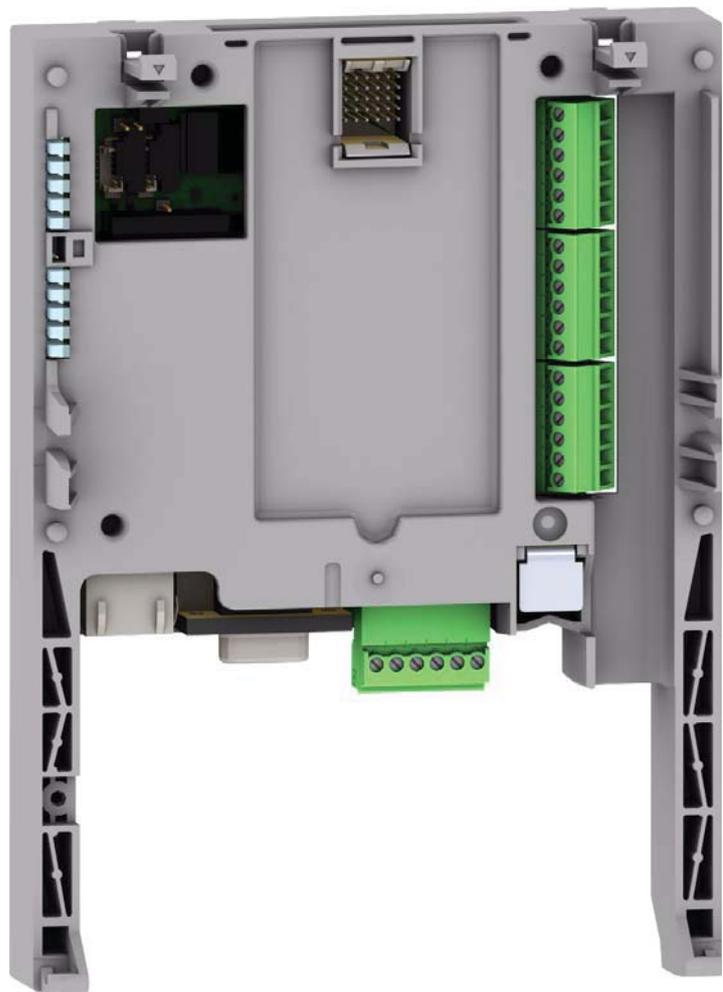
Sommaire

Before you begin

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

⚠ DANGER

HAZARDOUS VOLTAGE

- Read and understand the Installation manual before installing or operating the Altivar 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 of this variable speed drive, including the printed circuit boards, operate at the 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 the 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 to allow 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.

Electric shock will result in death or serious injury.

CAUTION

DAMAGED EQUIPMENT

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

Documentation structure

Installation manual

This manual describes:
- Assembly
- 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 (state chart)
- The interaction between communication and local control

Modbus, CANopen, Ethernet, Profibus, INTERBUS, Uni-Telway, DeviceNet, Modbus Plus and FIPIO 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.

Introduction

Presentation

The "Controller Inside" programmable card is used to adapt the variable speed drive to specific applications by integrating control system functions.

Various predefined configurable applications are sold by Telemecanique and its partners.
The PS 1131 software workshop for PC is used for programming and debugging new applications, quickly and in an open-ended manner.
It is not possible to transfer the program from the card to the PC, which enables us to protect our know-how.

Only one "Controller Inside" programmable card can be installed in the Altivar 71 drive. It can be combined with another option card (I/O extension or communication). Consult the tables summarizing the possible combinations: drives, options and accessories, see catalogue.

The "Controller Inside" programmable card has:
• 10 logic inputs, 2 of which can be used for 2 counters or 4 of which can be used for 2 incremental encoders
• 2 analog inputs
• 6 logic outputs
• 2 analog outputs
• A master port for the CANopen bus
• A PC port for programming with the PS 1131 software workshop
• If the power consumption table does not exceed 200 mA, this card can be powered by the drive. Otherwise, an external 24 V ⎓ power supply must be used.

The "Controller Inside" programmable card can also use:
• The drive I/O
• The I/O extension card I/O
• The encoder interface card points counter
• The drive parameters (speed, current, torque, etc)

Description
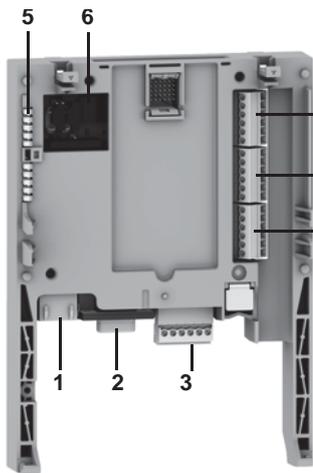
1 RJ45 connector for connecting the PS 1131 software workshop via an RS 485 serial link. Connection to the PC is via a cable and an RS 232/RS 485 converter included in the PowerSuite for PC connection kit, VW3 A8 106.

2 9-way male SUB-D connector for connection to the CANopen bus.

3 Connector with removable screw terminals, 6 contacts at intervals of 3.81 for the 24 V ⎓ power supply and 4 logic inputs.

4 3 connectors with removable screw terminals, 6 contacts at intervals of 3.81 for 6 logic inputs, 6 logic outputs, 2 analog inputs, 2 analog outputs and 2 commons.

