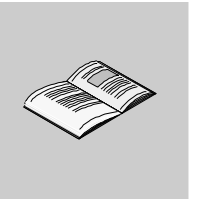
TSX ETG 1010 Module
User Manual

35010086 eng Version V1.1

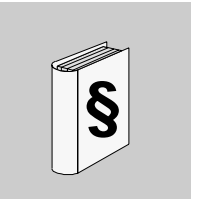
a brand of Schneider Electric

Telemecanique

Table of Contents



Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

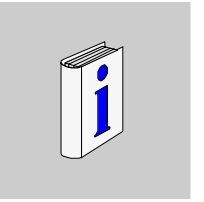
⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

About the Book



At a Glance

Document Scope Installing the TSX ETG 1010 Ethernet Communication Module

Related Documents

Title of Documentation	Reference Number
Communications Setup Manual	TLX DS COMPL7 V4
Ethernet Network - Reference Manual	TSX DR ETH
X-WAY Communication - Reference Manual	TSX DR NET
Unitelway Bus Communication	TSX DG UTW
Modbus - User's Guide	TSX DG MDB
Wiring Guidelines - User's Guide	TSX DG KBL

User Comments We welcome your comments about this document. You can reach us by e-mail at techpub@schneider-electric.com

Security

1

Security

Overview

The TSX ETG must not be used to support security functions. Before configuring your web site, you must plan how to secure it. Unlike default web site data, data from a custom web site is write enabled. You must pay particular attention to the people with access rights to the site and to the data that can be changed.

This chapter describes security problems and presents security mechanisms accessible to users of the web utility.

What's in this Chapter?

This chapter contains the following topics:

Internal Security

Overview

The website is accessible over an intranet. The TSX ETG 1010 provides two mechanisms to ensure that only authorized users view and modify your data.

Security Mechanisms

On intranets, the TSX ETG 1010 module provides security through:

- password entry,
- write restrictions.

> **⚠ CAUTION**
>
> **UNAUTHORIZED SECURITY ACCESS**
>
> Anyone who has access to your embedded server can override your security settings and download new settings to the server. Unauthorized or incorrect changes to data may change the behavior of your application in ways that may be undesirable or even hazardous.
>
> **Failure to follow this instruction can result in injury or equipment damage.**

Password Entry

Although you may add unprotected Web pages to the site, the default Web pages and any other pages you choose to protect can only be viewed by users who supply the correct user name and password.

Restrictions

Restrictions are applied overall.

When you create a website and you want to protect it, you must place it in the folder called secure. The uploading of the custom website is subject to security conditions linked to an FTP password (See *Uploading to a Server, p. 240*).

> **⚠ CAUTION**
>
> **UNAUTHORIZED CHANGES TO DIRECT ADDRESSES**
>
> Carefully select the direct addresses as well as the people authorized to use the site. Unauthorized or incorrect changes to data may change the behavior of your application in ways that may be undesirable or even hazardous.
>
> **Failure to follow this instruction can result in injury or equipment damage.**

External Security

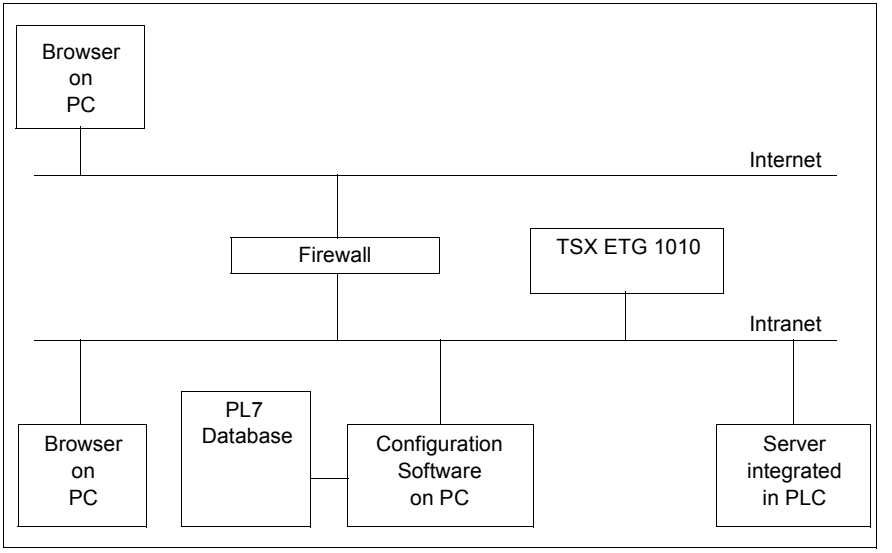
Overview

If your network has been configured to enable users to consult your Internet site, your security system is the same as that of an intranet site, only you have an additional security measure: a firewall.

Architecture of a firewall

A firewall forms a gateway between Internet and your embedded server, as illustrated below. You can use a firewall to restrict or forbid access to your website.

This diagram explains how a firewall works on your embedded server and your PC.



Types of firewalls

There are two types of firewalls:
- network firewalls,
- application firewalls.

Network Firewalls

Network firewalls are often installed between Internet and a single entry point to an intranet or internal protected network.

Application Firewalls

An application firewall works for an application, for example FTP. It intercepts all traffic sent to this application, and decides whether or not to transmit this traffic to the application. Application firewalls are located on individual host computers.

About the TSX ETG 1010

If you want viewers to be able to access your site from the Internet and your embedded server is protected by a firewall, you must configure the firewall to authorize FTP traffic.

The firewall can be configured to authorize network connections to a limited range of ports, or to authorize traffic to or from certain IP addresses. Firewalls configured to allow data entry to 21 TCP/IP FTP port and to ports greater than 1024 authorize access to protected embedded servers.

The TSX ETG 1010 follows the "Firewall Friendly FTP" standard, RFC 1579. It issues an FTP PASV command to the server before any attempt to establish an FTP data connection.

The TSX ETG 1010 uses 80 TCP/IP port to provide HTTP access to web pages saved to an embedded server. Access to operational data on a 502 TCP/IP port uses the Schneider Electric X-WAY and Modbus application protocol (MBAP). The firewall must also have access to the ports.

Note: The FTP name and password are ‘wsupgrade’.

Security for Variable Access

Overview

In the Data Editor and Graphic Editor services, write access to certain Uni-Telway variables is automatically prohibited, particularly those set to read only.

⚠ WARNING

UNAUTHORIZED MODIFICATIONS TO DIRECT ADDRESSES FOR THE "DATA EDITOR" AND THE "GRAPHIC EDITOR"

Take care in selecting the addresses you authorize to be modified online, and the people authorized to do so. Unauthorized or incorrect modifications made to the variables may have undesirable or even dangerous effects on the behavior of your application.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

TSX ETG 1010 Module: General

2

At a Glance

Scope of this Chapter

This chapter contains general information about the TSX ETG 1010 module.

What's in this Chapter?

This chapter contains the following sections:

2.1 Description of the TSX ETG 1010 module

At a Glance

Scope of this Section

This section describes the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

About ETHERNET

Introduction

ETHERNET communication is mainly responsible for the following applications:

- Coordination between PLCs
- Local or remote monitoring
- Communication with production management software
- Communication with remote I/O

TCP/IP communication profile on Ethernet, supported by the TSX ETG 1010 module, allows communication via:

- UNI-TE messaging with the entire X-WAY architecture,
- Modbus messaging

Acting as an agent, the TSX ETG 1010 module also supports management of the network monitoring standard SNMP.

At a Glance

General

The **TSX ETG 1010** is a stand-alone TCP/IP-Uni-Telway gateway module used to connect Uni-Telway devices to a TCP/IP network. It is a C20 class device (TR standard).

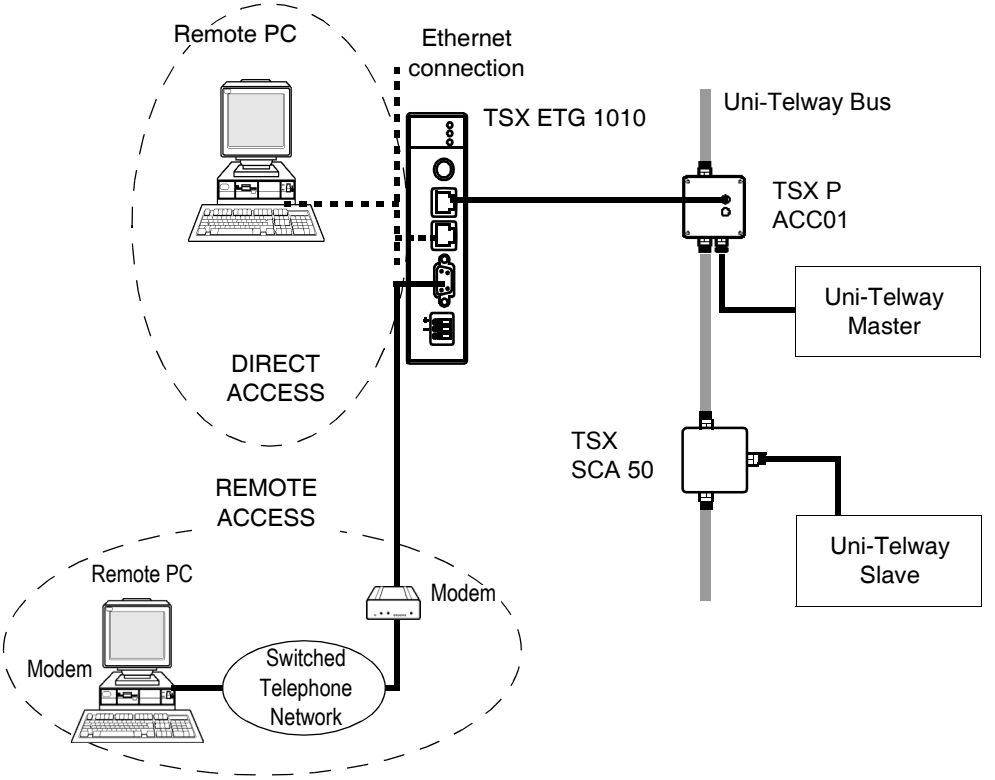
It is not inserted into a PLC rack.

