Presentation

Web servers and 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 cost-effective 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 of widely distributed installations and RTU applications in sectors such as the water industry and other infrastructures. In addition to gateway and remote access 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 built-in 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, built-in 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, built-in HMI functions and 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, built-in HMI functions and I/O card.

Main characteristics

- Hardware:
  - Transparent gateway functions: Modbus TCP/IP > Modbus serial routing
  - Transparent gateway functions: PPP modem > serial link and Ethernet network routing
  - 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
  - Data logging in the module with time stamping
  - 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.
Application examples

Remote access and remote management via embedded modem

Remote control: programming, monitoring, diagnostics, maintenance
Vijeo Citect, Concept, TwidoSoft, PowerSuite, Unity Pro, PL7, third-party Scada

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 a RAS (Remote Access Server) function, a modem (PSTN or GSM/GPRS) and support an 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 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 SCADA:
- 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 or external modem (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 (mini firewall)
- Web server: For application diagnostics and supervision using a simple internet browser
- Local processing with built-in HMI/SCADA 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 front-end

The integration of a Web server and HMI/SCADA 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 data logging system. The built-in SCADA 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
- Data Logging: Data logging in the module with time stamping (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

TSX ETG 30●● gateways provide a simple and cost-effective 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

#### Web gateway module

<table>
<thead>
<tr>
<th>Feature</th>
<th>TSX ETG 3000</th>
<th>TSX ETG 3010</th>
<th>TSX ETG 3021</th>
<th>TSX ETG 3022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transparent Ready services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>D0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote control</td>
<td>Transparent access via Ethernet link and embedded Modem (PPP link): telephone (PSTN), GSM/GPRS, or external modem. Access to PLC and Modbus devices variables: 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).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Configurable Web server</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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: Built-in mini firewall (IP address filtering) and password protection.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HMI functions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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 in the module with time stamping (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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td>Ethernet TCP/IP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modem services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>No</td>
<td>PSTN telephone</td>
<td>GSM 900/1800 MHz</td>
<td>GSM 850/1900 MHz</td>
</tr>
<tr>
<td>External</td>
<td>PSTN or GSM: RS 232C link, half- or full-duplex, 57 kbps, 9-way SUB-D connector. Modbus TCP/IP protocol. HTTP, FTP, SNMP agent, SMTP client, DHCP, DNS protocols. Clock synchronisation via NTP. SOAP/XML communication for direct interfacing with office and computer management applications.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remote access functions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote control</td>
<td>No</td>
<td>6 discrete Inputs/2 discrete Outputs (positive logic)</td>
<td>6 discrete Inputs/2 discrete Outputs (positive logic)</td>
<td>6 discrete Inputs/2 discrete Outputs (positive logic)</td>
</tr>
<tr>
<td>Remote management and RTU</td>
<td>Control by the module or by an external PLC.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>32 MB of memory available for Web site and application</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compact Flash</td>
<td>Slot for type II standard Compact Flash card. Capacity: up to 1 GB.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB memory stick</td>
<td>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.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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 30
- **External power supply**: 12 V DC or 24 V DC (limits = 9...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
- **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. x 151.5 x 116.7
### References

#### FactoryCast HMI Gateway

<table>
<thead>
<tr>
<th>Description</th>
<th>Routing</th>
<th>Reference</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet TCP/IP-Modbus gateway, class D0, with RAS server, customizable Web server and HMI function portal.</td>
<td>–</td>
<td>TSX ETG 3000</td>
<td>0.530</td>
</tr>
<tr>
<td>Web Designer software included on CD-ROM.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethernet TCP/IP-Modbus gateway, class D20, with RAS server, customizable Web server, HMI function portal and 6 I/O interface.</td>
<td>PSTN telephone</td>
<td>TSX ETG 3010</td>
<td>0.912</td>
</tr>
<tr>
<td>GSM 900/1800 MHz “Europe”</td>
<td>GSM 900/1800 MHz “Europe”</td>
<td>TSX ETG 3021</td>
<td>0.922</td>
</tr>
<tr>
<td>GSM 850/1900 MHz “USA”</td>
<td>GSM 850/1900 MHz “USA”</td>
<td>TSX ETG 3022</td>
<td>0.922</td>
</tr>
</tbody>
</table>

#### Optional parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Reference</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kit of connectors for:</td>
<td>TSX ETG ACC01</td>
<td>–</td>
</tr>
<tr>
<td>- power supply</td>
<td>- I/O terminals</td>
<td>-</td>
</tr>
<tr>
<td>1 GB Compact Flash memory card</td>
<td>TSX ETG CF01 GI</td>
<td>–</td>
</tr>
<tr>
<td>Operating temperature:</td>
<td>-25°C to +75°C</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Replacement parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Reference</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery for TSX ETG 3000</td>
<td>TSX ETG ACC02</td>
<td>–</td>
</tr>
</tbody>
</table>
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.
Connections

Web servers and gateways
FactoryCast HMI Web Gateway
TSX ETG 30

Modbus TSX ETG 3000 gateway connections

Modbus TSX ETG 3010 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
## References for Modbus accessories, cordsets and cables

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

(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.