5 5 LEDs, comprising:
• 1 to indicate the presence of the 24 V ⎓ power supply
• 1 to indicate a program execution fault
• 2 to indicate the CANopen bus communication status
• 1 controlled by the application program

6 Block of 4 configuration switches

Introduction

Dialog

Independent machine with multiwire system
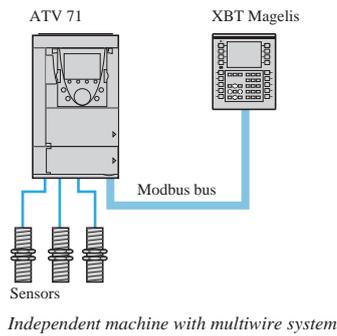
Human-machine dialog with the application programmed in the "Controller Inside" programmable card is possible using:
• The Altivar 71 graphic display terminal
• A Magelis industrial HMI terminal connected to the drive Modbus port
• A Magelis industrial HMI terminal connected to the Ethernet TCP/IP network (if the drive is equipped with an Ethernet TCP/IP communication card)

One graphic terminal menu is dedicated to the "Controller Inside" programmable card. This menu can be customized by the card program according to the application.

Any industrial HMI terminal which supports the Modbus protocol can be used to display and modify the "Controller Inside" programmable card parameters. The card Modbus server provides access to 2048 Kwords (% MW, etc).

Master CANopen communication

Independent machine with CANopen bus
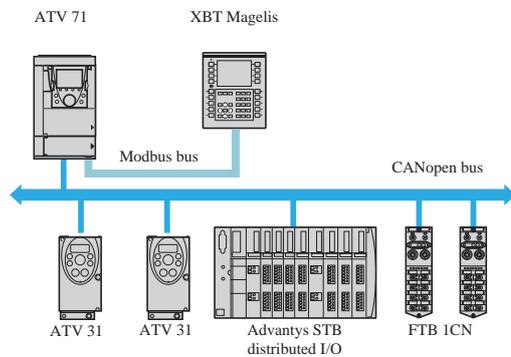
The master CANopen port on the "Controller Inside" programmable card can be used to extend the I/O capacity (using CANopen I/O modules) and to control other CANopen slave devices.

Communication with a PLC
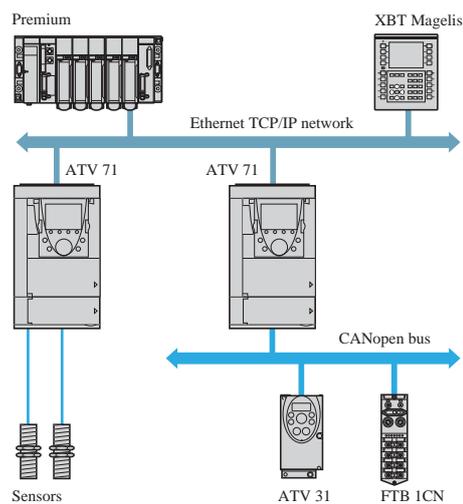
Modular machine with Ethernet TCP/IP network

The Altivar 71 drive equipped with a "Controller Inside" programmable card fits easily into complex architectures.
Regardless of which bus or network is being used (Ethernet TCP/IP, Modbus/Uni-Telway, FIPIO, Modbus Plus, Profibus DP, InterBus, etc), the PLC can communicate with the "Controller Inside" programmable card and the drive. The periodic variables can still be configured as required.

Introduction

Clock

A clock backed up by a lithium battery makes it possible to have a log of events that have occurred. When the "Controller Inside" programmable card is installed in the drive, the drive faults are automatically time and date-stamped without special programming.

Programming

In factory settings mode, the "Controller Inside" card only contains the clock function.
For other applications, the program must be loaded:
• By loading an existing program (procedure described in the PS 1131documentation)
• Or by loading a custom-built program, with the aid of the PS 1131 software workshop, using the function libraries dedicated to programming the "Controller Inside" card.

In order to program the "Controller Inside" card, it is necessary to undergo training.

The PS1131 CD-Rom contains:
• This manual, already available on the CD-Rom supplied with each Altivar 71
• The PS 1131 software workshop
• The online help
• The standard function library
• Program examples
• The Altivar 71 parameters manual

The standard function library contains:
• Logic functions (AND, OR, etc)
• Mathematical functions (Cos, Sin, Exp, etc)
• Functions dedicated to drives which simplify data exchanges between the drive and the "Controller Inside" programmable card (example: sending the speed reference)
• Functions for managing the CANopen bus
• Graphic terminal display functions

This manual does not describe programming using PS 1131.

Note: PS 1131 is also called CoDeSys.
CoDeSys V2.2 can be used on the Controller Inside for Altivar 58 (VW3A581131), but must not be used for programming the Controller Inside for Altivar 71 (VW3 A3 501).

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.
- Check that the product is complete: the packaging should contain the "Controller Inside" option card and its 4 removable terminals.