The TSX ETG 1010 module can be configured using an embedded Web server.

This is an external module which can be mounted on a DIN rail or on a Telequick pre-slotted plate.

It has a 24 VDC power supply and includes an RS232 serial link for connecting an external modem.

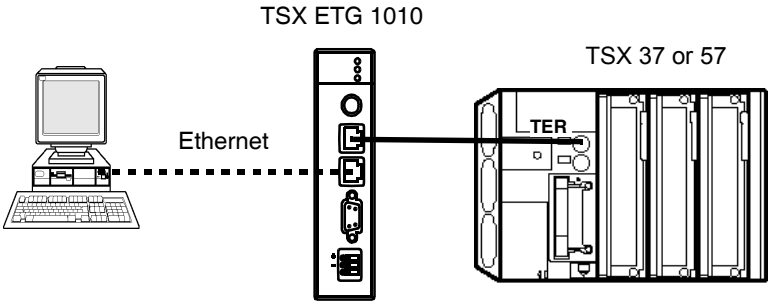
Illustration Simplified schematic:



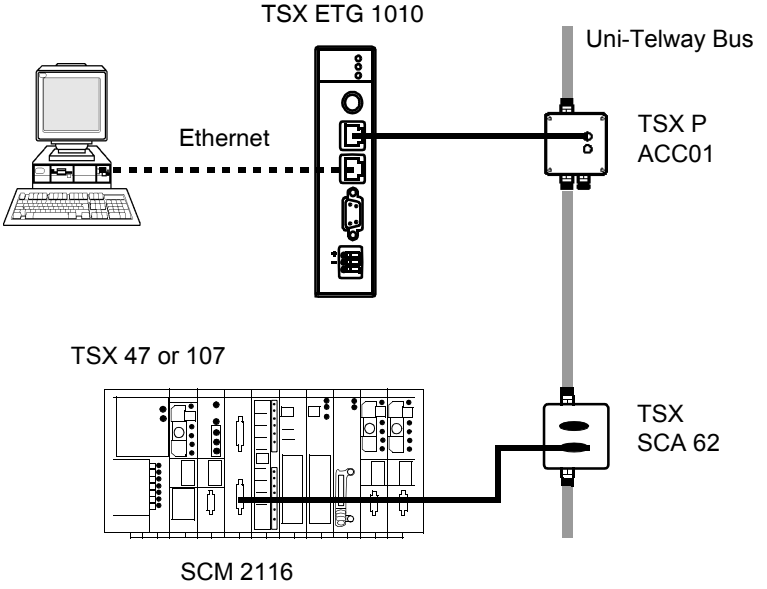
Note: to connect the TSX ETG 1010 module to a Uni-Telway bus, you need:

- the cable with product reference TSX ETZ CDN 003, supplied with the module, to establish a connection via a TSX P ACC01 box,
- the cable with product reference VW3A8306 to establish a connection via a TSX SCA 62 box,
- the cable with product reference VW3A8306D30 to establish a connection via a TSX SCA 50 box.

Simplified schematic (Uni-Telway network with a single Master):



Schematic with a Series 7 PLC Master:



General Information on the TSX ETG 1010 module

At a Glance

The TSX ETG 1010 module includes the following features:

- 24V DC power supply
- Ethernet 10/100 Base-T connection
- Uni-Telway Slave (2 to 4 addresses used)
- RS485 serial link for Uni-Telway communication
- RS232 serial link for communication with an external modem or for configuration
- 3 LED indicators
- 8 MB of non-volatile Flash memory for backup of embedded software and website data

Module Services

The following services are available:

- configuration via web pages, Ethernet or RS232 serial link,
- IP module setup either by configuration or automatically:
  - BOOTP client,
  - DHCP client: automatic reconfiguration on replacement of module (FDR function),
- secure access to default server without configuration, comprising:
  - module configuration pages,
  - diagnostic services,
- SNMP V1 service management with MIB-II agent and private Ethernet Transparent Factory MIB,
- UNI-TE/Modbus messaging on TCP/IP with a maximum of 64 simultaneous connections,
- diagnostics via LED indicators,
- management of mails triggered by variable value on Uni-Telway devices,
- up to 16 Internet browsers can be connected simultaneously,
- 8 MB of additional Flash memory reserved for the user application: the user can add custom pages or applets to the initial website,
- FTP server for loading client pages.

Summary of the module's functions

Presentation

Various functions are available.

TSX ETG 1010 Module

The table below summarizes the functions of the TSX ETG 1010:

Function	Details
Messaging via Port 502 (TCP/IP UNI-TE or Modbus)	• A maximum of 64 simultaneous connections (Client + Server) • Access control via configuration table
Bootp client service	-
DHCP (FDR) client service	-
SNMP service	• SNMP with MIB-II agent and Ethernet Transparent Factory MIB
RS232 link for external modem	• 4800, 9600, 19200, 38400 and 57400 baud
UNI-TE link	• Speed configurable from 9600 to 19200 baud.
Email	• Up to 32 alarms scanned
Website	• Simultaneous connection of up to 16 Internet browsers • Non-modifiable website, factory-installed, with configuration, diagnostics and viewing pages • 8 MB reserved for custom website

Services

3

Presentation

Scope of this Chapter

This chapter describes the services offered by the TSX ETG 1010 module.

What's in this Chapter?

This chapter contains the following sections:

3.1 Uni-Telway Communication Function

At a Glance

Scope of this Section

This section describes the Uni-Telway communication function via the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

Uni-Telway Communication

Principles

The TSX ETG 1010 is a TCP/IP-Uni-Telway gateway for transporting UNI-TE and Modbus requests.

The TSX ETG 1010 module is a Uni-Telway **slave**. So that the gateway functions, the module should be connected to a Uni-Telway network with a master.

The Uni-Telway link can be configured (speed, parity, address, etc.) so that it is compatible with the master.

The module communicates with the master PLC thanks to 2, 3 or 4 consecutive slave numbers (See *Configuration Parameters for the Uni-Telway link, p. 139*).

Uni-Telway Parameters

The table below gives the parameters to be configures for the module:

Parameters	Value
Speed	9600, 19200 baud or automatically adapts between these two values.
Parity	Even, odd or none
Time Out	Configurable between 1 and 10 seconds.
8 bits of data	Cannot be configured
1 stop bit	Cannot be configured

UNI-TE Server

Presentation

The TSX ETG 1010 module includes a UNI-TE server.

It can be used to access internal module variable addressing (via TCP). To access the variables, use the module address configured in the Uni-Telway configuration page (See *Configuration Parameters for the Uni-Telway link, p. 139*).

The UNI-TE server handles the following requests:

- 04h READ_INTERNAL_WORD,
- 14h WRITE_INTERNAL_WORD,
- 36h READ_OBJECT,
- 37h WRITE_OBJECT,
- 82h READ_GENERIC_OBJECT,
- 83h WRITE_GENERIC_OBJECT,
- 38h READ_OBJECT_LIST,
- 0Fh IDENTIFICATION,
- 30h PROTOCOL_VERSION,
- FAh MIRROR.

Internal Module Registers

The TSX ETG 1010 module provides four register zones:

- user zone,
- command zone,
- diagnostic zone,
- periodic zone.

The user zone (registers 0 to 63).

This zone is available for unrestricted use. The user can read or write in this zone by means of X-WAY TCP requests or by RDE/GDE (data table/graphics objects).

This zone can be used in various ways:

- to send a mail from an Ethernet network,
- to send a mail without a Uni-Telway device: test email,
- to store device values or to exchange values between devices,
- to simulate a Uni-Telway device,
- etc.

The command zone (registers 500 to 511):

Register	Description
500	Command status for register 501: ● = 0 for command OK, ● = FFFF for command in progress, ● <> 0 for command not OK.
501	Command: ● = 0 no command, ● = 1 for alarm test service, ● = 2 for open PPP connection, ● = 3 for close PPP connection.
502	Register 501 = 1 then number of alarm to be tested.
502 to 505	Register 501 = 2 or 3 and IP address = 86.16.0.4 (for example): ● Register 502 = 86 for the 1st value of the IP address, ● Register 503 = 16 for the 2nd value of the IP address, ● Register 504 = 0 for the 3rd value of the IP address, ● Register 505 = 4 for the 4th value of the IP address.
506 to 511	Reserved.

Note: a new command is not authorized if the status value (register 500) is FFFF. The command parameters in registers 502 to 505 must be entered before the command (register 501).

The diagnostic zone (registers 800 to 849) :

Register	Description
800	List of scanned alarms, 1 bit per alarm (=1 OK, =0 error).
801 to 819	Reserved.
820	Alarm (mail) service status: ● = 2 for active, ● = 1 for inactive, ● = 0 for not configured.
821	Number of emails sent without error.
822	Counter for errors connecting to the SMTP server.
823	Number of Uni-Telway requests sent by the ALARM service.
824	Number of Uni-Telway responses for the ALARM service received without error.
825	Number of Uni-Telway responses for the ALARM service received with errors.
826	Email send error counter.
827 to 829	Reserved.
830	PPP connection status: ● = 2 for server connection, ● = 1 for client connection, ● = 0 for PPP inactive.
831 to 834	PPP: IP address of remote device, = 0 if PPP line closed.
835 to 838	PPP: IP address of TSX ETG module, = 0 if PPP line closed.
839 to 842	IP address opened by a client PPP connection, = 0 if PPP line closed.
843	Number of PPP connections opened without error.
844	Number of errors on opening a PPP connection.
845	Number of PPP connections closed without error.
846	Number of errors on closing a PPP connection.
847 to 849	Reserved.

The periodic zone (registers 1000 to 1031):

Register	Description
1000 to 1031	Values of registers configured for alarms on each scan: 1000 = alarm 1, 1001 = alarm 2, ..., 1031 = alarm 32.

Note: all these variables can be read and written as follows:

- via a UNI-TE TCP request, using the address of the ETG 1010 as the device address,
- via the data editor page of the module website or via custom pages (using the module address as the device address).

