Variable speed drives
Altivar 31C
Communication buses and networks

Magelis XBT   Modicon M340

Modbus serial link

ATV 31C   ATV 31C   ATV 31C   ATV 61

Example of configuration on the Modbus serial link

Magelis XBT   Modicon M340

CANopen machine bus

I/O

XCC
encoder

ATV 31C   ATV 61

Sensors
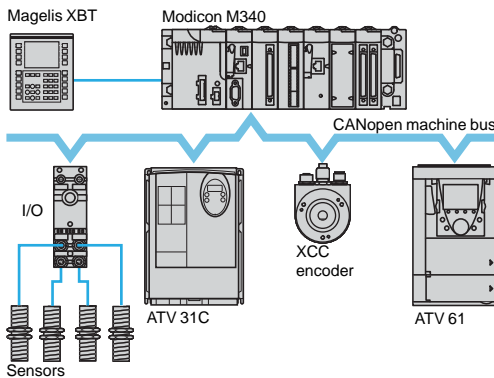
Example of configuration on CANopen machine bus

1

2
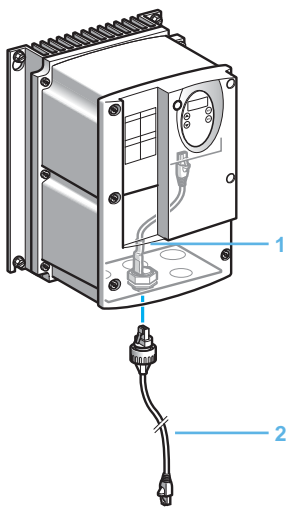
*RJ45 connection accessories with
IP 55 degree of protection*

Presentation

The Altivar 31C drive integrates the Modbus and CANopen communication protocols. Both these protocols can be accessed via the RJ45 communication port which can be located remotely under the enclosure with the IP 55 internal cable (see below).

The Altivar 31C drive can also be connected, via modules that are available as options, to the following industrial communication buses and networks:
■ Modbus TCP network
■ Fipio bus
■ PROFIBUS DP bus
■ DeviceNet network

The communication function provides access to the drive's configuration, adjustment, control and monitoring functions.

Functions

All the functions of the Altivar 31C drive can be accessed via the communication buses and networks:
■ Control
■ Monitoring
■ Adjustment
■ Configuration

The speed command and reference may come from the following control sources:
■ I/O terminals
■ Communication buses and networks
■ Remote display terminal

The Altivar 31C drive's advanced functions can be used to manage switching of these drive control sources according to the application requirements.

The communication periodic I/O data assignment can be selected using the network configuration software.
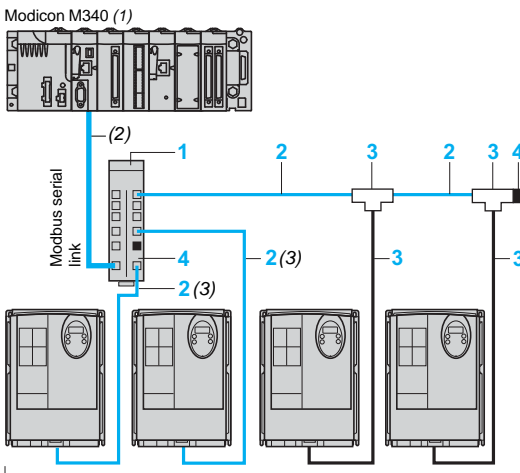
The Altivar 31C drive is controlled using the CiA 402 profile.

Communication is monitored according to criteria specific to each protocol. However, regardless of the protocol, it is possible to configure how the drive responds to a communication fault:
■ Freewheel stop, stop on ramp, fast stop or braked stop
■ Maintain the last command received
■ Fallback position at a predefined speed
■ Ignore the fault

RJ45 connection accessories with IP 55 degree of protection

Description	Item no.	Length m	Reference	Weight kg
Internal IP55 cable for Modbus and CANopen bus equipped with an RJ45 connector and an IP 55 RJ45 base. It can be used to locate the ATV 31C drive's RJ45 port remotely on the underside while maintaining the IP 55 degree of protection. Requires IP 55 external cable VW A0 1501 to ensure the IP 55 protection index is maintained.	1	0.3	**VW3 A0 1500**	0.050
External IP55 cable for Modbus and CANopen bus equipped with an RJ45 connector and an IP 55 RJ45 connector. It can be used to connect an ATV 31C drive equipped with a VW3 A0 1500 cable to ensure the IP 55 protection index is maintained.	2	3	**VW3 A0 1501**	0.130

