

Transparent Ready Ethernet gateways FactoryCast HMI Web Gateway TSX ETG 30●●

Presentation

The FactoryCast HMI Gateway **ETG 30●●** range is a new offer of intelligent Web gateways that provide a low-cost modular remote management solution in combination with any Schneider Electric PLC or industrial controller: Quantum, Premium, Modicon M340, Twido, Zelio, Altivar, etc. They satisfy requirements for remote control gateways for widely distributed remote installations and RTU applications in sectors such as the water industry and infrastructure. In addition to gateway functions, they provide integrated Web portal and HMI services for local processing in the module itself.

TSX ETG 30●● offer

- **TSX ETG 3000**, an “all in one” standalone module: TCP/IP > Modbus serial gateway, RAS server, customizable Web server and HMI functions.
- **TSX ETG 3010**, an “all in one” standalone module: TCP/IP > Modbus serial gateway with embedded PSTN modem, RAS server, customizable Web server, HMI functions and I/O card.
- **TSX ETG 3021**, an “all in one” standalone module: TCP/IP > Modbus serial gateway with embedded GSM modem (900/1800 MHz “Europe” band), RAS server, customizable Web server, HMI functions, I/O card.
- **TSX ETG 3022**, an “all in one” standalone module: TCP/IP > Modbus serial gateway with embedded GSM modem (850/1900 MHz “USA” band), RAS server, customizable Web server, HMI functions and I/O card.

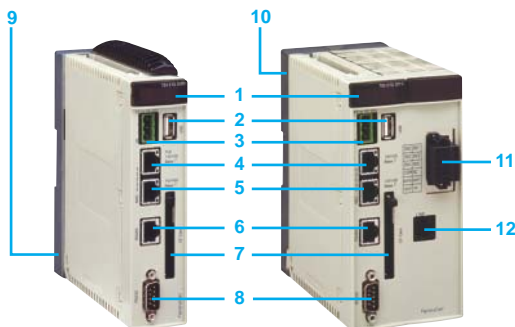
Main characteristics

- Hardware:
 - Transparent gateway functions: with Modbus TCP/IP > Modbus serial routing
 - Transparent gateway functions: PPP modem > serial link and Ethernet network
 - Remote access functions: Embedded RAS/modem (PSTN or GSM depending on the model) and management of external modem
 - Integrated I/O card: 6 digital inputs/2 digital outputs (depending on the model)
 - Wide operating temperature range:
 - **ETG 3000/3010**: -25°C to +75°C
 - **ETG 3021/3022**: 0°C to +60°C
- Web and HMI services:
 - Customizable Web server
 - Supervision by Web browser with multi-station graphic Human Machine Interface
 - Data acquisition by automatic polling of devices connected to the gateway on serial link and Ethernet
 - Alarm and report notification by e-mail and SMS
 - Time and date stamped data logging in the module
 - Time and date stamped data logging in relational databases with direct connection to SQL, Oracle or MySQL servers
 - Recipe management
 - Direct interfacing with information management applications (MES, SCADA, Office) with data exchanges using the standard protocol, non-proprietary SOAP/XML

Description

TSX ETG 30●● FactoryCast gateways have the following on the front panel:

- 1 Indicator lights.
- 2 USB port.
- 3 Terminal block for connecting the 12 or 24 V DC power supply.
- 4 RJ45 PoE (Power over Ethernet) connector for Ethernet link. PoE technology is only available on the TSX ETG 3000 module.
- 5 RJ45 connector for Ethernet link.
- 6 RJ45 connector for Modbus RS485 link.
- 7 Slot for Compact Flash card.
- 8 9-way SUB-D connector for RS232 modem link.
- 9 Support plate for fixing the module directly to an AM1-DE200/DP200 DIN rail or to a Telequick AM1-PA pre-slotted plate.
- 10 Support plate for fixing the module directly to an AM1-DE200/DP200 DIN rail or to a Telequick AM1-PA pre-slotted plate.
- 11 Digital I/O terminal block interface
- 12 RJ11 connector for PSTN telephone link.
- 13 Connector for GSM antenna.