3.2 TCP/IP Messaging

Presentation

Scope of this Section

This section describes the TCP/IP messaging service available via the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

Reminder of TCP/IP Features

Communication Port	The communication port reserved for the TSX ETG module is Port 502 (port reserved for Schneider). When a client device wishes to access the module, it requests that a connection be opened to this port.
Time-Out on TCP Connection	If a TCP connection is unable to be established (destination unavailable, for example) the time-out for return of an error is 80 seconds. We recommend setting the time-out for communication functions to a value greater than 80 seconds if the 1st exchange was unsuccessful.
"Keep Alive" Function	This function automatically generates a frame every 2 hours or so to check for broken connections. This mechanism is explained in more detail in this section.

IP Address

General

Each device on the network must have a **unique IP address**.

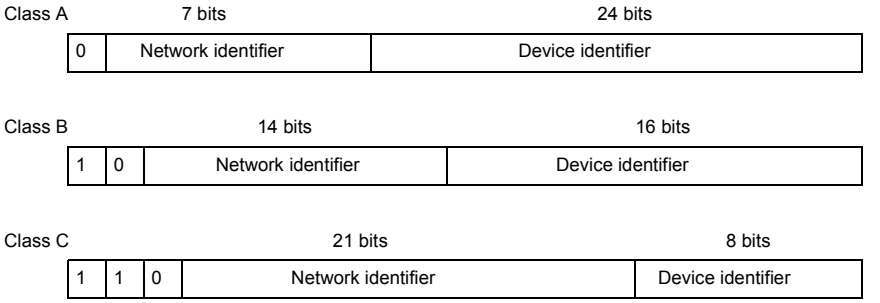
The unique nature of the IP address is ensured by the attribution of a "network ID" by an approved body. The choice between the various classes depends on the number of networks in the installation and the number of devices to be connected.

Address Structure

Each IP address consists of two elements (network name and device identifier), where network name identifies a network (or a site) and where device identifier identifies a device connected to this network. There are three classes of IP address.

Address Classes

The structure of the address classes is as follows:



Externally, a device's IP address is represented by a string of four 8-bit values (0 to 255), separated by dots: "a.b.c.d".

Class	First address of the class	Last address of the class
A	0.0.0.1	127.255.255.254
B	128.0.0.1	191.255.255.254
C	192.0.0.1	223.255.255.254

Default IP Address of the Ethernet Interface for the TSX ETG Module

The default IP address of the Ethernet interface for the TSX ETG module is constructed from its MAC address:

085.016.xxx.yyy where xxx and yyy are the last two numbers of the MAC address.

Example:

The MAC address of the module (in hexadecimal format) is: 00 80 F4 01 **12 20**.

In this case the default IP address (in decimal format) is: 085.016.**018.032**.

IP Address of the PPP Interface

The TSX ETG module manages one IP address per interface:

- the IP address of the Ethernet interface, configured by the user or pre-assigned (see above)
- the IP address of the PPP interface

The latter is assigned when a connection is established by the PPP protocol. The TSX ETG module is configured to accept any type of IP address when a connection is being established. We therefore recommend that any device with which the TSX ETG module has to establish a modem/PPP connection is configured to assign the IP address to the TSX ETG module.

However, if the remote device is configured to receive its IP address from the TSX ETG, the IP addresses once a connection has been established will be as follows:

- TSX ETG: **85.16.0.2**
- remote device: **85.16.0.1**

If the connection is a TSX ETG <-> TSX ETG connection, both devices use the IP address: **85.16.0.2** for their PPP interface.

Addressing Management

At a Glance

When installing TSX ETG 1010 modules, the following addresses must be configured:

- The IP address
- The X-WAY address

Note: From the factory, each module has a unique Ethernet interface IP address by default, which is calculated using it's MAC address. The MAC address is defined in the factory by the manufacturer and engraved on the front face of the module.

IP Address

It is defined by the user when configuring the module and identifies a machine linked to the network. On the same local network, this address **must be unique**.

Important: each module has an IP address by interface:

- An IP address for the Ethernet interface
- An IP address for the modem serial link interface, used by the PPP protocol.

Note: On a "private" network, it is not necessary to alter the IP address by default.

X-WAY Address

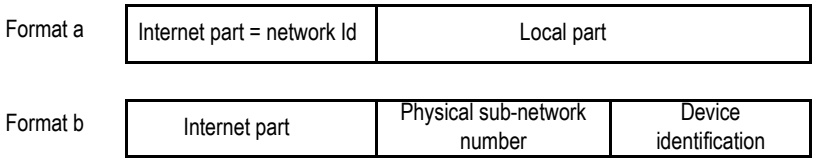
The TSX ETG 1010 module has an X-WAY address, which must also unique on the whole of the X-WAY architecture.

Sub-Addressing, Gateway

Sub-Addressing

The principle of sub-addressing is to divide the local part into a physical sub-network number and a device identification.

Illustration:



Mask

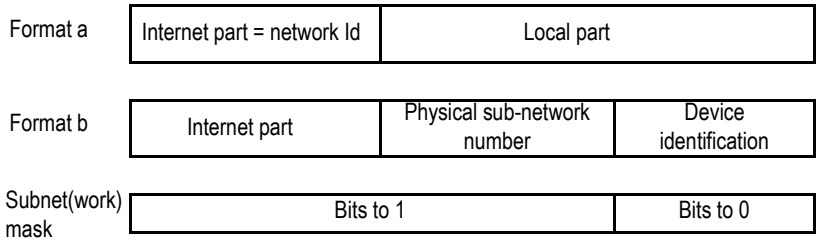
A sub-network mask (Subnet Mask), coded in 32-bits, is used to define the bits of an IP address as the network part.

The mask bits are:

- Set to 1 if the bits corresponding to the IP address are to be interpreted as part of the network address
- Set to zero to identify the device

This system allows local internal networks to be addressed with a single attributed IP address.

Illustration:



Gateway

The Gateway allows a message to be routed to a device which is not on the current network.

Connection Management

At a Glance

A connection can be opened by a remote device wishing to communicate with the module in order to retrieve data via the Uni-Telway.

A connection is characterized by the module as follows:

Local TCP port, local IP address/remote TCP port, remote IP address.

Note: The maximum number of connections that can be open simultaneously is 64. The number of transactions managed by the TSX ETG 1010 is 128 for all port 502 connections.

The configuration screen can be used to configure the modem profile and the Ethernet profile.

Note: Connection management is transparent for the user.

Opening a Connection on the Ethernet Network

At a Glance

A connection can be opened in one of the following ways:

- By Request from a Remote Device via TCP
- By request from a Local Device via Uni-Telway.

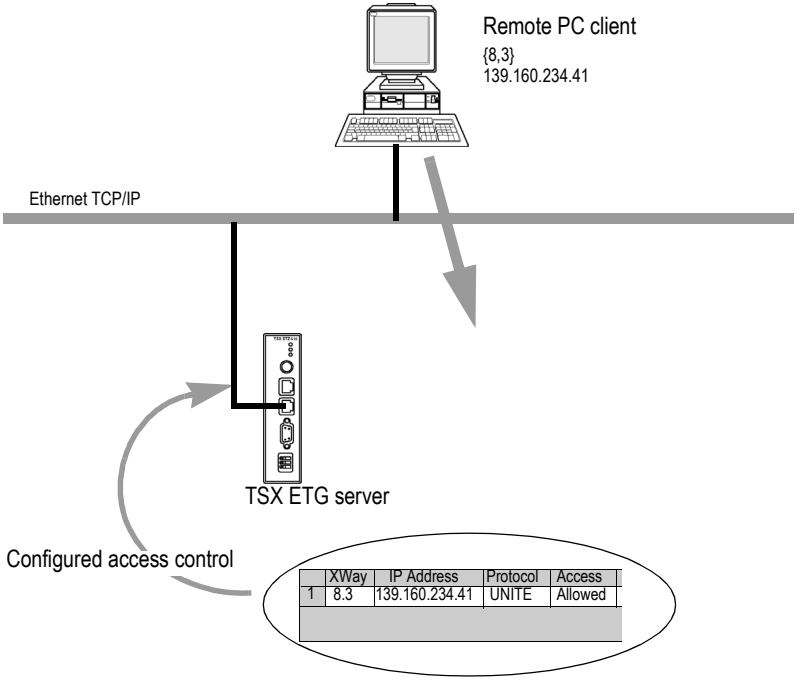
Request from a Remote Device

In this case the TSX ETG is the connection server.

On receiving a connection request from a remote device, the IP address of the remote device is verified if and only if access control is enabled in the configuration.

The test involves checking that this address is included in the list of remote devices authorized to connect. If that is the case, the connection is accepted, otherwise the connection is closed.

Illustration:



Opening a Serial Link Connection via Modem

Presentation

A serial link connection via modem can be opened in one of the following ways:

- By request from a remote device (server mode)
- By request from a Local Device via Uni-Telway (client mode)
- Or by email request from the TSX ETG module (client mode)
- Or by internal register request from the TSX ETG module (client mode)

Note: Client mode takes priority over server mode. If a remote device has established communication with the module in server mode, the connection will be closed by the TSX ETG 1010 if the module wishes to establish a connection to a remote device in client mode.

Note: Specialist line mode is not supported.

Note: The modem service must not be used to support security functions.

PPP and PAP Protocols

The connection uses the **PPP** protocol (Point-to-Point Protocol). With this protocol, once a telephone connection has been established, the modem link is regarded at an application level as a TCP/IP link.

With a **PPP** connection, the identification protocol is **PAP** (Password Authentification Protocol). Any device with which the TSX ETG 1010 has a modem/PPP connection should be configured with the **PAP** protocol. The **CHAP** protocol is not implemented on the TSX ETG 1010.

In order for the connection to be accepted, you need to know the UserName and the Password (**PAP**) for the remote device. Before connecting the TSX ETG 1010 to the remote device, you must also configure the remote device to use the PAP protocol.

The password and the user name for the TSX ETG 1010 used by the PAP protocol are the same as those for the HTTP server (default: USER/USER).