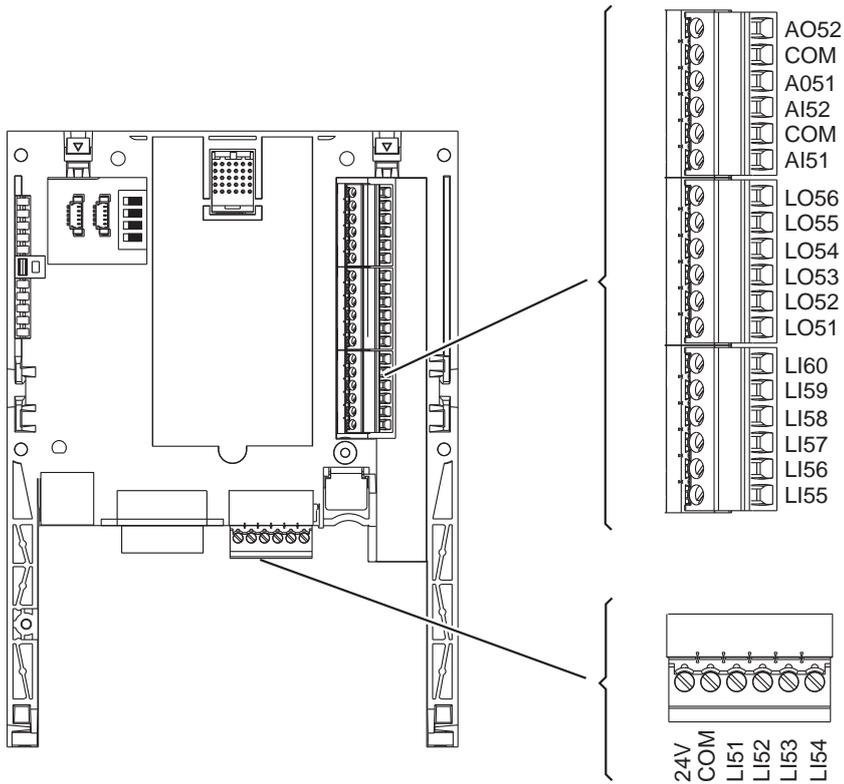## Installing the card in the drive

See the Altivar 71 Installation Manual.

Note: If a Controller Inside card and an I/O extension card are installed simultaneously:
- The I/O extension card must be installed on the drive first
- Then the Controller Inside card must be installed on the I/O extension card

Hardware setup

Description of terminals

Terminal	Function
24V	Power supply for the "Controller Inside" card, logic outputs and analog outputs.
	If allowed by the power consumption table (for example if outputs are not being used), the "Controller Inside" card can be powered by the 24 V ⎓ power supply in the drive.
	If you are using an external power supply:
	• The "Controller Inside" card should preferably be turned on before the drive. However, the "Controller Inside" card must without fail be turned on no more than 2s after the drive is turned on.
	Failure to follow this instruction locks the drive in card fault mode (ILF). This fault cannot be reset, and the only way to acknowledge it is to turn off the drive.
	• Catalog number for a Telemecanique power supply (24 V ⎓, 2A): ABL7 RE 24 02.
COM	Common ground and electrical 0V of the "Controller Inside" card power supply, logic inputs, (LI●●), outputs (LO●●), analog inputs (AI●●) and analog outputs (AO●●).
	This ground and electrical 0V are common with the drive ground and electrical 0V. There is therefore no point in connecting this terminal to the 0V terminal on the drive control terminals.
LI51 to LI60	24 V ⎓ logic inputs
	Inputs LI51, LI52, LI59 and LI60 can be configured for the use of 2 counter inputs or 2 incremental encoder inputs:
	Counter 1 input: LI51
	Incremental encoder 1 inputs: channel A = LI51, channel B = LI52
	Counter 2 input: LI59
	Incremental encoder 2 inputs: channel A = LI59, channel B = LI60
LO51 to LO56	24 V ⎓ logic outputs
AI51 and AI52	0 ... 20mA analog inputs
AO51 and AO52	0 ... 20mA analog outputs

Hardware setup

Characteristics

Electrical characteristics

Power	Voltage	**V**	24 ⎓ (min. 19, max. 30)
Current consumption	Maximum	**A**	2
	No-load	**mA**	80
	Using logic output	**mA**	200 maximum *(1)*
Analog inputs	AI51, AI52		2 current analog inputs 0…20 mA, impedance 250 Ω Resolution: 10 bits Accuracy: ± 1% for a temperature variation of 60°C Linearity: ± 0.2% of the maximum value Common point for all the card I/O *(2)*
Analog outputs	AO51, AO52		2 current analog outputs 0…20 mA, impedance 500 Ω Resolution: 10 bits Accuracy: ± 1% for a temperature variation of 60°C Linearity: ± 0.2% of the maximum value Common point for all the card I/O *(2)*
Logic inputs	LI51…LI60		10 logic inputs, 2 of which can be used for 2 counters or 4 of which can be used for 2 incremental encoders Impedance 4.4 kΩ Maximum voltage: 30 V ⎓ Switching thresholds: State 0 if ⩽ 5 V or logic input not wired State 1 if ⩾ 11 V Common point for all the card I/O *(2)*
Logic outputs	LO51…LO56		Six 24 V ⎓ logic outputs, positive logic open collector type (source), compatible with level 1 PLC, standard IEC 65A-68 Maximum switching voltage: 30 V Maximum current: 200 mA Common point for all the card I/O *(2)*
I/O connection	Type of contact		Screw, at intervals of 3.81 mm^2
	Maximum wire	**mm^2**	1.5 (AWG 16)
	Tightening torque	**Nm**	0.25
Lithium battery	Life		8 years approx.