TSX ETG 3000

TSX ETG 3010



TSX ETG 3021

Transparent Ready

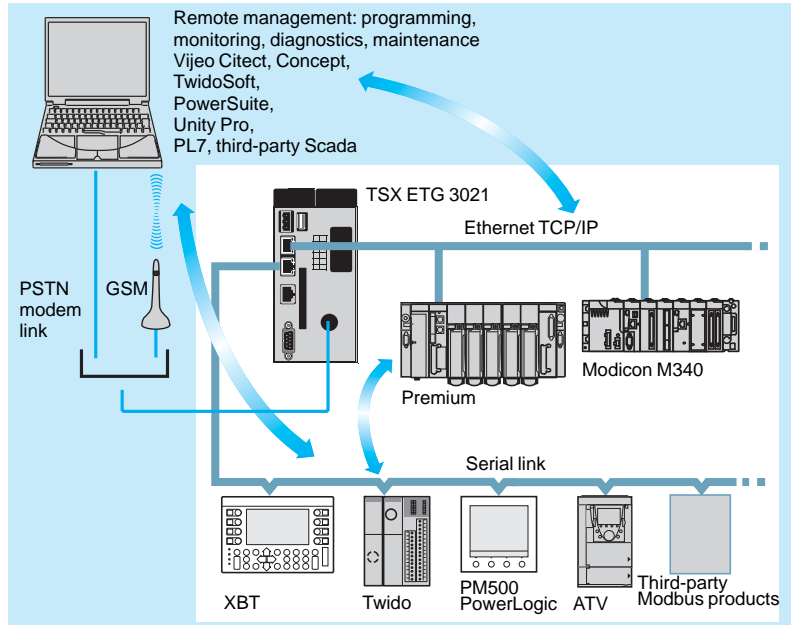
Ethernet gateways

FactoryCast HMI Web Gateway

TSX ETG 30●●

Application examples

Remote access and remote management via embedded modem



Remote access to devices

TSX ETG 30●● gateways provide access to remote devices via embedded modem (PSTN, GSM/GPRS) and powerful remote management resources for all widely distributed infrastructures and RTU (Remote Terminal Unit) installations. Depending on the model, they integrate an RAS (Remote Access Server) function, a modem (PSTN or GSM/GPRS) and support a second external modem compatible with any type of modem (PSTN, GSM, radio modem, etc.), Intranet/VPN (Virtual Private Network) link.

This type of connection is suitable for the requirements of remote management, remote monitoring and control and remote maintenance when the sites or substations to be monitored are spread over a wide geographical area. It can be used to configure, program and supervise remote Ethernet and Modbus devices connected to the gateway using Schneider Electric software or any third-party supervisor:

- Unity Pro, PL7, Concept, TwidoSoft, PowerSuite, etc.
- Vijeo Citect supervisor, OPC server (OFS), third-party SCADA, etc.

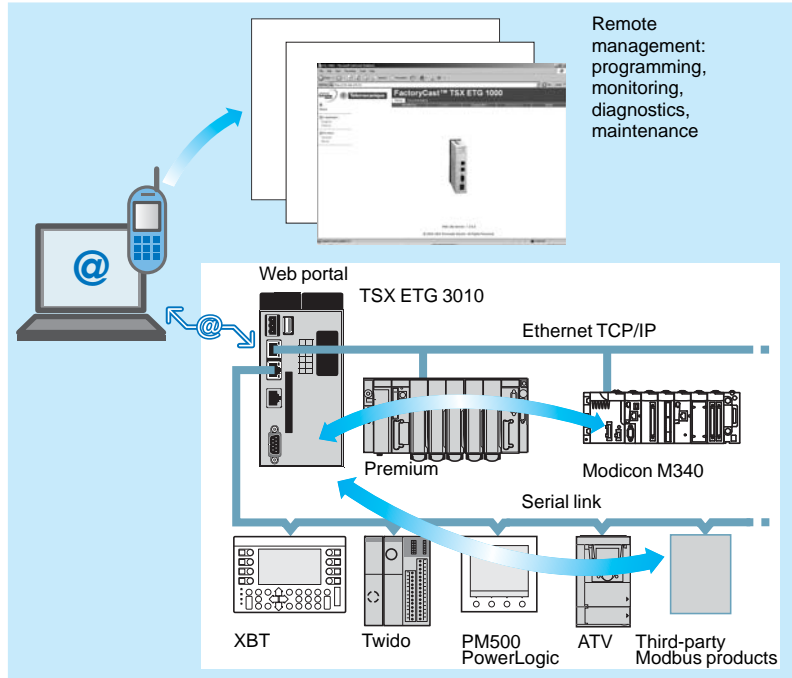
Main functions:

- **Gateway/routing functions:** TCP/IP > Serial Link providing transparent access to any device present on the serial link or the Ethernet infrastructure
- **Embedded modem:** Or external (GSM/PSTN) embedded RAS access server
- **PPP protocol (Point to Point Protocol):** Managing incoming and outgoing calls
- **Secure access** by filtering IP client addresses in order to control access with password protection (miniature firewall)
- **Web server:** For application diagnostics and supervision using a simple internet browser
- **Local processing with embedded HMI functions:** Data Logging, alarm and report notification by e-mail/SMS, recipe management, etc.