The modem connected to the TSX ETG 1010 must respond to AT commands in ASCII mode.

Diagnostics for the RS232 Modem Link

The PPP/Modem log file page on the HTTP server contains a log of the last four connections.

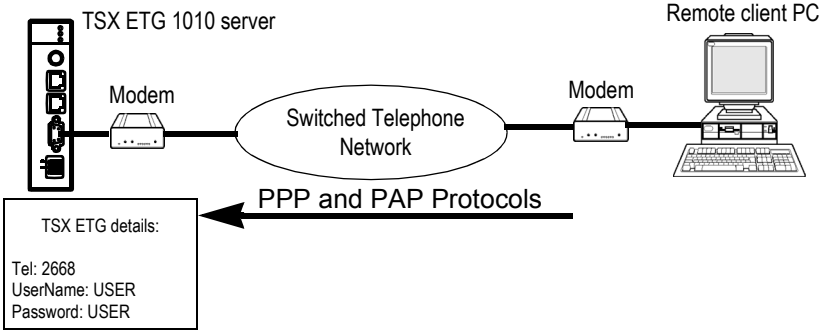
Connection by Request from a Remote Device

The TSX ETG 1010 is the connection server.

If the TSX ETG 1010 module is configured for use with a modem, the module listens for an incoming telephone connection request.

Once the telephone connection is established, the Username and Password (PAP) are verified. If identification is unsuccessful, PPP communication is not established.

Illustration:



Connection by Request from a Local Device

In this case the TSX ETG 1010 is the connection client.

Three types of modem connection can be opened:

- Transmission of a message by a local device via Uni-Telway, using a communication function. If there is no modem connection with the remote device and if the remote device is included in the configuration table, then the connection is automatically opened by the module.
- The SMTP mail server is configured for modem connection; the module opens the connection automatically when an email is to be sent
- By module variable (See *Internal Module Registers, p. 32*) command; in this case, the connection is opened when the request is written.

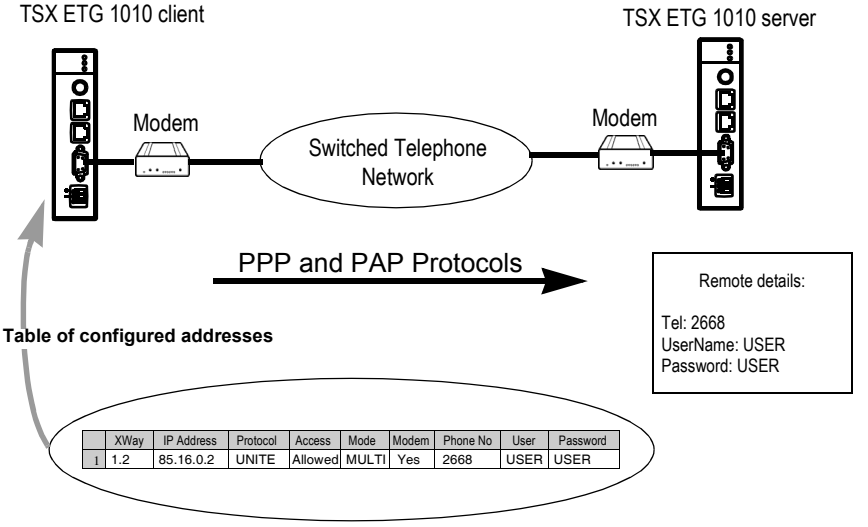
Note: The email connection takes priority over the command; if the IP address is not the same, the email connection will close the current command. Otherwise the command will wait for the end of the email connection (during the wait the status assumes the value -1).

To open the connection, the module establishes a telephone connection by dialing the telephone number configured for this remote device.

The TCP/IP connection to port 502 on the remote device is then opened automatically by the TSX ETG 1010.

The remote device must be listed in the X-WAY/IP configuration table with its telephone number, name and password.

Illustration:



Note: For a given remote device, the telephone number to be dialed can only be modified from the **Setup** menu on the Web server. The TSX ETG 1010 must then be restarted using the **Reboot** function in order for the new configuration to take effect.

Closing a Connection

At a Glance

A TCP/IP connection can be closed in one of two ways:

- by the remote station if it decides to end communication and send a TCP/IP connection cutoff,
- by the TSX ETG 1010; if the maximum number of open connections has been reached, the oldest open connection is closed.

When a connection is closed, it is signaled to the application by an error report (message rejected) as soon as an exchange is initiated.

In the case of a telephone connection, the connection is broken:

- by the remote station if it decides to end communication and hang up the telephone connection,
- if the remote device is not authorized to connect,
- if the time between two frames defined during configuration elapses,
- if the connection time exceeds the time defined during configuration (See *Configuration Parameters for TCP/IP Services, p. 131*),
- if a module acting as remote station server wants to establish a connection to another remote station in client mode via modem,
- if an email connection is terminated and a command (override on module command register) is sent by the device.

Behavior when a Connection is Broken

At a Glance

A broken connection can have one of two causes:

- Disconnection of network cable (disconnected or damaged cable, etc.),
- Disappearance of the remote device (device failure, power outage, etc.).

The loss of connection is detected after two hours by the Keep Alive request.

If the connection is reestablished during this time, the restoration of communications depends on the way in which the connection was broken.

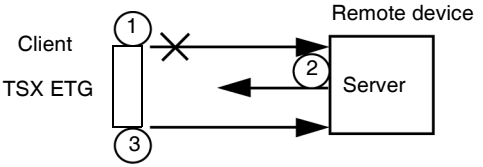
Cable Reconnection

In this case the connection was broken due to a network cable, but the two stations are still operational.

When the cable is reconnected, communication between the TSX ETG module and the remote device is resumed on the open TCP/IP connection.

Remote Device as Server

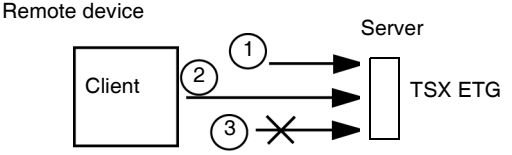
The remote device that disappeared was acting as server.



1 The client TSX ETG module continues to send data on the old connection (that remains partly open).
2 The server receiving data with no associated connection sends a Reset command and closes the old connection.
3 The client TSX ETG module opens a new connection.

Remote Device as Client

The remote device that disappeared was acting as client.



1 The client opens a new connection.
2 The server TSX ETG module receives the request to open a new connection.
3 The server TSX ETG module closes the old connection (if there is no activity in progress) and authorizes the new connection.

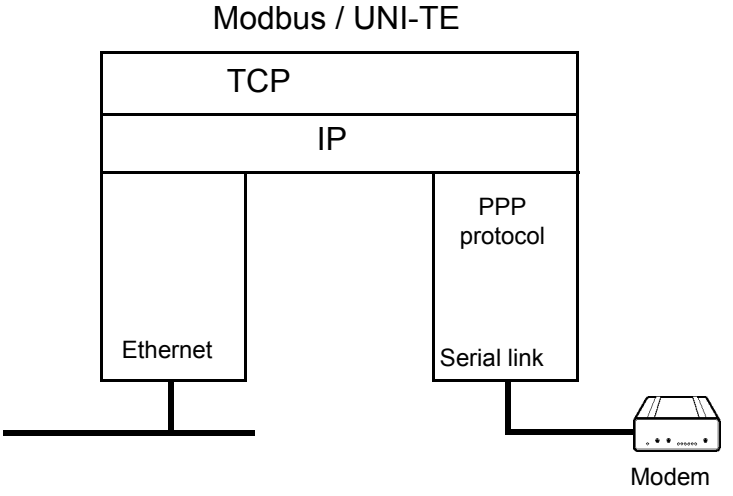
Communication Functions on TCP/IP

At a Glance

The communication profile on TCP/IP allows data exchange services.

The same communication services are available on Ethernet or on a link series via the PPP protocol.

Illustration:



UNI-TE Communication on TCP/IP Profile

At a Glance

The UNI-TE service a device on TCP and a device on Uni-Telway to communicate with each over via UNI-TE protocol.

Server Mode: TCP to Uni-Telway Gateway

In server mode, the TSX ETG 1010 module is transparent with regard to UNI-TE requests from the sender (the TCP client).

Client Mode: Uni-Telway to TCP Gateway

In this mode, the local device initiates an exchange to a remote station by using the SEND_REQ() communication function in the application.

To use client mode, a 6 byte table corresponding to the address of the destination device must be placed at the start of the send buffer.

Illustration:

	Byte 1 (MSB)	**Byte 0 (LSB)**
Word 1	Station No.	Network No.
Word 2	Module	Gate
Word 3	0	Logical channel

This request must be sent to the Uni-Telway address configured for TCP routing (To TCP) (See *Configuration Parameters for the Uni-Telway link, p. 139*).

Note: Important: The SEND_REQ request does not monitor coherence of input parameters (e.g.: checking between the number of facts to write and the size of the data buffer). The user should do this.

Devices which do not allow these 6 bytes to be added to the Uni-Telway requests cannot be used to route to TCP (e.g.: XBT or third-party HMI devices).

Note: The client mode must not be used to support security functions.

Usage

Request from master:

Using the SEND_REQ request, position the 6 routing bytes (between the category code and the rest of the request) (See *Examples of Programming on the Ethernet Profile, p. 51*).

Request from a slave:

To use slave to slave routing, you must already be using the SEND_REQ request with 6 bytes containing the address of the Uni-Telway destination device.

To route to TCP, you must:

- specify the outgoing (To TCP) address of the ETG module in the first 6 bytes.
- add the 6 byte table corresponding to the address of the TCP destination device.

