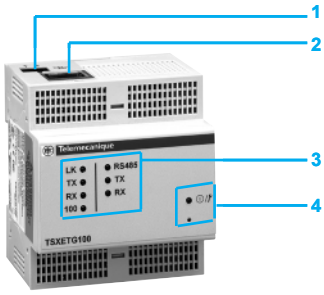
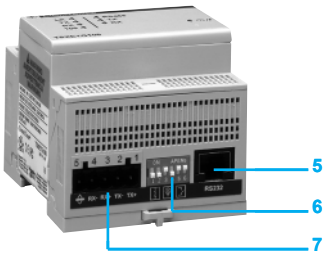
Ethernet in Machines and Installations

Ethernet gateways

Ethernet/Modbus gateway





Presentation

TSX ETG 100 gateway provides a simple and low-cost means of integrating any existing Modbus serial RTU device, installation or automation island in an Ethernet TCP/IP network infrastructure.
The gateway is able to make the serial Modbus devices directly accessible to high level application in real time (management, SCADA).

Modbus serial devices can be Twido controller, Compact/Momentum/ Premium/Quantum PLCs, Altivar variable speed drives, Altistart starters, Magelis terminals or any other products compatible withe the Modbus standards.

Description

TSX ETG 100 gateway is an IP 30 box, mounted on DIN rail.

1 A screw terminal for connecting the ⎓ 24 V power supply.
2 A standard RJ45 connector for 10BASE-T/100BASE-TX interface.
3 Seven LED indicators for Ethernet communication (LK, RX, TX, 100), and serial link communication (RS485, RX, TX).
4 A LED indicator for ⎓ 24 V power supply and Reset button.
5 A RJ45 connector for Modbus RS 232 sérial link.
6 A micro switches for 2 or 4-wire RS 485 serial link configuration.
7 A 5-way removable terminal block for Modbus RS 485 serial link .

Characteristics

Type of gateway			TSX ETG 100
Transparent Ready services	Class		B10
	Standard Web services	Configuration	Predefined Web pages
		Read/Write	Acces to connected products list, reading of Modbus devices registers
		Diagnostic	Via predefined Web pages : diagnostic on Ethernet and Modbus links
	Ethernet TCP/IP communication management services	Modbus messaging	Read/Write Modbus registers of connected devices
		SNMP	SNMP Agent, device administration with a SNMP manager
		BOOTP protocol	FDR Client (replacement of defective product)
		Security	Miniature firewall on-board (IP address filtering) and password protection
Ethernet connectivity	Physical interface		10BASE-T/100BASE-TX (RJ45)
	Data rate		10/100 Mbps with automatic recognition
	Medium		Twisted pair
Modbus connectivity	Type of port		RS 485 (2 or 4-wire) or RS 232
	Protocol		Modbus (RTU and ASCII)
	Maxi transmission speed		38,4 Kbps (RS 485), 57,6 Kbps (RS 232)
	Number of devices		32 max.
Other characteristics	Operating temperature		0...+ 60 °C
	Relative humidity		5…95% non condensing at 40 °C
	Degree of protection		IP 30
	Dimensions (L x H x P)		72 x 81 x 76 mm, mounting on symmetrical DIN rail
	Power supply		⎓ 24 V, 4 W or by power supply device PoE (*Power Over Ethernet* - IEEE 802.3af)
	Conformity to standards		UL, cUL (conforming to CSA C22-2 no. 14-M91), UL508, CE
	Environmental resistance		EN 61000-6-2, EN 61000-4-2/3/4/5/6/8, EN 55022/FCC class A

References

TSX ETG 100

TCS EAQ 0100

Description	Fonctions	References	Weight kg
Modbus Ethernet gateway/router Class B 10	**Twido, Compact, Momentum, TSX Micro, Altivar, Altistart, Magelis, … All products compatible with Modbus standard**	**TSX ETG 100**	–
Kit for configuration	**Allows gateway configuration through Ethernet or RS 232 port. Comprises RJ45/9-way SUB-D adaptator and a CAT5 twisted pair cable, 3 m length**	**TCS EAK 0100**	–
PoE power supply (conform to IEEE 802.3af)	**Allows gateway power supply through Ethernet CAT5 cable. Daisy chain power supply connection. Include power supply cable (Australia, Europa, UK and USA)**	**TCS EAQ 0100**	–