Schneider Electric

version: 1.0

60447-EN.indd

References (continued)

Variable speed drives
Altivar 31C
Communication buses and networks

Modicon M340 *(1)*

Modbus serial link

— *(2)*

1   **2**   **3**   **2**   **3 4**

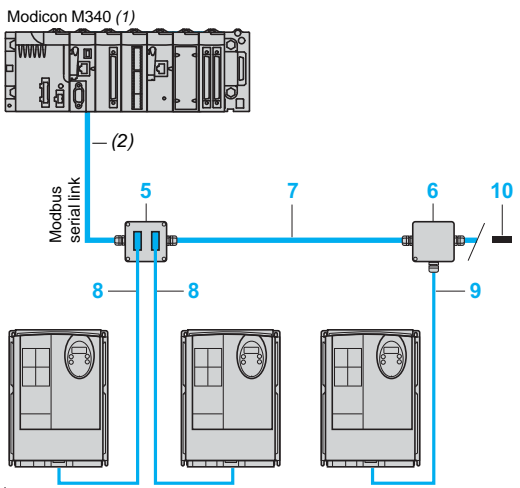**4**   **2** *(3)*   **3**   **3**

2 *(3)*

ATV 31C

Example of Modbus serial link architecture,
connections via splitter boxes and RJ45 connectors

Modbus serial link

Accessories for connection via splitter boxes and RJ45 connectors

Description	Item no.	Length	Unit reference	Weight
		m		kg
Modbus splitter box 10 RJ45 connectors and 1 screw terminal block	1	–	LU9 GC3	0.500
Cables for Modbus serial link equipped with 2 RJ45 connectors	2	0.3	VW3 A8 306 R03	0.025
		1	VW3 A8 306 R10	0.060
		3	VW3 A8 306 R30	0.130
Modbus T-junction boxes (with integrated cable)	3	0.3	VW3 A8 306 TF03	–
		1	VW3 A8 306 TF10	–
Modbus line terminator for RJ45 connector *(4)* *(5)*	R = 120 Ω, C = 1 nf	4	–	VW3 A8 306 RC	0.200
	R = 150 Ω	4	–	VW3 A8 306 R	0.200

Modicon M340 *(1)*

Modbus serial link

— *(2)*

5   **7**   **6**   **10**

8   **8**   **9**

ATV 31C

Example of Modbus serial link architecture,
connections via tap junctions

TSX SCA 62   TSX SCA 50

Accessories for connection via tap junctions

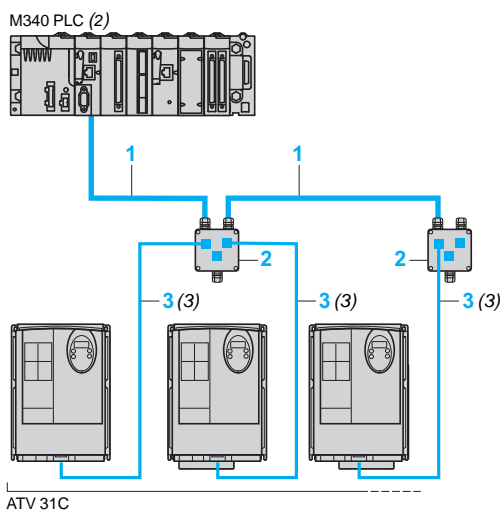| Description	Item no.	Length	Unit reference	Weight
		m		kg
Modbus subscriber socket 2 x 15-way female SUB-D connectors and 2 screw terminal blocks, RC line terminator To be connected using cable VW3 A8 306	5	–	TSX SCA 62	0.570
Modbus tap 3 screw terminal blocks, RC line terminator To be connected using cable VW3 A8 306 D30	6	–	TSX SCA 50	0.520
RS 485 double shielded twisted pair Modbus cables Supplied without connector	7	100	TSX CSA 100	–
		200	TSX CSA 200	–
		500	TSX CSA 500	–
Modbus drop cable 1 RJ45 connector and 1 x 15-way male SUB-D connector for TSX SCA 62	8	3	VW3 A8 306	0.150
Modbus drop cable 1 RJ45 connector and one stripped end for TSX SCA 50	9	3	VW3 A8 306 D30	0.150
Modbus line terminator for screw terminal block *(4) (5)*	R = 120 Ω, C = 1 nf	10	–	VW3 A8 306 DRC	0.200
	R = 150 Ω	10	–	VW3 A8 306 DR	0.200
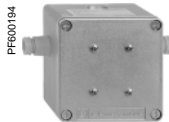
(1) Please refer to the "M340 Automation platform" catalogue.
(2) Cable dependent on the type of controller or PLC. Please consult our website "www.schneider-electric.com".
(3) Possibility of using the IP 55 external cable for Modbus and CANopen buses VW3 A0 1501 (see page 60447/2)
(4) Depends on the bus architecture.
(5) Order in multiples of 2.