Characteristics of the application program

Compiled program (saved in "flash" memory)	Maximum size	**Kb**	320
Data	Maximum size	**Kword**	64
	Saved size (NVRAM)	**Kword**	4
	Size accessible by Modbus	**Kword**	2

Characteristics of the CANopen communication port

Structure	Connector	One 9-way male SUB-D connector
	Network management	Master
	Transmission speed	Configurable via the program: 50 kbps, 125 kbps, 250 kbps, 500 kbps or 1 Mbps
	Address (Node ID)	32 slaves maximum
Services	CANopen application layer	DS 301 V4.02
	Channel config.	DSP 405
	PDO	9 receive and transmit PDOs in total for each slave
	SDO	2 client SDOs per slave (1 read and 1 write). Block transfer
	Error check	Node Guarding, producer and consumer Heartbeat
	Other services	Emergency, Boot-up, Sync
	Configuration	The CANopen network configurator is integrated in the PS1131 software workshop.
Diagnostics	Using LEDs	2 LEDs: "RUN" and "ERROR", conforming to CIA DR303 version 1.0

(1) If the power consumption table does not exceed 200 mA, this card can be powered by the drive. Otherwise, an external 24 V ⎓ power supply must be used.
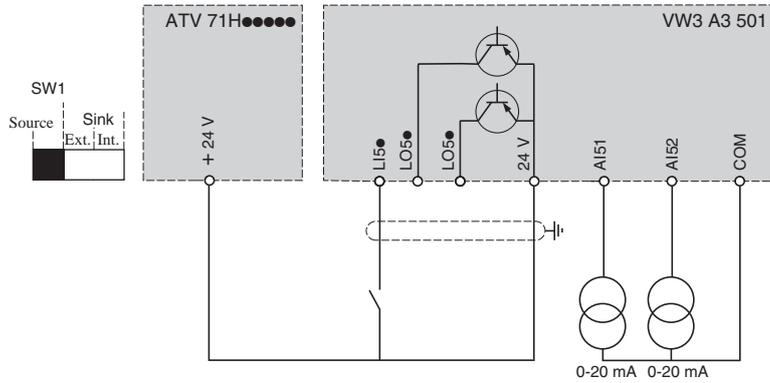*(2) This common point is also the drive 0 V (COM).*
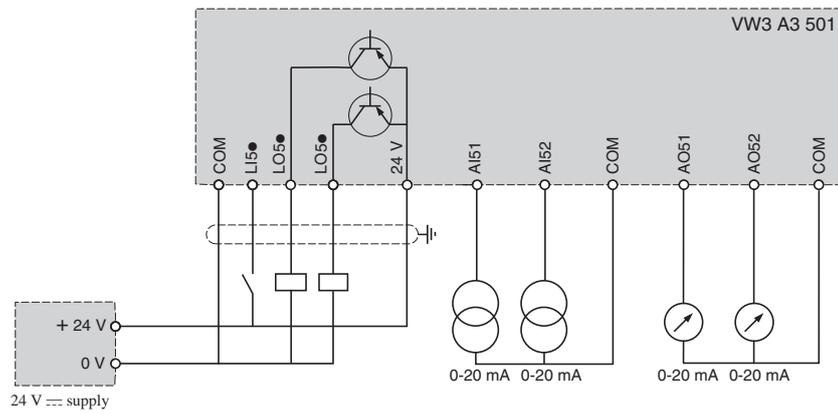
Hardware setup

Schemes

Card powered by the drive

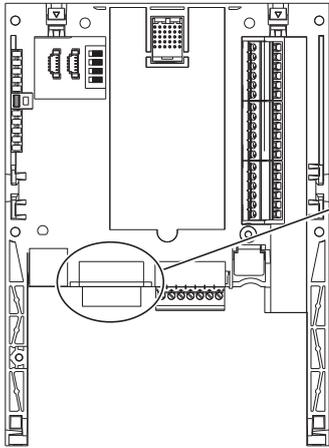Only if the power consumption is less than 200 mA; otherwise use an external power supply.

Card powered by external power supply

Hardware setup

Connection to a CANopen bus

Pinout for the CANopen 9-way SUB-D connector

Terminal	Description
1	not connected
2	CAN_L
3	CAN_GND
4	not connected
5	not connected
6	CAN_GND
7	CAN_H
8	not connected
9	not connected

Use a straight connector (catalog number TSX CAN KCDF 180T) to connect the "Controller Inside" card to the CANopen bus.
This connector integrates a line terminator that must be activated if the "Controller Inside" card is at one end of the CANopen bus.

It is not possible to use an angled connector because of the terminals located to the right of the CANopen connector.

The 9-way SUB-D connector on the "Controller Inside" card is linked to the card ground and the drive ground. The shielding must be connected to the connector ground.

The CANopen signals on the "Controller Inside" card are isolated.

Speed and length of the CANopen bus

It is essential to make sure that all devices connected to the CANopen bus operate at the same transmission speed.

The CANopen transmission speed of the "Controller Inside" card is configured from the PS 1131 software workshop.