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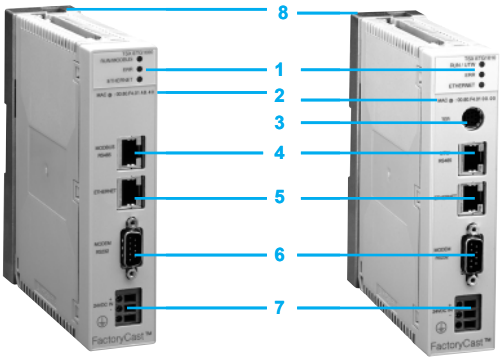
Web FactoryCast Gateway



TSX ETG 1000 *TSX ETG 1010*

Presentation

FactoryCast Gateway is a new offer of “all in one” intelligent Web gateways integrating, in a standalone compact unit:

- All the TCP/IP network communication and serial link (Modbus or Uni-Telway) interfaces.
- An RAS remote access *(1)*/IP Router function.
- A customizable Web server .

TSX ETG 1000/1010 gateways are a low-cost response to the need to integrate serial link installations in an existing Ethernet TCP/IP infrastructure as well as requirements for remote access services including remote diagnostics, remote maintenance, remote monitoring and remote control.

Description

TSX ETG 1000/1010 FactoryCast Gateways feature, on the front panel:

1 Three LEDs indicating the gateway status (RUN, ERR, Ethernet)
2 The module MAC address (default factory-set address)
3 A mini-DIN connector for connection to the terminal port (marked TER)
4 An RJ45 connector for the serial link (Modbus or Uni-Telway) (marked RS 485)
5 A standard RJ45 connector for connection to the Ethernet TCP/IP network (marked ETHERNET)
6 A 9-way male SUB-D connector for the RS 232 serial link (marked Modem RS 232)
7 A screw terminal for connecting the 24 V⎓ external power supply
8 A support plate for fixing the module to a DIN rail or an AM1-PA pre-slotted plate

Characteristics

Web gateway module		FactoryCast Gateway	TSX ETG 1000	TSX ETG 1010
Transparent Ready services Class C20	Gateway/router function		Ethernet TCP/IP gateway to Modbus, modem to Modbus and modem to Ethernet TCP/IP with IP routing	Ethernet TCP/IP gateway to Uni-Telway, modem to Uni-Telway and modem to Ethernet TCP/IP with IP routing
			Routing of the I/O Scanning service	
	Protocols	Serial	Modbus master	Uni-Telway slave
		TCP/IP	Modbus TCP/IP	Uni-TE TCP and/or Modbus TCP/IP
	Standard Web services	Configuration	Via predefined Web pages	
		Diagnostic	Via predefined Web pages: Diagnostics on Ethernet link, serial link, modem link; and diagnostics on e-mail and FDR services	
		Read/write	Data editor, “ready-to-use” Web pages: Access to connected device registers	
	Configurable Web services		HTTP server (8 MB of Flash memory available)	
			Hosting of animated Web pages created by the user and all documents (doc, pdf, etc.)	
			Library of graphic objects (Java applet) with Wizard utility for FrontPage	
			File upload/download via FTP	
	E-mail service		Alarm notification by e-mail (via remote SMTP server)	
	Ethernet TCP/IP advanced communication services	BootP/DHCP protocol	Automatic assignment of IP address, FDR client (replacement of defective product)	
		SNMP	SNMP agent, administration of the device by an SNMP manager	
		Security	Miniature firewall on-board (IP address filtering) and password protection	
Connectivity	Ethernet TCP/IP	Physical interface	RJ45 standard 10BASE-T/100BASE-TX connector	
		Data rate	10/100 Mbps with automatic recognition	
		Medium	Twisted pairs	
	Modem	Physical interface	RS 232C link, half- or full-duplex, 57 kbps, 9-way SUB-D connector PPP protocol (incoming and outgoing calls), PAP authentication protocol	
		Services	Remote access via RAS compatible with RTC, GSM, VPN modem	
	Serial link	Physical interface	Modbus RS 485 link, max. 115 kbps, standard RJ45 connector	Uni-Telway RS 485 link, max. 19.2 kbps, standard RJ45 connector
		No. of devices	32 max.	
Characteristics	Operating temperature		0 to + 60°C	
	Relative humidity		10 to 95% non condensing during operation	
	Degree of protection		IP 20	
	Power supply		⎓ 24 V (limits ⎓ 19.2 to 30 V), 100 mA	
	Conformity to 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	
			Pending: Marine Marchande certifications	
	LED indicators		Modbus activity (RUN Modbus)	Uni-Telway activity (RUN/UTW)
			Ethernet activity (ETHERNET), gateway error (ERR)	