Presentation:
page 60447/2

Characteristics:
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Functions:
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Variable speed drives
Altivar 31C
Communication buses and networks

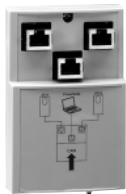*Example of architecture with CANopen machine bus*

TSX CAN C●●●●

VW3 CAN TAP2

CANopen machine bus

Connection cables and accessories *(1)*

Description	Item no.	Length	Unit reference	Weight
		m		**kg**
CANopen cable Standard cable, C€ marking. Low smoke emission, halogen-free. Flame retardant (IEC 60332-1)	1	50	**TSX CAN CA50**	4.930
		100	**TSX CAN CA100**	8.800
		300	**TSX CAN CA300**	24.560
CANopen cable Standard cable, UL certification, C€ marking Flame retardant (IEC 60332-2)	1	50	**TSX CAN CB50**	3.580
		100	**TSX CAN CB100**	7.840
		300	**TSX CAN CB300**	21.870
CANopen cable Cable for harsh environments *(4)* or mobile installations, C€ marking Low smoke emission, halogen-free. Flame retardant (IEC 60332-1)	1	50	**TSX CAN CD50**	3.510
		100	**TSX CAN CD100**	7.770
		300	**TSX CAN CD300**	21.700
IP20 CANopen junction boxes equipped with: ■ 2 screw terminal blocks for trunk cable tap link ■ 2 RJ45 connectors for connecting drives ■ 1 RJ45 connector for connecting a PC	2	–	**VW3 CAN TAP2**	0.480
Daisy chain tap equipped with: ■ 2 spring terminals for daisy chain connection of the CANopen bus ■ 1 cable equipped with an RJ45 connector for connecting the drive	–	0.6	**TCS CTN026M16M**	–
Daisy chain tap equipped with: ■ 2 RJ45 connectors for daisy chain connection of the CANopen bus ■ 1 cable equipped with an RJ45 connector for connecting the drive	–	0.3	**TCS CTN023F13M03**	–
CANopen line terminator for screw terminal connector *(5)*	–	–	**TCS CAR01NM120**	–
CANopen cordsets equipped with 2 RJ45 connectors	3 *(3)*	0.3	**VW3 CAN CARR03**	0.050
		1	**VW3 CAN CARR1**	0.500

(1) For other connection accessories, please refer to the "Industrial communication networks in machines and installations" catalogue.
(2) Please refer to the "M340 Automation platform" catalogue.
(3) Possibility of using the IP 55 external cable for Modbus and CANopen buses VW3 A0 1501 (see page 60447/2)
(4) Standard environment:
  - No particular environmental constraints
  - Operating temperature between + 5°C and + 60°C
  - Fixed installation
  Harsh environment:
  - Resistance to hydrocarbons, industrial oils, detergents, solder splashes
  - Relative humidity up to 100%
  - Saline atmosphere
  - Operating temperature between - 10°C and + 70°C
  - Significant temperature variations
(5) Order in multiples of 2.

Variable speed drives
Altivar 31C
Communication buses and networks

TSX ETG 100

LUF P1

Other communication buses and networks

Description	Cables to be connected	Reference	Weight kg
Ethernet Modbus gateway/router *(1)* Class B10 For connection to the Modbus TCP network	VW3 A8 306 D30 *(2)*	**TSX ETG 100**	–
Fipio/Modbus gateway *(3)* For connection to the Fipio bus	VW3 A8 306 R●● *(2)*	**LUF P1**	0.245
PROFIBUS DP/Modbus gateway *(3)* For connection to the PROFIBUS DP bus Parameters set using ABC Configurator software *(3)*	VW3 A8 306 R●● *(2)*	**LUF P7**	0.245
DeviceNet/Modbus gateway *(3)* For connection to the DeviceNet network	VW3 A8 306 R●● *(2)*	**LUF P9**	0.245

(1) Please refer to the "Industrial communication networks in machines and installations" catalogue.
(2) See page 60447/3.
(3) Please refer to the "TeSys U starter-controllers" catalogue.