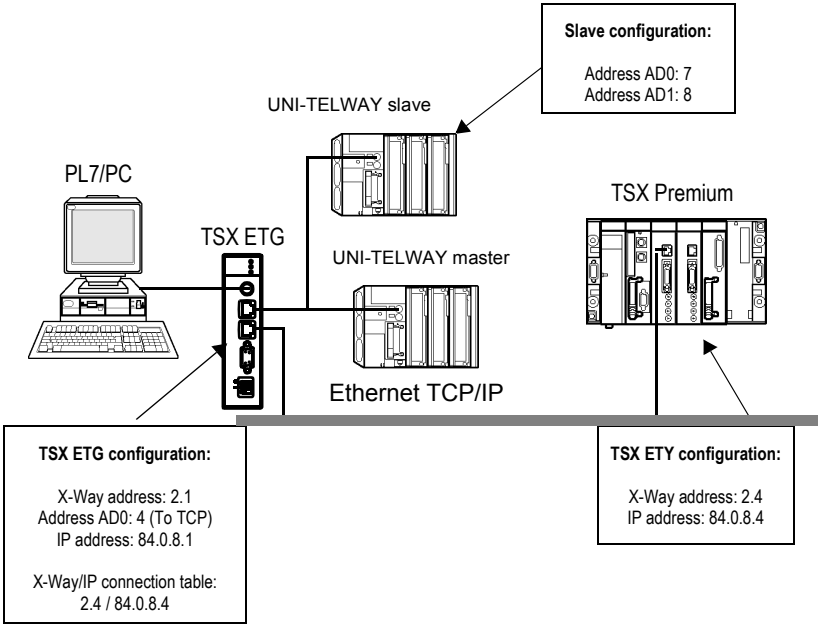
(See *Examples of Programming on the Ethernet Profile, p. 51*).

Note: For series 7 PLCs, use TXT blocks in the same way.

Examples of Programming on the Ethernet Profile

Configuration Example

With the following configuration:



Example of Programming a Mirror Request from the Master

Using the configuration below, the programming is the following:

```
(* ETG 1010 in client mode *)
IF NOT %MW0:X0 THEN
%MW2:=60; (* timeout *)
%MW3:=8; (* length *)

(*Premium PLC X-WAY Address*)
%MW10:=16#0402;
%MW11:=16#0000;
%MW12:=16#0000;

(*Start of Mirror request input parameters*)
%MW13:=16#AABB;

Send_Req(ADR#0.0.4,16#FA,%MW10:4,%MW100:10,%MW0:4)
END_IF
```

Example of Programming a Mirror Request from the Slave

Using the configuration below, the programming is the following:

```
(* ETG 1010 in client mode *)
IF NOT %MW0:X0 THEN
%MW2:=60; (* timeout *)
%MW3:=8; (* length *)

(*SEND_REQ destination device address: ETG 1010*)
%MW10:=16#FE00;
%MW11:=16#FE05;
%MW12:=16#0004;

(*Premium PLC X-WAY Address*)
%MW13:=16#0402;
%MW14:=16#0000;
%MW15:=16#0000;

(*Start of Mirror request input parameters*)
%MW16:=16#AABB;

(*Use send address Ad1*)
Send_Req(ADR#0.0.8,16#FA,%MW10:7,%MW100:10,%MW0:4)
END_IF
```

Example of Word Reading Programming in UNI-TE

This program allows a UNI-TE request to be sent to a remote device with an X-Way address: 60.18 (16#123C) from the master. The request allows the words %MW10000, %MW10001, %MW10002. to be read.

```
(*ETG 1010 in client mode*)
(*request for the reading of three words (UNITE)*)
If NOT %MW300:X0 THEN
%MW302:=60;(*time out by 100ms*)
%MW303:=12;(*length in bytes of data to transmit*)
%MW100:=16#123C;(*station-network: XWAY address (UNITE)*)
%MW101:=16#0000;
%MW102:=16#0000;
%MW103:=16#0768;(*segment type: internal word*)
%MW104:=10000;(*address of the first word to read*)
%MW105:=3;(*no. of words to read*)

(*%MW200:4 = 4 word reception table: type of object on 1 byte
+ 3 words of data*)
SEND_REQ(ADR#0.0.4,16#0036,%MW100:6,%MW200:4,%MW300:4);
END_IF
```

The confirmation of the correct report is: 16#6600

Note: Caution: In the reception table, the significance of the first word of the read data is contiguous with the object byte.

Example of Programming a Mirror Request from TCP to Uni-Telway

Using the configuration below, the programming is the following (Program for TSX Premium on an Ethernet network, X-WAY address =2.4):

```
(* ETG 1010 in server mode *)
IF NOT %MW0:X0 THEN
%MW2:=60; (* timeout *)
%MW3:=2; (* length *)

(* Mirror request to Uni-Telway master *)
%MW10:=16#AABB;

Send_Req(ADR#{2.1}SYS,16#FA,%MW10:2,%MW100:2,%MW0:4)
END_IF
```

Modbus Communication on TCP/IP Profile

Installation Principle

Exchanges in the client and server modes are carried out in the same way as in UNI-TE, with the following restrictions.

Even though a Modbus remote station does not have an X-WAY format address, each communication function uses an X-WAY format address to denote a remote IP station.

For each Modbus remote station, you must configure the two following parameters in the correspondence table: IP address, {network station} X-WAY with:

- Network: network number of the local X-WAY station.
- Station: X Way station logic number = 100 to 164.

Example: X-WAY address {2.108} is associated with IP address 139.160.2.8.

Note: This address is used by the TSX ETG 1010 module but is not transmitted on the network. For a remote station configured with the Modbus protocol, it is necessary to give an X-Way station address equal to the local X-Way station number plus 100.

Server Mode

As the TCP/IP-Modbus profile does not contain any UNI-TE routing information, **all requests are sent to the master**.

Data Exchange

As seen from the PLC application, the communication function to be installed **is always the UNI-TE request** SEND-REQ. It is the TSX ETG 1010 module that performs the conversion to the corresponding TCP/IP remote station.

Note: Important: SEND_REQ request does not monitor coherence of input parameters (e.g.: checking the amount of data to be written against the size of the data buffer). The user must do this.

The following requests are addressed to remote TCP/IP devices to read and write variables:

Modbus request	Modbus function code	Corresponding UNI-TE communication function
Reading of 1 or n bits	16#01	SEND_REQ(#36...)
Reading of 1 or n words	16#03	SEND_REQ(#36...)
Writing of 1 or n bits	16#05 or 16#0F	SEND_REQ(#37...)
Writing of 1 or n words	16#06 or 16#0F	SEND_REQ(#37...)
See TSX DR NET communication reference manuals for the coding of UNI-TE requests and the TSX DG MDB manual for the coding of Modbus requests.		

Correspondence of Types of Objects

The following table gives the correspondence between the types of objects of a TSX Micro or Premium PLC and a TSX Quantum PLC or Momentum I/Os.

Micro or Premium objects	Quantum or Momentum objects
%MW: Internal words	4x... memory area
%M: Internal bits	0x... memory area

3.3 BOOTP and DHCP(FDR) Services

Presentation

Scope of this Section

This section describes the BOOTP and DHCP(FDR) services.

What's in this Section?

This section contains the following topics:

BOOTP/DHCP(FDR) Services - General

At a Glance

The TSX ETG module can be configured directly with its Ethernet interface IP address in the **FDR Client** page or using an automatic configuration protocol. These protocols are: **BOOTP** and **DHCP**.

BootP (Boostrap Protocol) and DHCP (Dynamic Host Configuration Protocol) are protocols for booting diskless terminals or stations using centralized management of network parameters.

Their main purpose is to provide an IP address or a configuration to a station booting on the network.

The TSX ETG is the BOOTP client or DHCP client.

The BOOTP/DHCP server can therefore be a Premium fitted with a TSX ETY module or a Quantum fitted with an NOE module.

Note: Automatic configuration only works with an Ethernet connection and not with an RS232 or modem connection.

TSX ETG client BOOTP

Principle

The principle used is as follows:

- The TSX ETG module requests an IP configuration (IP address, subnet mask, gateway) from a BOOTP server by means of its MAC address.
- The BOOTP server uses a MACAddress/IP Configuration correspondence table to return the IP configuration to the TSX ETG.

Note: In order to use the BOOTP service, you must configure the address server as BOOTP server and identify the client device by its MAC address.

Note: The BOOTP server only returns the IP address, the subnet mask and the gateway; the other data can be found in the configuration page.

Initial Startup

Behavior of the TSX ETG module on initial startup:

The TSX ETG module sends a configuration request to the server:

- If the module is not recognized, it starts up with its default IP configuration (factory-set).
- If the BOOTP server sends an IP configuration, the TSX ETG uses it but **without storing it in Flash memory**.

Subsequent Startups

Behavior of the module on subsequent startups:

The TSX ETG module sends a configuration request to the server:

- If the BOOTP server sends a configuration, the TSX ETG uses it.
- If the BOOTP server does not respond within about 5 minutes, the TSX ETG module switches to downgraded operating mode and uses the IP configuration stored in the Flash memory (the factory-set default configuration).

TSX ETG as DHCP(FDR) Client

At a Glance

This service allows the automatic retrieval of IP, Uni-Telway, SNMP and email configurations by a TSX ETG 1010 module connected to an Ethernet segment with Transparent Factory.

The FDR function uses a combination of the DHCP and FTP/TFTP protocols.

The TSX ETG 1010 uses a name (Device Role Name) to obtain its configuration from the server. The **Device Role Name** is a string of characters (maximum of 15) associated with the module that must be **unique** within the architecture.

The TSX ETG 1010 is therefore able to configure itself automatically using a parameters file previously saved in the DHCP server, for example a Premium TSX ETY 510 module.

Note: In order to use the FDR service, you must configure the address server (e.g.: TSX ETY 410/510) as a DHCP server and identify the client device by its Role Name. When configured as an FDR server, the TSX ETY 410/510 can manage a maximum of 16 TSX ETG 1010 clients.

Note: Passwords are not stored in the server. The passwords retrieved will therefore be default passwords.

Operation

The operating principle of the FDR service is as follows:

1	A TSX ETG is connected to the network with a configured name (Device Role Name).
2	The TSX ETG sends a DHCP request, indicating its associated Device Role Name.
3	If the Device Role Name is included in the DHCP server's configuration table, the server sends the following to the module: ● the IP address that it must use ● the IP address of the FTP/TFTP server ● the location of the configuration file for retrieval from the FTP/TFTP server
4	The TSX ETG 1010 then accesses the FTP/TFTP server to upload or download the configuration file to or from the FTP/TFTP server. The configuration file is identified by a name consisting of the Device Role Name with the extension .prm.