Modbus serial or Ethernet devices can be Twido controllers, Compact, Momentum, TSX Micro, Premium, Quantum, Modicon M340 PLCs, Altivar variable speed drives, Altistart, TesysU soft starters, Sepam/PM500 electrical distribution equipment, etc. or any other third-party product compatible with the Modbus standard.

Application examples (continued)

HMI Web portal and concentrator/acquisition



Concentrator and Web portal

The integration of a Web server and HMI functions in **TSX ETG 30●●** gateways means that, in addition to the gateway functions, the user has a real Web portal for remote monitoring, remote control and advanced remote maintenance as well as a “Concentrator” type data acquisition and logging system.

The embedded HMI functions allow standalone local processing to be executed in the module without requiring the addition of a supervisor when this is not necessary.

Main Web and HMI functions:

- Multi-station graphic interface for supervision and control using a simple internet browser
- Hosting of user-defined Web pages
- Data acquisition and monitoring, process events and variables/states from connected devices (Serial or Ethernet)
- Alarm and report notification by e-mail or SMS (via Ethernet or modem)
- Data Logging: Data logging with time and date stamping in the module (events and process values)
- Database connection: Data logging in relational databases (SQL, Oracle, MySQL)
- Recipe management

The Web server is fully customizable so that it can be adapted to the user's requirements. Both the hosting of Web pages and any other documents created by the user, and also alarm notification by e-mail mean that the user can access the essential process parameters remotely and in a preventive manner.

Benefits of the HMI Web portal:

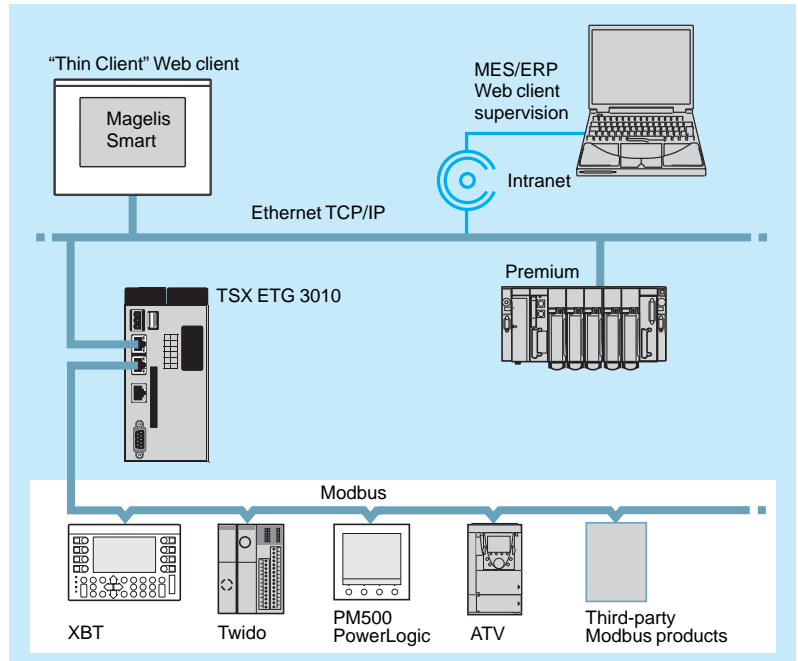
This portal function represents a robust and reliable solution that is particularly useful for the following applications:

- **Acquisition portal/Concentrator** with Web functions and local processing, data logging, alarms, recipes, etc.
- **Standalone HMI** executed in the **TSX ETG 30●●** module when a conventional HMI or supervisor is not required. It provides a robust, low-cost multi-station solution with remote supervision by a simple Web browser.
- **Hybrid solution** with conventional HMI or supervisor, adding simplified remote monitoring and diagnostics.
- **“Standby” function of an existing supervisor**, providing a standby solution for certain critical supervisor functions such as data acquisition and logging, alarm and report notification, etc., executed in the **TSX ETG 30●●** module.

(1) Modem embedded in TSX ETG 3010 and TSX ETG 3020.

Application examples (continued)

Integration of serial devices (Modbus) in an Ethernet TCP/IP network infrastructure



Integration of serial devices

TSX ETG 30●● gateways provide a simple and low-cost means of integrating any existing Modbus serial device, installation or automation island in an Ethernet TCP/IP network infrastructure.