TSX ETG 1000 *TSX ETG 1010*

References

Designation	Routing	Reference	Weight kg
Web FactoryCast Gateway gateways/routers Class C20	**Ethernet / Modbus RTU**	**TSX ETG 1000**	0,280
	Ethernet / Uni-Telway	**TSX ETG 1010**	0,280

Ethernet in Machines and Installations

Ethernet gateways

Ethernet/Modbus Plus gateway/router

Presentation

The **174 CEV** ConneXium communication gateways are used for interconnecting the following:

- Modbus/Ethernet TCP/IP for **174 CEV 300 20**
- Modbus Plus/Ethernet TCP/IP for **174 CEV 200 40**

by providing multiple ports to adapt to the different architecture.

Characteristics

Type of gateway			174 CEV 200 40
Transparent Ready services	Class		B10
	Standard Web services	Configuration	Predefined Web pages
		Read/Write	Acces to connected products list, reading of Modbus Plus devices registers
		Diagnostic	Via predefined Web pages : diagnostic on Ethernet and Modbus Plus links
	Standard Ethernet TCP/IP communication services		Modbus TCP messaging SNMP Agent
Functions	Communication gateway		Ethernet/Modbus Plus (many-to-many Modbus Plus)
	Interface for programming		Ethernet/Modbus Plus
	Modbus SL (RS 232/RS 485 serial link)		–
	Modbus Plus (RS 485 network)		Token bus, HDLC synchronous mode Data rate 1 Mbps
	Configuration		Local or remote *(1)*
Interfaces	Ethernet TCP/IP port	Type	1 x 10BASE-T/100BASE-TX
		Shielded connectors	RJ45
		Medium	Shielded twisted pair
		Max. distances	100 m (327 ft)
	Serial port	Type	1 x Modbus Plus
		Shielded connectors	9-way SUB-D connector
		Medium	Shielded twisted pair (single or double)
Power supply	Voltage		∿ 110/220 V (∿ 93.5 V…242 V), 47…63 Hz
	Power consumption		1 A
Operating temperature			0…+ 50°C
Relative humidity			10…95% non condensing
Degree of protection			IP 20
Dimensions W x H x D		mm *(in)*	122 x 229 x 248 *(4.80 x 9.0 x 9.80)*
Weight		kg *(lbs)*	4.260 *(9.40)*
Conformity to standards			UL 508, CSA 142, CE
LED indicator			Power

(1) Local with additional keyboard and monitor, via a dedicated screen for basic diagnostic and configuration. Remote, via intuitive Web pages for full configuration and diagnostic.

References

174 CEV 200 40

Description	Transparent Ready class	Functions	Reference	Weight kg
Ethernet/Modbus Plus gateway/router	**B10**	- 1 Ethernet port, 10BASE-T/100BASE-TX - 1 Modbus Plus port	**174 CEV 200 40**	4,260

Ethernet in Machines and Installations

Ethernet / AS-Interface gateway

TCS AGEA1SF13F

Presentation

The **TCS AGEA1SF13F** Modbus/TCP to AS-Interface gateway provides access to AS-Interface slave devices on an Ethernet based industrial network. The gateway implements an AS-Interface master with a master profile M4 according to the AS-Interface Complete Specification version 3.0. The M4 master profile allows access to all slave profiles defined in this specification.

Description

The digital analog input/output slaves are available with Modbus read and write register requests, so it is possible to configure an I/O scanner in a PLC to include all digital and analog I/O on the AS-Interface network.
The gateway needs no additional configuration software. The little configuration needed can be done directly at the devices with a menu driven user interface.