Initial Startup

Behavior of the TSX ETG 1010 module on initial startup:

The TSX ETG 1010 module sends a configuration request to the server:

- if the module is not recognized, it starts up with the default configuration (factory-set) after approximately 5 minutes.
- if the module is recognized, the TSX ETG 1010 starts up with the configuration provided and stores it in its Flash memory (according to the IP configuration).

Subsequent Startups

Behavior of the module on subsequent startups:

The TSX ETG 1010 module sends a configuration request to the server:

- If the module is recognized, the TSX ETG 1010 starts up with the configuration provided and stores it in its Flash memory (according to the IP configuration).
- If the module is not recognized, it starts up after approximately 5 minutes with the default configuration based on its MAC address.

3.4 SNMP Server

SNMP Communication over UDP/IP

At a Glance

The SNMP (Simple Network Management Protocol) standard defines network management solutions in terms of a protocol for supervised data exchange.

The SNMP architecture is based on the following key elements:

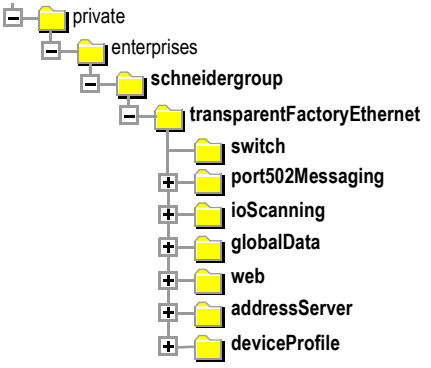
- the **Manager** is used to supervise all or part of the network,
- one or more **Agents**. Each device being supervised has a software module called an **Agent** used by the SNMP protocol,
- an **MIB** (Management Information Base) is a database or collection of objects updated by the agents.

The SNMP agent service is implemented on the TSX ETG 1010 module. The SNMP protocol allows a Manager to access standard MIB objects in the TSX ETG 1010 module.

The **MIB-II** is used to manage TCP/IP communication layers.

The **Ethernet Transparent Factory MIB** allows a Manager to access data on the messaging service on port 502.

View of the Ethernet Transparent Factory MIB tree via a Manager:



The source file of the **Ethernet Transparent Factory MIB** is available on the TSX ETG 1010 module. It can be downloaded from an Internet browser by clicking the **MIB Upload** link on the **Diagnostics** (See *Home Page, p. 74*) home page. The MIB version is 1.2. This file can be compiled with most commercial SNMP Managers.

The SNMP Protocol

The SNMP protocol defines 5 types of message between agent and manager: these messages are stored in **UDP** datagrams.

Messages from the manager to an agent:

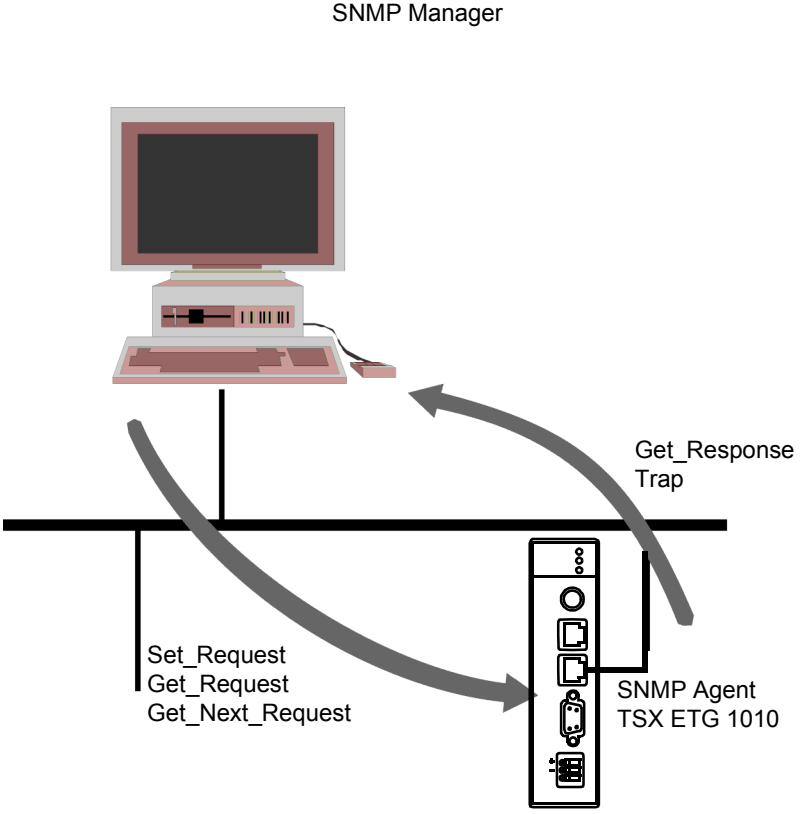
- `Get_Request`: message used to obtain the value of one or more variables
- `Get_Next_Request`: used to obtain the value of subsequent variables
- `Set_Request`: used to position the value of a variable

Messages from an agent to the manager:

- `Get_Response`: used by the agent to return the variable value requested
- `Trap`: used by the agent to signal an event to the Manager (unauthorized access attempt or rebooting of the device)

Description of Services

The SNMP manager sends write or read requests (`Set_Request`, `Get_Request`, `Get_Next_Request`, etc.) for objects defined in the SNMP MIB-II, and the SNMP agent for the TSX ETG 1010 module responds.



The module's SNMP agent sends events (Traps) to the Manager. The following System Traps are managed:

- `Coldstart Trap`:
  - The event is only sent when the module is powered up
- `Authentication Failure Trap`: event sent after an authentication problem. The **Community Name** field in the message received is different from that configured on the module. This trap can be activated when the TSX ETG 1010 module is configured.

3.5 SMTP Server

Email

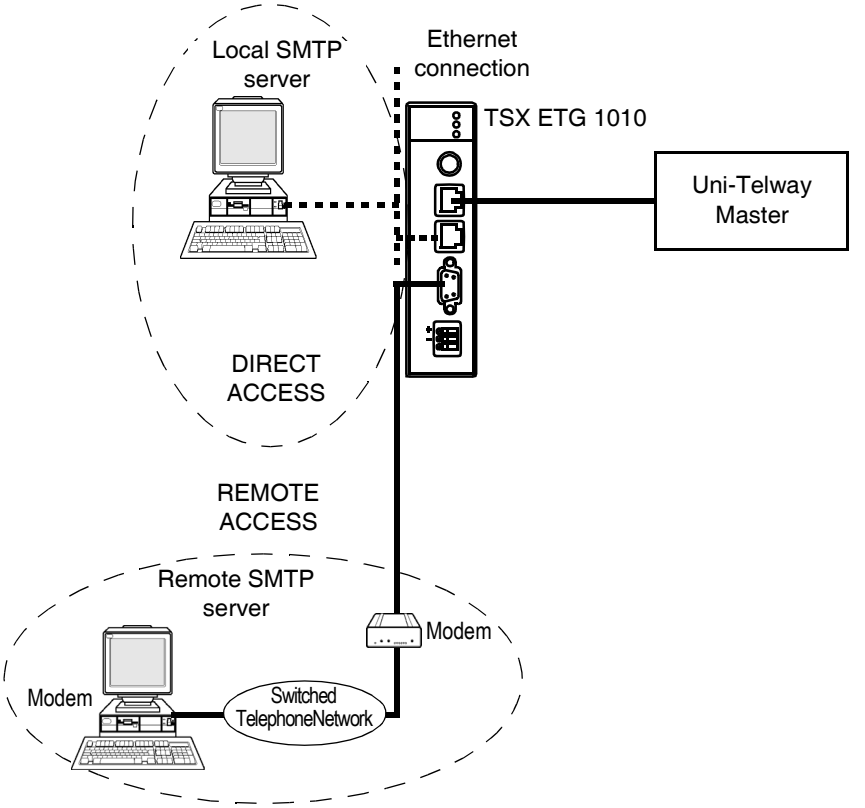
General

The TSX ETG 1010 module provides an email function. The sending of emails is initiated by the scanning of Uni-Telway device variables or of internal module registers. The SMTP server address must be configured; this server can be connected either via the Ethernet or via a modem.

Note: The Email service must not be used to support security functions.

Illustration

Example:



Note: It is possible to test the sending of an email (alarm) using the register command (See *Internal Module Registers, p. 32*) or by clicking Test email (See *Email Test Page, p. 82*) in the **Diagnostics** menu to initiate one of the configured alarms.

The modem connection is established automatically when an email is to be sent. This connection takes priority and can interrupt all other modem connections established by a remote device or by a module register command.

3.6 HTTP Server

Presentation

Scope of this Section

This section describes the HTTP Server service on the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

Embedded HTTP Server

At a Glance

TSX ETG 1010 modules are provided as standard with a web server which can be used:

- to configure the module:
  - TCP/IP parameters,
  - modem,
  - Uni-Telway Parameters,
  - SNMP,
  - SMTP;
- to change the user name and password for accessing the site,
- to access PLC or device data,
- to assign a Device Role Name if automatic configuration has been chosen.

The functions provided by the website require no configuration or pre-programming of the module.

All the server data is constructed in the form of standard web pages in HTML format. These pages can be viewed with an Internet browser.

Module functions:

Functions	**TSX ETG 1010**
Number of browsers connected	16 max.
Website embedded as standard	Yes
Memory reserved for creation of custom pages	8 MB

Default Web Server Functions

The following functions are available:

- module diagnostic functions:
  - Ethernet and Uni-Telway network statistics,
  - statistics and email test,
  - RS232 modem connection statistics and diagnostics via log file,
  - FDR statistics,
  - MIB upload;
- module setup functions:
  - security or password change,
  - TCP/IP and Uni-Telway parameter configuration,
  - FDR client configuration,
  - SNMP and SMTP parameter configuration,
  - alarm configuration,
  - module rebooting;
- module monitoring functions:
  - reading and editing Uni-telway device or module data,
  - monitoring custom graphic pages.