The maximum length of the CANopen bus depends on the transmission speed on this bus.
The table below indicates the maximum lengths permitted according to the transmission speed:

Transmission speed	50 kbps	125 kbps	250 kbps	500 kbps	1 Mbps
Max. length of bus	1000m	500m	200m	100m	5m

Hardware setup

Example of connection to a CANopen bus
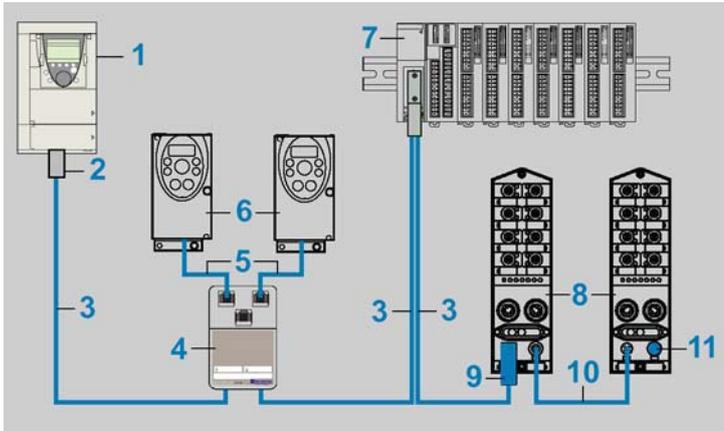
Description	Reference number	Length m	Catalog number
Altivar 71 drive **equipped with a "Controller Inside" card**	**1**	-	**ATV71●●●●** **VW3 A3 501**
CANopen connector 9-way female SUB-D connector with line terminator (can be deactivated) 2 CANopen cables can be connected 180° cable outlet CAN-H, CAN-L, CAN-GND connection	**2**	-	**TSX CAN KCDF 180T**
LSZH CANopen cable CE certified CANopen cable. Low smoke emission, non halogen and flame retardant (IEC 60332-1).	**3**	50	**TSX CAN CA 50**
		100	**TSX CAN CA 100**
		300	**TSX CAN CA 300**
UL/IEC332-2 CANopen cable UL certified CANopen cable. Flame retardant (IEC 60332-2).	**3**	50	**TSX CAN CB 50**
		100	**TSX CAN CB 100**
		300	**TSX CAN CB 300**
LSZH HD flexible CANopen cable CANopen cable for intensive use and moving applications. Flame retardant (IEC 60332-1). Non halogen. Oil resistant.	**3**	50	**TSX CAN CD 50**
		100	**TSX CAN CD 100**
		300	**TSX CAN CD 300**
Junction box for CANopen bus 2 RJ45 connectors for connecting 2 drop cables VW3 CAN CA RR●● 1 RJ45 connector for connecting the PowerSuite software workshop Two 5-pin screw terminals for connecting 2 CANopen cables (CAN_H, CAN_L, CAN_GND, CAN_V+, CAN_SHLD) Line terminator (can be deactivated)	**4**	-	**VW3 CAN TAP 2**
Drop cable for CANopen bus Equipped with 2 RJ45 connectors	**5**	0.3	**VW3 CAN CA RR03**
		1	**VW3 CAN CA RR10**
Altivar 31 drive	**6**	-	**ATV31●●●**
CANopen Advantys OTB I/O modules Power supply 24 V ⎓, 12 inputs 24 V ⎓, 2 outputs 24 V ⎓ 0.3A 6 relay outputs 30 V ⎓/240 V ∿ 2 A, removable screw terminals	**7**	-	**OTB1 C0 DM9LP**
CANopen Advantys FTB I/O module	**8**	-	**FTB 1CN●●● ●0**
M12 connector for CANopen cable 5 female contacts, A coding	**9**	-	**FTX CN12F5**
CANopen extension cable for Advantys FTB module Equipped with 2 angled connectors: M12, 5-way, A coding	**10**	-	**FTX CN32●●**
CANopen line terminator for Advantys FTB module Equipped with an M12 connector	**11**	-	**FTX CNTL12**

Hardware setup

Connecting the "Controller Inside" card to a PC
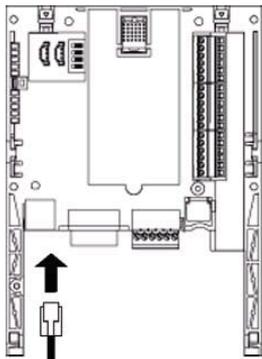
The "Controller Inside" card RJ45 connector complies with the RS485 standard.

The connection kit for PC serial port (catalog number VW3 A8 106) can be used to connect a PC to the "Controller Inside" card.

This kit contains a cable equipped with 2 RJ45 connectors, as well as an RS485/RS232 converter.