Each gateway therefore makes the serial installations directly accessible by computer management (MES, ERP) or supervision applications in real time.

The following serial Modbus or Ethernet devices can be used:

Twido controllers, Compact, Momentum, TSX Micro, Premium, Quantum, Modicon M340 PLCs, Altivar variable speed drives, Altistart, TesysU soft starters, Sepam/PM500 electrical distribution equipment, etc. or any other third-party product compatible with the Modbus standard.

In addition, its customizable Web server, accessible from any PC or Thin Client terminal (for example, Magelis Smart) equipped with an Internet browser, offers the following additional services:

- Diagnostics of Modbus devices
- Reading/writing of Modbus registers
- Alarm notification by e-mail
- Graphic monitoring

Characteristics		TSX ETG 3000	TSX ETG 3010	TSX ETG 3021	TSX ETG 3022
FactoryCast Gateway					
Web gateway module					
Transparent Ready services	Class	D20			
	Gateway/Router function	Ethernet TCI/IP ↔ Modbus transparent gateway, Modem ↔ Modbus and Modem ↔ Ethernet TCP/IP gateway. Routing of Modbus and TCP messaging and I/O scanning service.			
Remote access functions	Remote control, Remote management and RTU	Transparent access via Ethernet link and embedded Modem (PPP link): telephone (PSTN), GSM/GPRS, or external modem. Access to PLC variables and Modbus devices: read/write, Modbus and TCP messaging. Access to configuration, programming, monitoring, diagnostic functions. File transfer. Remote PLC programming/configuration with Unity Pro, TwidoSuite, PL7, ProWORX 32 and Concept software. Local or remote monitoring with Supervisor: Vijeo Citect, OPC server (OFS), etc. Local or remote monitoring using Web pages (embedded Web server).			
Configurable Web server		Portal type Web server: 32 MB of memory available + Compact Flash or USB stick memory extension up to 1 GB. Device diagnostic, control and monitoring functions via predefined Web pages. Access to the list of connected products. Fully customizable Graphic monitoring interface. Hosting of Web pages and any user document (doc, pdf, xls files, etc). Security: Embedded miniature firewall (IP address filtering) and password protection.			
HMI functions		Graphics editor for the creation of customized graphical views. Data acquisition by automatic polling on Modbus (32 devices) and Ethernet (5 devices). Calculations for pre-processing/presentation of data. Alarm notification and Reporting by e-mail and SMS. Data logging with time and date stamping, in the module (csv file, export by attachment in an e-mail or via FTP). Remote data logging by direct connectivity with SQL, Oracle, MySQL databases. Recipe management. SOAP/XML communication for direct interfacing with office and computer management applications.			
Connectivity	Ethernet TCP/IP	2 10BASE-T/100BASE-TX ports, with integrated switch for daisy chain wiring. 10/100 Mbps with automatic speed recognition, RJ45 connector, twisted pairs. Modbus TCP/IP protocol. HTTP, FTP, SNMP agent, SMTP client, DHCP, DNS protocols. Clock synchronization via NTP. SOAP/XML communications			
	Modem	Internal	No	PSTN telephone	GSM 900/1800 MHz
		External	PSTN or GSM: RS 232C link, half- or full-duplex, 57 kbps, 9-way SUB-D connector.		
	Modem services		Modbus TCP/IP, PPP protocols (incoming and outgoing calls), PAP authentication protocol. Remote access via embedded RAS compatible with PSTN, GSM and VPN modem		
	Serial link		Modbus RS 485 link, 115 kbps max., standard RJ 45 connector Modbus Master: 31 slave devices that can be connected		
	Integrated discrete I/O		No	6 discrete Inputs/2 discrete Outputs (positive logic) Control by the module or by an external PLC.	
Memory	Internal	32 MB of memory available for Web site and application			
	Compact Flash	Slot for type II standard Compact Flash card. Capacity: up to 1 GB.			
	USB memory stick	USB 1.1 Host Interface, type A standard USB connector. Can be used to extend the memory with a USB memory stick up to 1 GB.			
Characteristics	Operating temperature	-25°C... +75°C (without fan)		0°C... +60°C (without fan)	
	Relative humidity	10...95% non condensing during operation			
	Degree of protection	IP 20			
	External power supply	24 V $\overline{\text{---}}$ (limits = 19.2...30 V), 100 mA, or on TSX ETG3000 via supply device using Ethernet cable (PoE-Power Over Ethernet - IEEE 802.3af standard)			
	Power supply, PoE - Power Over Ethernet	Via Ethernet cable according to standard PoE IEEE 802.3			
	Compliance with standards	ISO/IEC 8802-3, ANSI/IEEE Std 802.3, EN 61000-6-4, EN 55011 Class A, IEC/EN 61131-2, UL 508, CSA C22.2 No. 142, CSA C22.2 No. 213 Class 1 Division 2. Integrated modem standards: PSTN/ISDN R&TTE, FCCpart68, CS03, GSM R&TTE, GCF, Atick.			
	LED indicators	BAT (battery), RUN, ERR, ETH (Ethernet activity), EXT (memory extension), CH0, CH1, CH2 (PPP, Modbus, modem activity)			
	Dimensions W x H x D (mm)	31.63 x 151.5 x 116.7		73.2 x 151.5 x 116.7	