Note: The page loading progress bar (functions or services) is only visible if the browser is using Java version 1.4 or later from SUN.

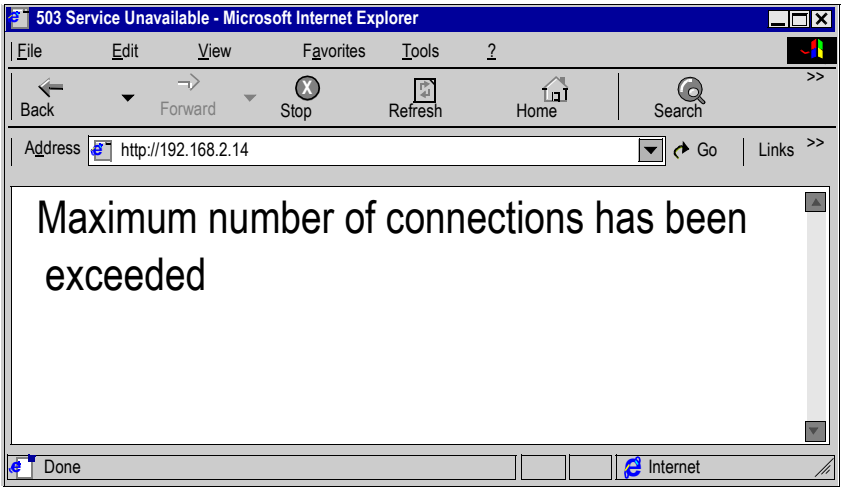
HTTP Connections

The following connection rules must be observed:

- 1 connected Internet browser can open 2 connections, and the TSX ETG 1010 allows a maximum of 32 connections;
- each HTTP connection closes automatically after one minute of inactivity,
- the connection remains active when passwords are being entered.

This means that up to 16 Internet browsers can be connected to one TSX ETG 1010 module.

When the maximum number of HTTP connections is reached, the following screen is displayed:



Home Page for the HTTP Server

Presentation

This page is the website home page. It is used to access the service pages on the site:

- the module diagnostics access page: **Diagnostics**
- the **View** page
- the module configuration access page: **Setup**.

Note: On this home page you can also choose the language you wish to use to navigate the various service pages and determine the product version.

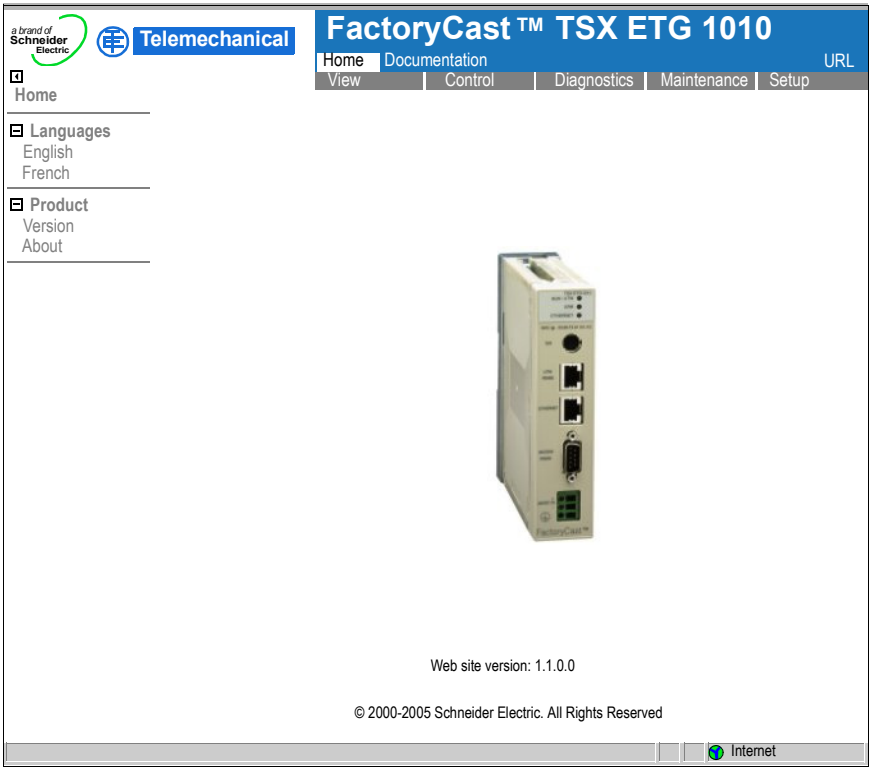
Accessing the Home Page

The procedure below shows how to access the website home page.

Step	Action
1	Open your usual browser.
2	Enter the IP address of the ETHERNET module in the **Address** bar

Illustration

The TSX ETG 1010 home page looks like this:



Note: The Documentation link allows you to access and open product documentation in HTML format.

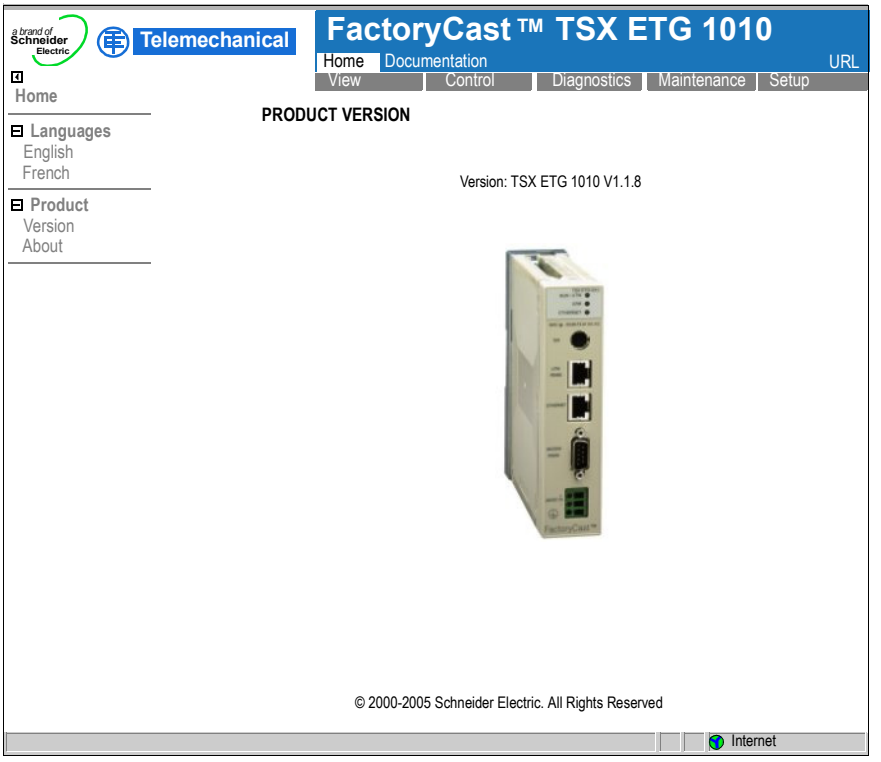
TSX ETG 1010 Version Page

Presentation

This page gives the version of the TSX ETG 1010 module.

Illustration

The TSX ETG 1010 version page looks like this:



Diagnostics Home Page

Home Page

This page lists the various diagnostics services supported by the web server of the TSX ETG 1010 module and provides links for accessing the service you require.

Accessing the Diagnostics Page

To access the Diagnostics page, follow the steps below:

Step	Action
1	Click the **Diagnostics** link on the Home page. Click one of the services offered on the Diagnostics home page.
2	**Result:** a window opens, asking for your user name and password. Enter your user name and password (these fields are case-sensitive). **Note**: the default values are as follows: • user name: **USER** • password: **USER**
3	Click OK to confirm.

Illustration

The Diagnostics home page looks like this:

To access the service you require, click on one of the following links:

- Ethernet statistics to find out about managing the diagnostics counters for Ethernet communications,
- Uni-Telway statistics to find out about managing the timeout and Uni-Telway message diagnostics counters,
- Uni-Telway send request test,
- Email statistics to find out about managing the diagnostics counters for messaging,
- Email test to simulate sending alarms by email,
- PPP statistics to find out about managing diagnostic and IP address counters for PPP communications,
- Log file to view the modem connection log file,
- FDR statistics to find out about managing the diagnostic parameters and counters for the FDR service (Faulty Device Remplacement)
- MIB upload to load the MIB (Management Information Base) from the module onto the PC.

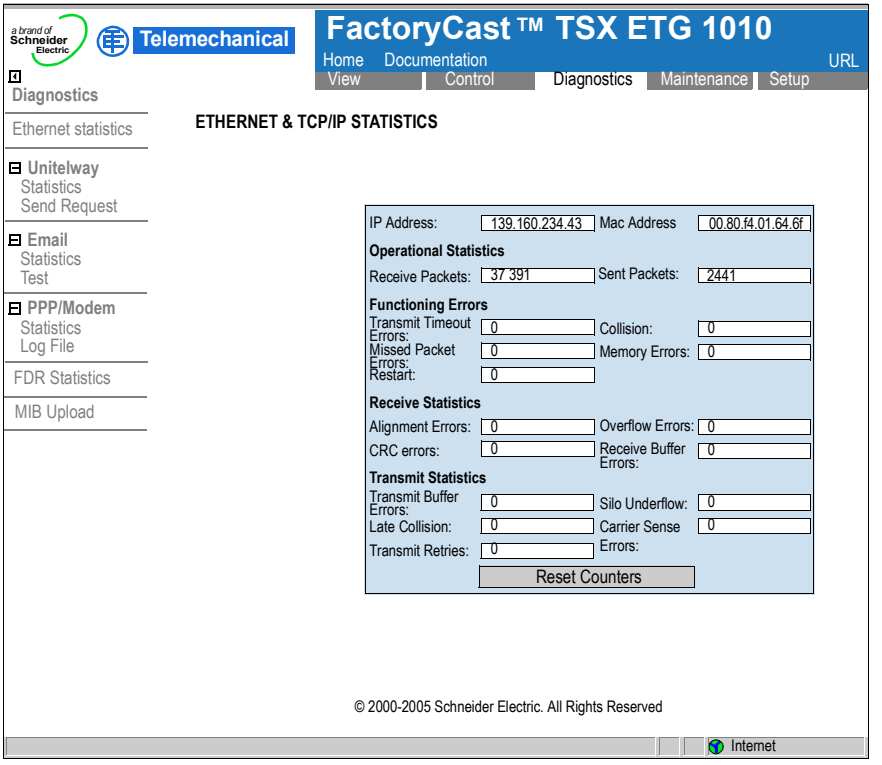
Ethernet Statistics Page

Presentation

This page provides statistics about the Ethernet network. It can be used to perform diagnostics on a network.