As the RS485/RS232 converter is powered by the "Controller Inside" card, no external power supply is required.
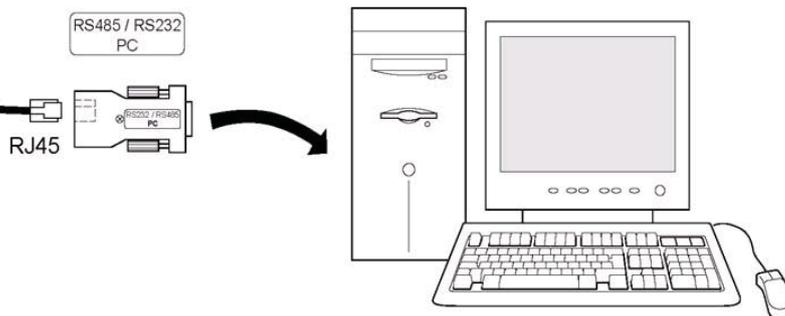
Characteristics of the programming port

The RJ45 connector is shielded and connected to the ground on the "Controller Inside" card, which is itself connected to the drive ground.
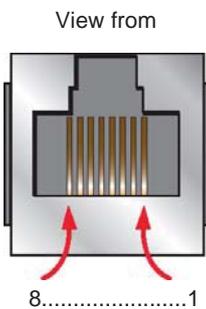
Terminal	Description
1	not connected
2	not connected
3	not connected
4	B signal (RS485) = V1 signal (Modbus)
5	A signal (RS485) = V0 signal (Modbus)
6	not connected
7	Modbus VP signal 12 V DC power supply supplied by the "Controller Inside" card (only for the power supply of a RS485/RS232 converter)
8	Modbus common signal 0V

Hardware setup

Data backup battery

The "Controller Inside" card has a non-volatile RAM (NVRAM) which is needed to store variables. A lithium battery is mounted on this non-volatile RAM to avoid this data being lost when the card is turned off.

Lithium
battery
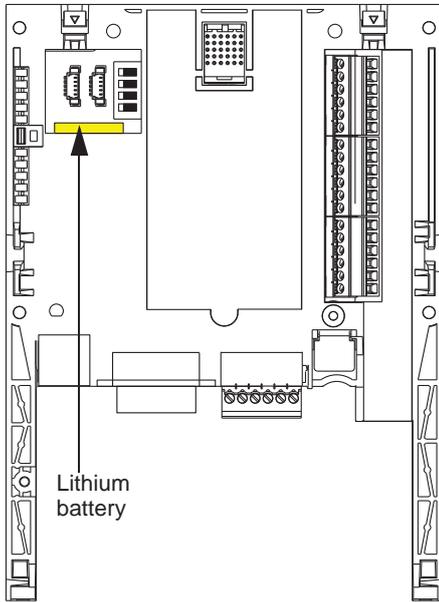
When installing the "Controller Inside" card in the drive, make sure that this battery is present. It takes the form of a rectangular block clipped onto the non-volatile RAM (see schematic opposite).

The battery life is approximately 8 years when turned off.

The battery has a realtime clock for timestamping faults.

The date and time on this clock are checked and set from a special sub-menu in the **[1.14 - PROG. CARD MENU]** customizable menu in the graphic display terminal.

The date and time need to be set on receipt of the "Controller Inside" card, or after replacing its lithium battery.

The lithium battery must only be replaced when the drive and the "Controller Inside" card are turned off.

During this operation, the data saved in the NVRAM (4 Kwords) are lost.

Configuration

Configuring the switches

The "Controller Inside" card has a block of 4 switches as illustrated below.
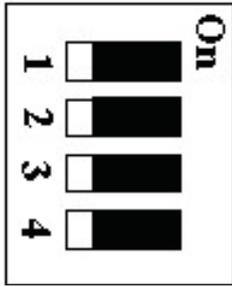
These switches can only be set when the drive and the "Controller Inside" card are turned off, since it is necessary to remove the drive control front panel in order to access it.

By default, all the switches are in the Off position.

Write protection switch

The right-hand switch (switch 4) is used to protect the PS 1131 program in the Flash memory.

Switches	Description
	A new program cannot be transferred.
	A new program can be transferred.

Programmable switches

The three left-hand switches (switches 1 to 3) can be used by the "Controller Inside" card program, depending on the application.

Switches	Value	Switches	Value	Switches	Value	Switches	Value
	0		1		2		3
	4		5		6		7

Diagnostics

LEDs
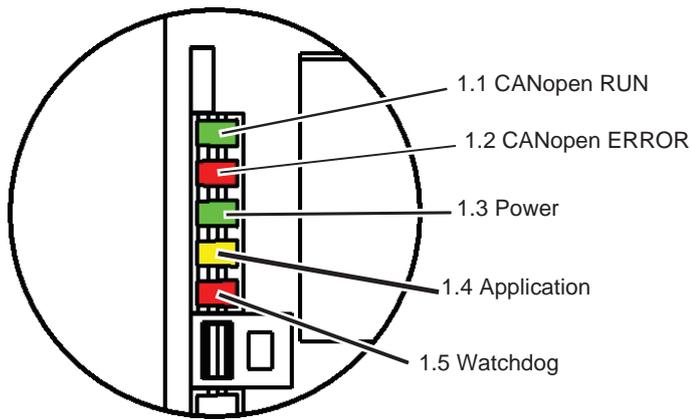
The "Controller Inside" card is equipped with five LEDs which can be seen through the window in the Altivar 71 cover.