Transparent Ready

Ethernet gateways

FactoryCast HMI Web Gateway

TSX ETG 30●●

References



TSX ETG 3000 TSX ETG 3010



TSX ETG 3021/22

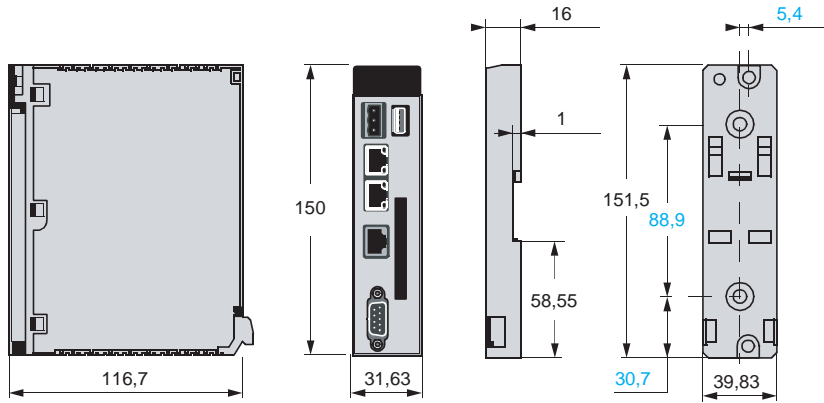
Description	Routing	Reference	Weight kg
FactoryCast HMI GatewayWeb gateways/servers	Ethernet/Modbus RTU	TSX ETG 3000	0.530
	Modem/Modbus RTU	TSX ETG 3010	0.912
	Modem/Ethernet	TSX ETG 3020	0.922
Class D20			
Web Designer software included on CD-ROM		TSX ETG 3022	0.922

Accessories

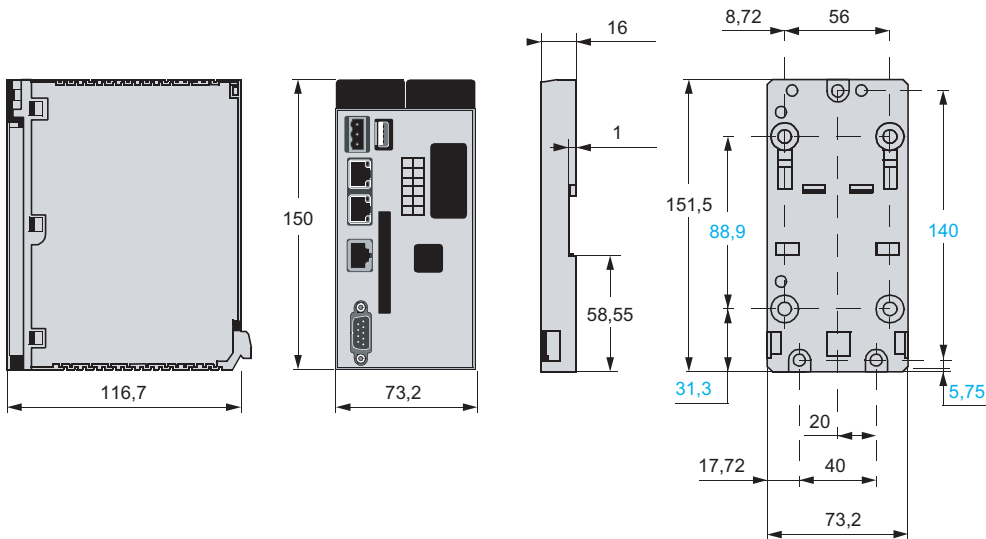
Description	Reference	Weight kg
Kits comprising connectors, power supplies and I/O	TSX ETG ACC01	–
Battery for TSX ETG 3●●●	TSX ETG ACC02	–
1 GB Compact Flash memory card Operating temperature: -25°C to +75°C	TSX ETG CF01 GI	–

Dimensions

■ Dimensions of the TSX ETG 3000 module.