Characteristics

Modbus / TCP AS-Interface gateway		TCS AGEA1SF13F	
TransparentReady features	Conformance class		A10
	Standard		IEEE 802.3, 10BASE-T/100BASE-TX
	Bit rates	**Mbps**	10/100
	Connector		RJ45
AS-Interface features	Master profile		M4
	Standard		V3.0
Operating current			Approx. 200 mA out of AS-Interface circuit
Operating voltage			AS-Interface voltage
Voltage of insulation	Conforming to IEC 1000-4-3	**V**	> 500
EMC directions			EN 50082, EN 50081
Ambient air temperature	Operation	**°C**	O...+ 55
	Storage	**°C**	- 25...+ 85
Housing			Stainless steel
Dimensions (L x W x H)		**mm**	120 x 100 x 83
Degree of protection	Conforming to DIN 40 050		IP20
Tolerable loading reffering to impacts and vibrations			According to EN 61 131-2
Weight		**g**	550
HMI	LCD		Displaying slave addresses and error messages
	LED green (POWER)		Power on
	LED green (SER ACT)		Ethernet network active
	LED red (CNF ERR)		Configuration error
	LED green (ASI PWR)		AS-Interface voltage OK
	LED green (ASI ACT)		AS-Interface normal operation active
	LED green (PRG EN)		Automatic address programming enabled
	LED yellow (PRJ MODE)		Gateway is in configuration mode
	Buttons		4

References

TCS AGEA1SF13F

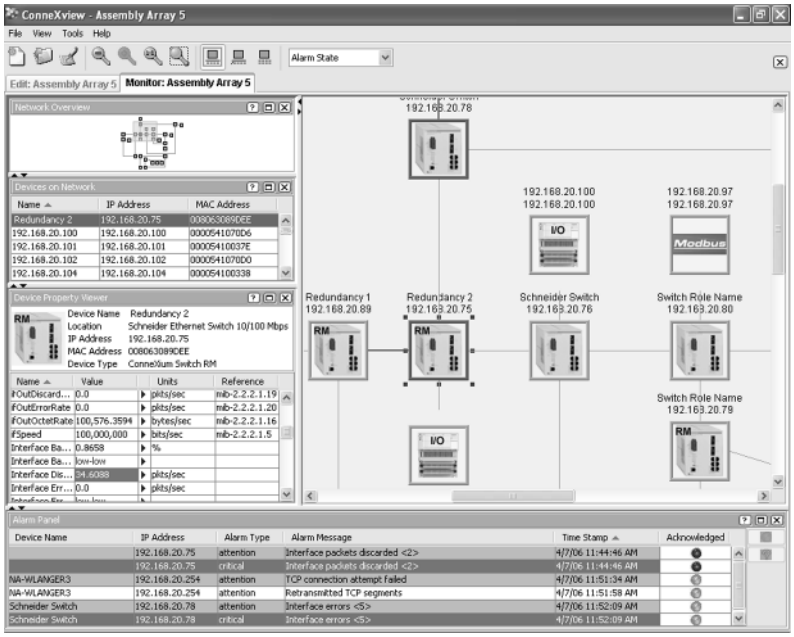
Description	Transparent Ready class	Functions	Reference	Weight kg
AS-Interface/Ethernet gateway	**A10**	- 1 AS-Interface port - 1 Ethernet port, 10BASE-T/100BASE-TX	**TCS AGEA1SF13F**	–

Ethernet
in Machines and Installations
Diagnostic software
ConneXview : Ethernet Network Diagnostic Software

Presentation

ConneXview is a user friendly software tool used to diagnose industrial Ethernet networks. It provides a very easy and intuitive interface for network operators and maintenance personnel, plus a set of features and advanced functions that are of great value to system integrators and controls engineers.

Automatic discovery of connected devices



ConneXview performs an automatic discovery of IP devices connected on an Ethernet network.
As a default, the tool will discover the subnet of the host computer (the computer that is running the tool). A user can manually add additional subnets for discovery. ConneXview will discover the additional subnets as long as they are reachable via layer 3 switches or routers.

ConneXview then automatically maps the network topology and devices, providing a green/ yellow/ red color coding of links and devices to enable users to quickly evaluate the status of the network.
ConneXview also offers multiple layout options for viewing the network. In addition a user can layout the network manually.

Support of SNMP and Modbus TCP/IP

Most network management applications are not designed for the industrial automation environment, and even those that are do not support both of the critical protocols necessary for discovering and mapping networks.