- 1.1 CANopen RUN
- 1.2 CANopen ERROR
- 1.3 Power
- 1.4 Application
- 1.5 Watchdog

LED	Color	State	Meaning
1.1 CANopen RUN	green	off	CANopen master in STOPPED state
		flashing	CANopen master in PRE-OPERATIONAL state
		on	CANopen master in OPERATIONAL state
1.2 CANopen ERROR	red	off	No CANopen error
		1 flash per second	The CANopen master error counter has reached or exceeded its warning level (too many errors)
		2 flashes per second	Node Guarding error (vis-à-vis a CANopen slave) or Heartbeat error (CANopen master acting as consumer)
		on	The CANopen master is in the "OFF" state.
1.3 Power	green	off	"Controller Inside" card not supplied with power
		on	"Controller Inside" card supplied with power (24 V ⎓ present)
1.4 Application	yellow		The meaning of this LED is determined by the "Controller Inside" card program.
1.5 Watchdog	red	on	The "Controller Inside" card program has generated an error and has been stopped (watchdog tripped).

Diagnostics

I/O monitoring

The values of all the "Controller Inside" card logic and analog I/O can be displayed on the graphic display terminal: **[1.2 - MONITORING]** menu, **[PROG. CARD I/O MAP]** sub-menu.

RUN	Term	+50.00Hz	80A
	PROG. CARD I/O MAP		
PROG CARD LI MAP			
PROG CARD AI MAP			
PROG CARD LO MAP			
PROG. CARD AO MAP			
Code			Quick

Move from one screen to another
(from PROG CARD LI MAP
to PROG. CARD AO MAP)
by turning the navigation button

state 0
state 1

RUN	Term	+50.00Hz	80A
	PROG CARD LI MAP		
LI51 LI52 LI53 LI54 LI55 LI56 LI57 LI58			
LI59 LI60			
	<<	>>	Quick

RUN	Term	+50.00Hz	80A
	PROG CARD AI MAP		
AI51	:	0.000 mA	
AI52	:	9.87 V	
Code	<<	>>	Quick

ENT →

RUN	Term	+50.00Hz	80A
	AI51		
	0 mA		
Min = 0.001		Max = 20,000	
	<<	>>	Quick

state 0
state 1

RUN	Term	+50.00Hz	80A
	PROG CARD LO MAP		
LO51 LO52 LO53 LO54 LO55 LO56			
	<<	>>	Quick

RUN	Term	+50.00Hz	80A
	PROG. CARD AO MAP		
AO51	:	0.000 mA	
AO52	:	9.87 V	
Code	<<	>>	Quick

ENT →

RUN	Term	+50.00Hz	80A
	AO51		
	0 mA		
Min = 0.001		Max = 20,000	
	<<	>>	Quick

Note: The addresses of the parameters mentioned above are given in the "Communication parameters manual".

Diagnostics

Card fault

The **[internal com. link] (ILF)** fault appears when serious problems arise:
- Hardware fault in the Controller Inside card
- Dialog fault between the Controller Inside card and the drive

The drive behavior cannot be configured when an **[internal com. link] (ILF)** fault occurs, and the drive trips with freewheel stopping. This fault cannot be reset.

Two diagnostic parameters can be used to obtain more detailed information on the origin of the **[internal com. link] (ILF)** fault:
- **[Internal link fault 1] (ILF1)** if the fault has occurred on option card no. 1 (installed directly on the drive).
- **[Internal link fault 2] (ILF2)** if the fault has occurred on option card no. 2 (installed directly on the drive).

The Controller Inside card can be in position 1 or in position 2.

Parameters **[Internal link fault 1] (ILF1)** and **[Internal link fault 2] (ILF2)** can only be accessed on the graphic display terminal, in the **[1.10 DIAGNOSTICS] (DGT-)**, **[MORE FAULT INFO] (AFI-)** menu.

Value	Description of the values of the [Internal link fault 1] (ILF1) and [Internal link fault 2] (ILF2) parameters
0	No fault
1	Loss of internal communication with the drive
2	Hardware fault 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	Exchange problem on the drive internal bus
103	Time out on the drive internal bus (500 ms)

Operation using the graphic display terminal

Factory-loaded program

Controller Inside menu

```
RDY        Term    +0.00Hz    0A
           1 DRIVE MENU
1.1 SIMPLY START
1.2 MONITORING
1.3 SETTINGS
1.4 MOTOR CONTROL
1.5 INPUTS/OUTPUTS CFG
   Code      <<       >>      Quick
1.6 COMMAND
1.7 APPLICATION FUNCT.
1.8 FAULT MANAGEMENT
1.9 COMMUNICATION
1.10 DIAGNOSTICS
1.11 IDENTIFICATION
1.12 FACTORY SETTINGS
1.13 USER MENU
1.14 PROGRAMMABLE CARD
```

```
RDY        Term    +0.00Hz    0A
           MAIN MENU
1 DRIVE MENU
2 ACCESS LEVEL
3 OPEN / SAVE AS
4 PASSWORD
5 LANGUAGE
   Code                       Quick
```