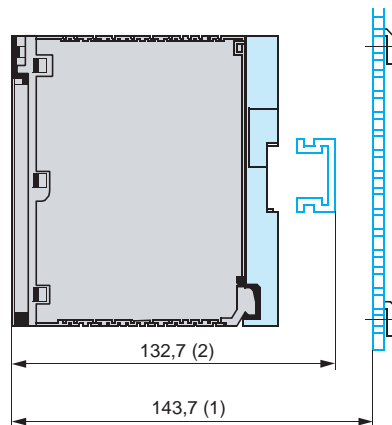


■ Dimensions of the TSX ETG 3010/3020/3022 modules.



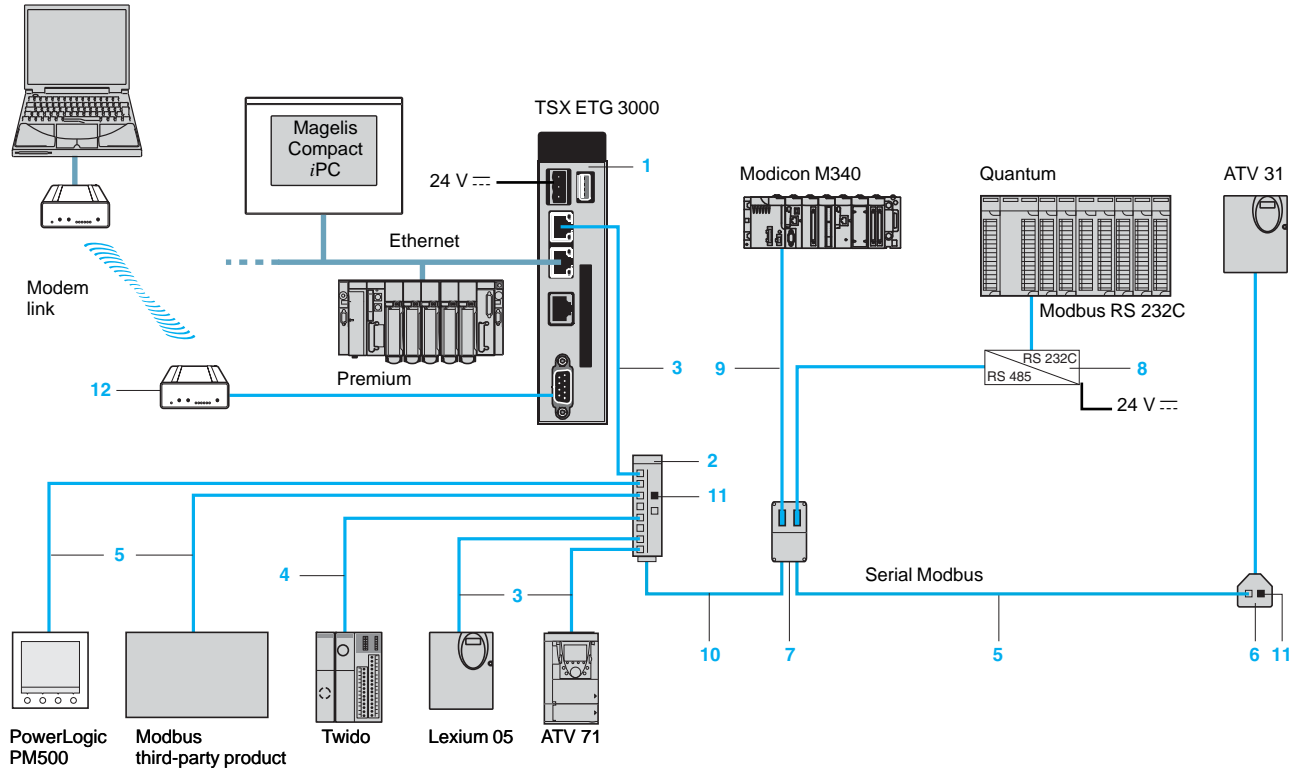
Mounting

■ Illustration of the module mounted on an AM1-DE200, AM1-DP200 rail or on an AM1-PA plate.



(1) 136.2 mm with **AM1 DP200** rail.
 (2) Mounting on **AM1 PA** plate.