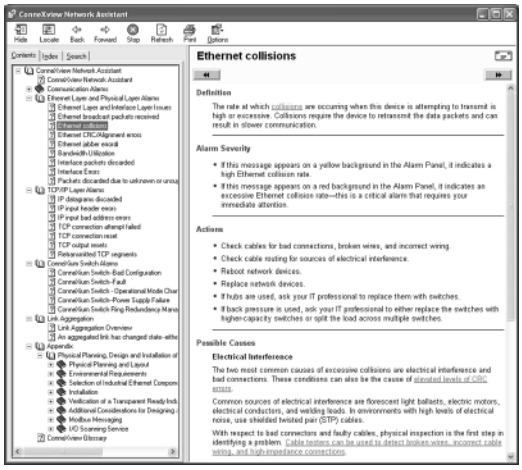
■ **SNMP: Simple Network Management Protocol**
ConneXview can read information from managed end devices and infrastructure devices (switches, routers, etc.) to automatically construct a topological map of the physical layout of the network. It is also used to gather diagnostic information from managed devices.

■ Modbus TCP/IP
ConneXview also uses Modbus TCP/IP commands to read binary and word registers from PLC's and I/O devices, and can therefore generate warnings and alarms based upon register changes, user defined monitors, or limit values that IT-based tools are unable to.

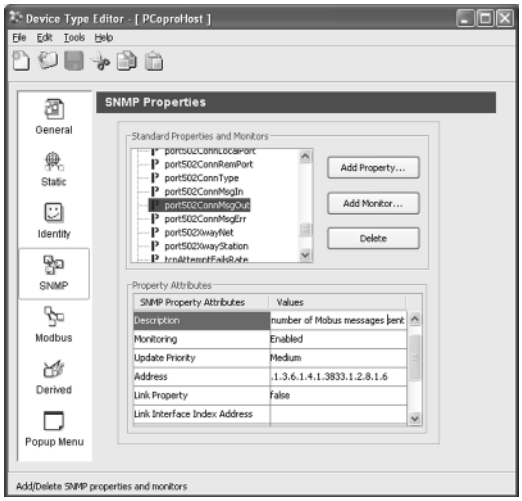
Ethernet in Machines and Installations

Diagnostic software

ConneXview : Ethernet Network Diagnostic Software



Network Assistant



Device Type Editor

Device Property Editor

TCS EAZ 01P SFE10

Network Assistant

The Network Assistant is a context-sensitive help file containing topics describing every network alarm and warning reported by ConneXview. Selecting an alarm and clicking on the help button will launch the Network Assistant where you will find:
- the alarm text message,
- a definition of the alarm,
- a list of the possible causes of the alarm,
- a series of recommended actions to clear the alarm.

It also includes references to other resources and materials that can be consulted to help resolve the situation.

Device Type Editor

Out-of-the-box ConneXview has a device-type library that enables it to identify a large number of Schneider devices. The DTE can also be used to add 3rd party devices that are not already in the library.

Setting thresholds for alarming per instance

ConneXview monitors each device in the network map using default thresholds. Although not needed in a majority of network environments, a user can separately change the default thresholds for any device in the network map to adjust for specific requirements.

Associate URL links and/or local actions with a device type

Within the Device Type Editor a user can associate end devices and infrastructure devices with:
- a URL that opens a web page, for example in a managed switch that offers additional data and diagnostic information,
- a local application, for example Unity or Concept programming software,
- a local document, for example technical manuals.

By right-clicking on a device type instance within ConneXview a user can invoke the associated action.

References

ConneXview Ethernet Diagnostic Software

ConneXview packages

System Requirements (minimum):
- Processor: Intel 800 MHz Pentium 3 CPU or higher
- RAM Memory: 512 MB or higher
- Hard Drive: 250 MB of free space or more
- Operating System: Windows 2000, XP Professional

Description	User	Reference	Weight kg
ConneXium software	Single user license	**TCS EAZ 01P SFE10**	–
	Group license (3-user)	**TCS EAZ 01P GFE10**	–
	Team license (10-user)	**TCS EAZ 01P TFE10**	–
	Site license (Facility license)	**TCS EAZ 01P FFE10**	–