ENT

ENT

```
NST        CAN      0.0Hz    0.0A
        1.14 PROGRAMMABLE CARD
Modbus add Prg C.              : 17
DATE/TIME SETTINGS


   Code      <<       >>      Quick
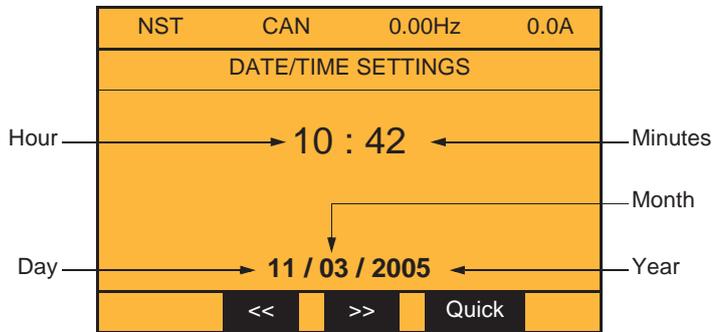```

### Controller Inside card Modbus address

The **[Modbus add Prg C.]** (AMOA) parameter can be set in the **[1.14 PROGRAMMABLE CARD]** menu.
This setting can also be accessed in the **[1.9 - COMMUNICATION]** ($\mathit{C \; o \; n \; -}$) menu, **[MODBUS NETWORK]** ($\mathit{n \; d \; 1 \; -}$) submenu.

# Operation using the graphic display terminal

## Setting the date and time

In the **[1.14 PROGRAMMABLE CARD]** menu, **[DATE/TIME SETTINGS]** sub-menu, you can set:
- the year
- the month
- the day
- the hours
- the minutes

```
    NST        CAN        0.00Hz      0.0A
           DATE/TIME SETTINGS

Hour ──────────→ 10 : 42 ←──────── Minutes

                                   ─── Month

Day ──────────→ 11 / 03 / 2005 ←── Year
              [   <<   ][   >>   ][ Quick ]
```

Note: The date and time are not refreshed on this settings screen. The current date and time **[Date/Time]** (*C L O*) can be viewed in the **[1.2 MONITORING]** (*S U P -*) menu.

Note: It is not possible to change either the date or time format:
• The date cannot be displayed in the "year/month/day" format.
• The time cannot be displayed in the "10:42 am" format.

Note: It is not possible to configure changes between winter and summer hours.

Operation using the graphic display terminal

Example of a special program

The name of menu 1.14 has been customized.
The application parameters are edited in plain text and arranged in menus.

CYCLE IN PROGRESS		
Current cycle	:	5
Current phase	:	2
Operation	:	dosing
Product	:	oil
Duration	:	30s
SETTINGS		
Cycle selected	:	10
No. of phases	:	6
Phase selected	:	2
Operation sel	:	mixing
Duration sel	:	120s

RUN	APP	+50.0Hz	2.1A
	1.14 DOSING		☐

CYCLE IN PROGRESS		
Current cycle	:	5
Current phase	:	2
Operation	:	dosing
Product	:	oil

| Code | << | >> | Quick | ▼ |

CYCLE IN PROGRESS		
Current cycle	:	5
Current phase	:	2
Operation	:	dosing
Product	:	oil
Duration	:	30s
SETTINGS		
Cycle selected	:	10
No. of phases	:	6
Phase selected	:	2
Operation sel	:	mixing
Duration sel	:	120s

RUN	APP	+50.0Hz	2.1A
	1.14 DOSING		▲

SETTINGS		
Cycle selected	:	10
No. of phases	:	6
Phase selected	:	2
Operation sel	:	mixing

| Code | << | >> | Quick | ▼ |

Operation using the integrated display terminal

Factory-loaded program

Controller Inside menu

Power-up

XXX — Displays the state of the drive

(ENT)

▲ ▼

(ESC) 5 IΠ -

▼ ▲

(ESC) U5ᴿ -

▼ ▲   (ENT)

(ESC) 5PL - → PROGRAMMABLE CARD

▼ ▲   (ESC)

(ESC) Ϲ Ο d -

▼ ▲

(ESC) L Ꭱ Ϲ -

▲ ▼
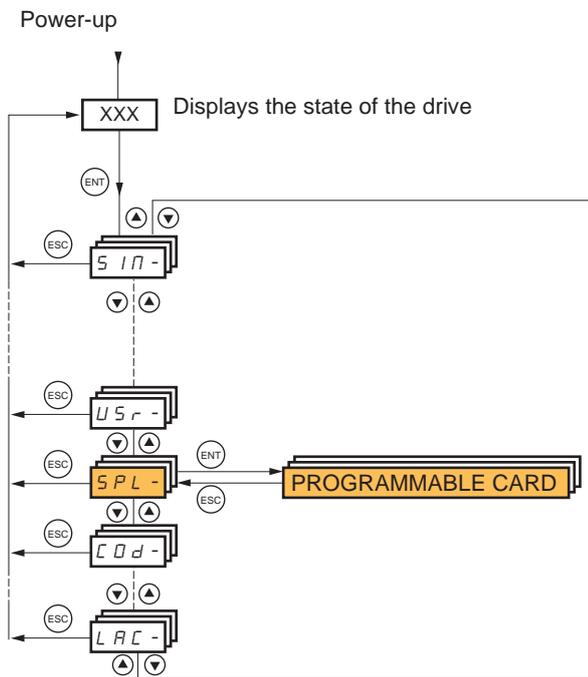
The **[Modbus add Prg C.]** (AMOA) parameter can be set, as in the (Ϲ Ο Π -) menu, (Π d I -) sub-menu.

Note: It is not possible to set either the date or the time.

Special program

Controller Inside HMI words are displayed in the form (O01) to (O50).

Lists are displayed in the format (EL1) to (EL20).