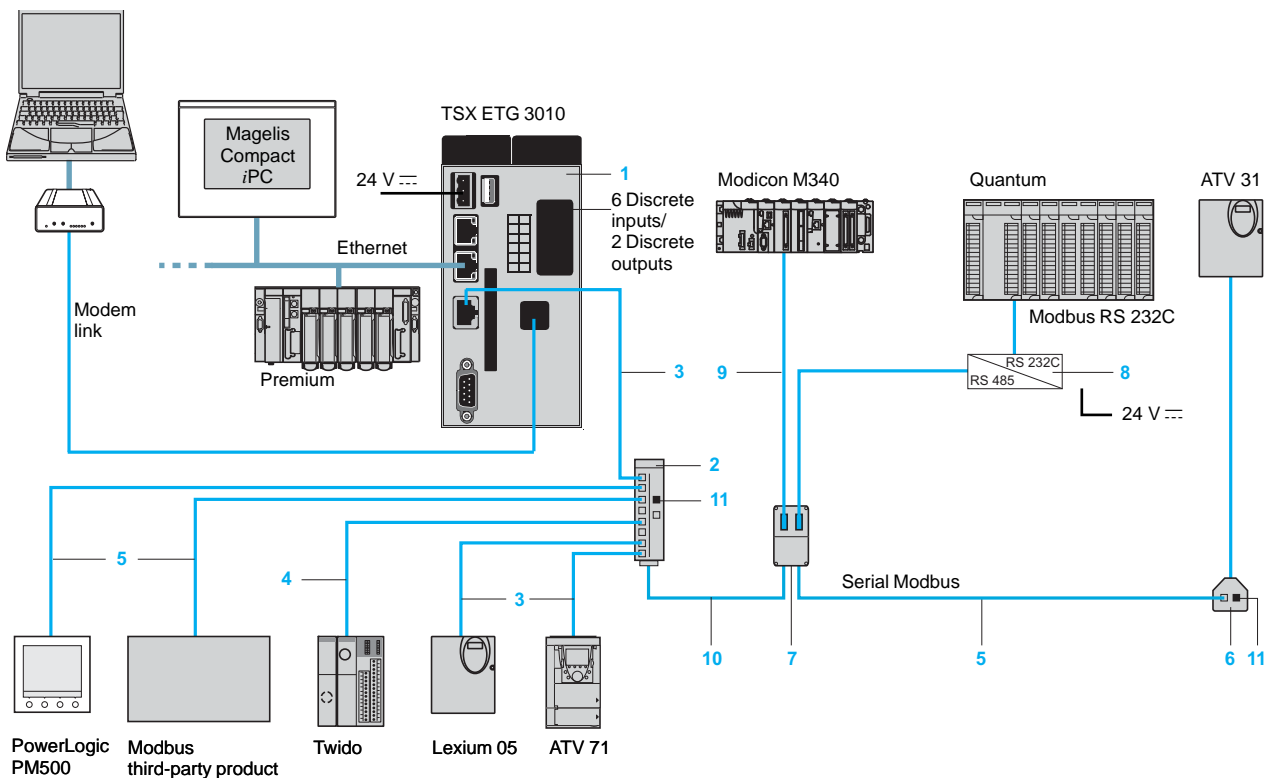
Modbus TSX ETG 3000 gateway connections



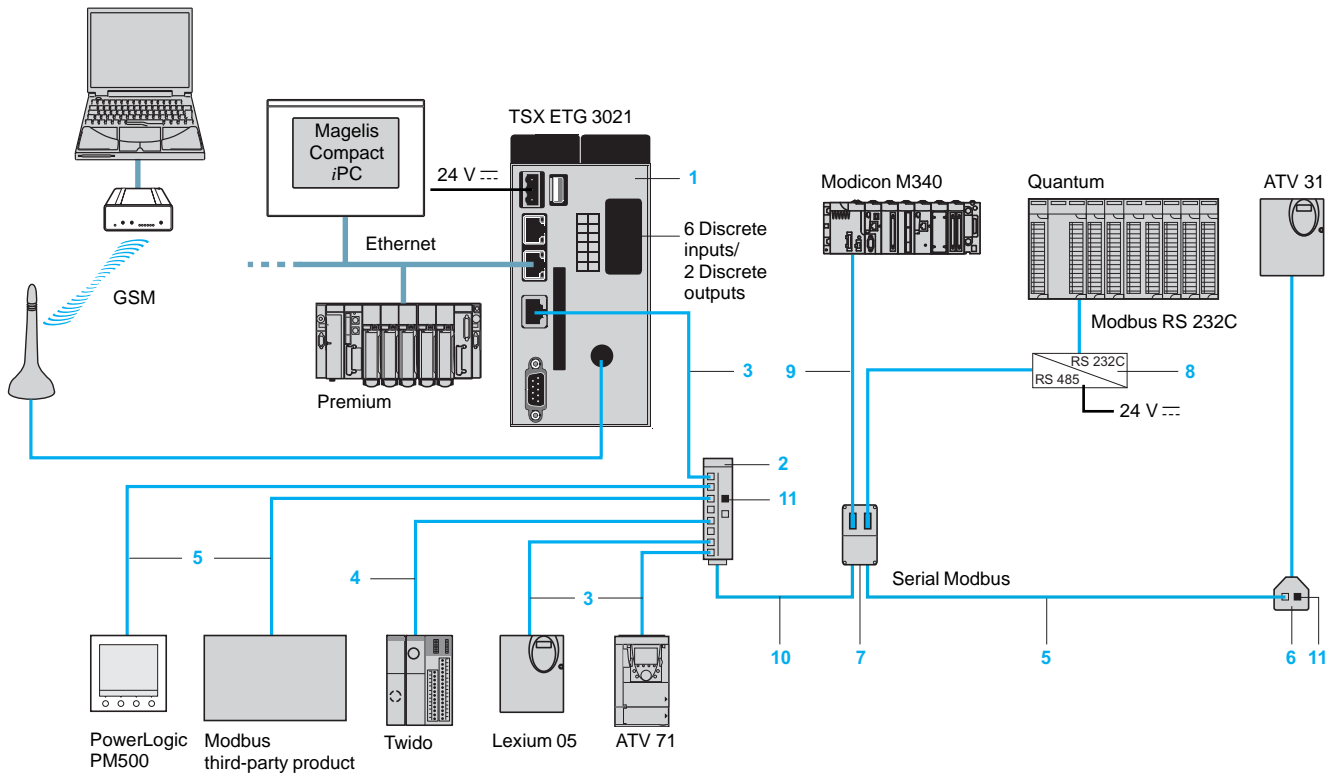
12 PSTN, GSM or radio modem. These types of modem are offered by a number of our partners. For more information, visit the following www sites:

- Etic: www.etictelecom.com
- Gener: www.gener.fr
- Prosoft Technology: www.radiolinx.com
- Wavecom: www.wavecom.com
- Westermo: www.westermo.se

Modbus TSX ETG 3010 gateway connections



Modbus TSX ETG 3021/22 gateway connections



References for Modbus accessories, cordsets and cables

Designation	Description	No.	Length	Unit reference	Weight kg
Modbus splitter box	10 x RJ45 connectors and 1 screw terminal block	2	–	LU9 GC3	0.500
T-junction boxes	2 x RJ45 connectors, 1 integrated cable with RJ45 connector	6	0.3 m 1 m	VW3 A8 306 TF03 VW3 A8 306 TF10	– –
Passive 2-channel subscriber socket (2 or 4-wire)	2-wire tap-off point for 2 devices Equipped with 2 x 15-way female SUB-D connectors	7	–	TSX SCA 64	0.570
RS 232C/RS 485 line adapter without modem signals	Power supply 24 V $\overline{\text{---}}$ /20 mA, 19.2 Kbps Mounting on 35 mm $\overline{\text{---}}$	8	–	XGS Z24	0.100
Modbus RS 485 cordsets	2 x RJ45 connectors	3	0.3 m 1 m 3 m	VW3 A8 306 R03 VW3 A8 306 R10 VW3 A8 306 R30	0.030 0.050 0.150
	1 x mini-DIN connector for Twido controller (RS 485 adapter or serial module) One RJ45 connector	4	0.3 m 1 m 3 m	TWD XCA RJ003 TWD XCA RJ010 TWD XCA RJ030	0.040 0.090 0.160
	1 x RJ45 connector and 1 end with flying leads	5	3 m	VW3 A8 306 D30	0.150
	1 x miniature connector and 1 x SUB-D connector 15-way (1)	9	3 m	TSX SCP CM 4530	0.180
RS 485 double shielded twisted pair trunk cables (2)	Modbus serial link, supplied without connector	10	100 m 200 m 500 m	TSX CSA 100 TSX CSA 200 TSX CSA 500	5.680 10.920 30.000
Line terminator	For RJ45 connector R = 120 Ω , C = 1 nF	11	<i>Sold in lots of 2</i>	VW3 A8 306 RC	0.200



LU9 GC3



TSX SCA 64



XGS Z24

(1) Miniature connector at TSX SCP 114 PCMCIA Premium card end and 15-way SUB-D connector at TSX SCA 64 subscriber socket end.

(2) Other Modbus RS 485 cable (2-wire RS 485 + 2-wire power supply), type CCR301, reference for 60 m long cable on reel: 50965, Merlin Gerin brand.