Illustration

View of the Ethernet Statistics page for a TSX ETG 1010:



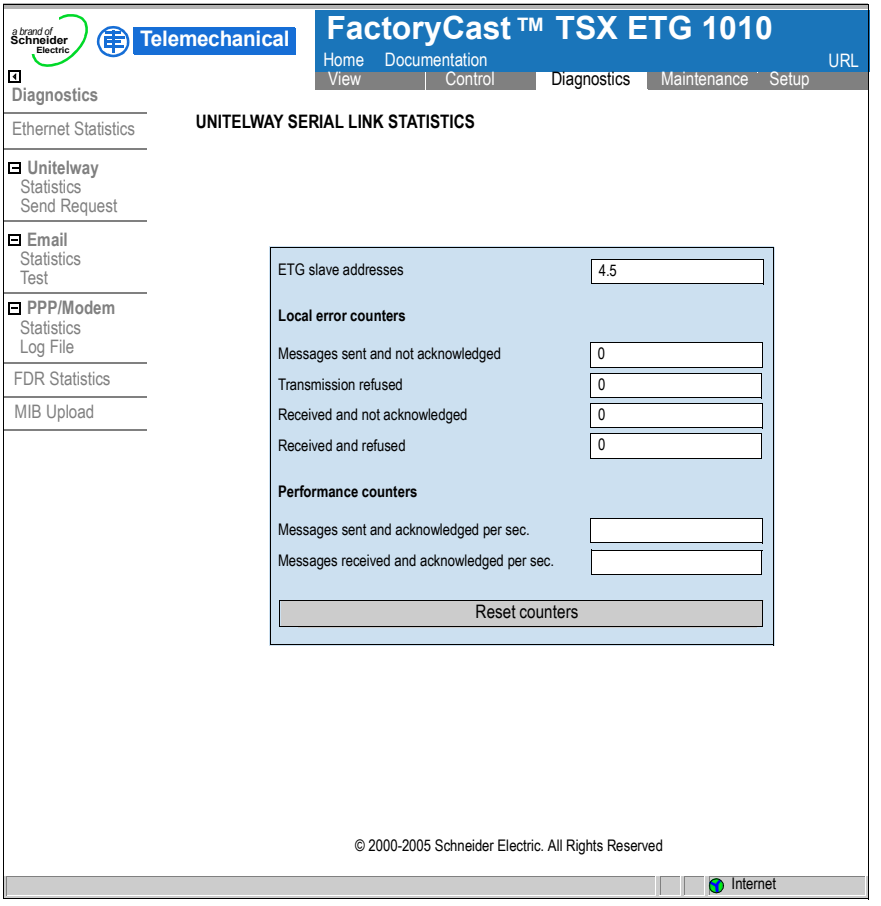
Uni-Telway Statistics Page

Presentation

This page provides statistics about the Uni-Telway network. It can be used to perform diagnostics on a network.

Illustration

View of the Uni-Telway Statistics page for a TSX ETG 1010:



Send Request Page

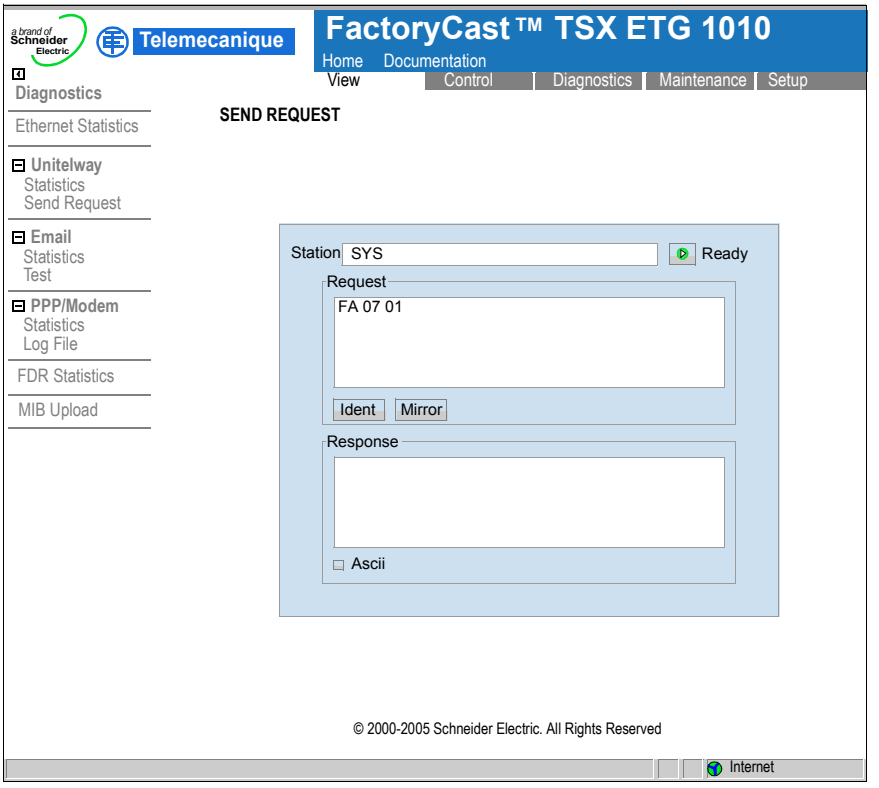
Presentation

This page is used to send Uni-Telway requests for test or diagnostics purposes:

- device identification,
- mirror,
- free text Uni-Telway request.

Illustration

View of the Send Request page for a TSX ETG 1010:



Fields

Table of fields:

Field	Function
Station	Address of the destination station on the Uni-Telway network (See *Uni-Telway Device Addressing, p. 126*).
Request	UNI-TE request to be sent. It must: ● be in hexadecimal format (spaces optional), ● start with the UNI-TE request code.
Response	Result of the request.
Ident	Button used to initialize the Request field with the Identification request.
Mirror	Button used to initialize the Request field with the Mirror request.
Ascii	If checked, the result is displayed in ASCII (to be used for the Identification request). Non-ASCII characters are replaced by ".".

Note: the  button is used to launch the request.

Note: if no response is received from the destination device or there is an address error, the first byte of the response is FF and the second byte contains the error code (the error codes can be consulted in the documentation of the master PLC). The TSX ETG 1010 returns FF03 if a Timeout occurs.

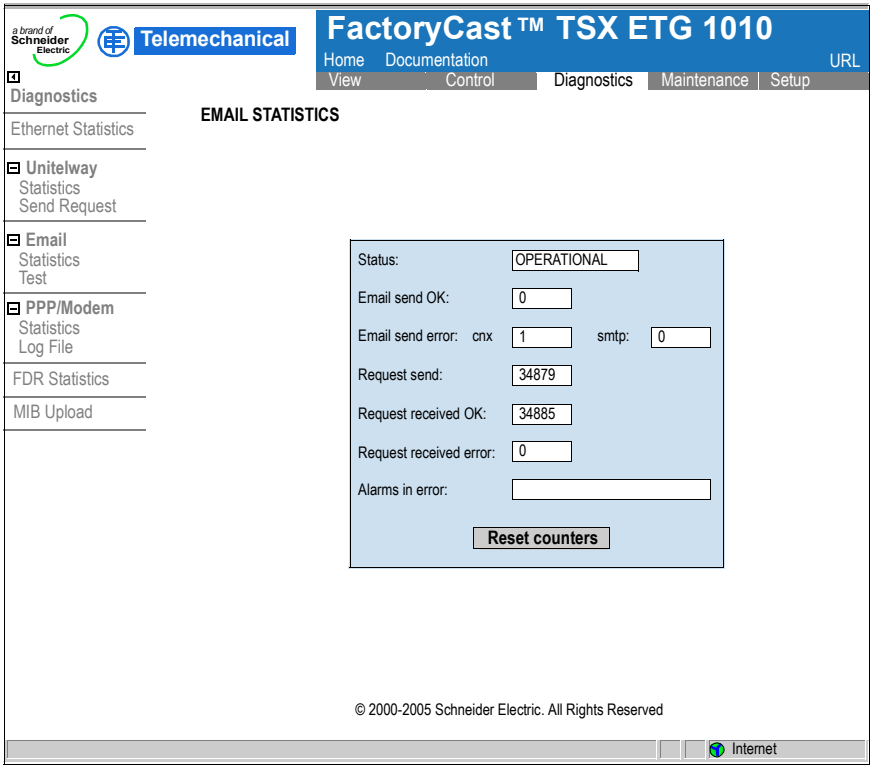
Email Statistics Page

Presentation

This page can be used to view the status of the email service.

Illustration

View of the email statistics page:



Parameters

Description of parameters:

Text	Description
Status	Indicates the status of the email function: ● IDLE : no alarms declared in the **alarm configuration** page or action deactivated ("Enable alarms" unchecked), ● OPERATIONAL : alarms declared and action enabled ("Enable alarms" selected in the **alarm configuration** page).
Email send OK	Number of alarms sent without error.
Email send error cnx	Number of alarms sent with problems connecting to the SMTP server.
Email send error smtp	Number of alarms sent with SMTP protocol errors.
Request send	Number of Uni-Telway requests sent for error management.
Request received OK	Number of responses received to Uni-Telway requests without error.
Request received error	Number of responses received to Uni-Telway requests with errors.
Alarms in error	List of alarms with errors (device missing or variable read error).

Email Test Page

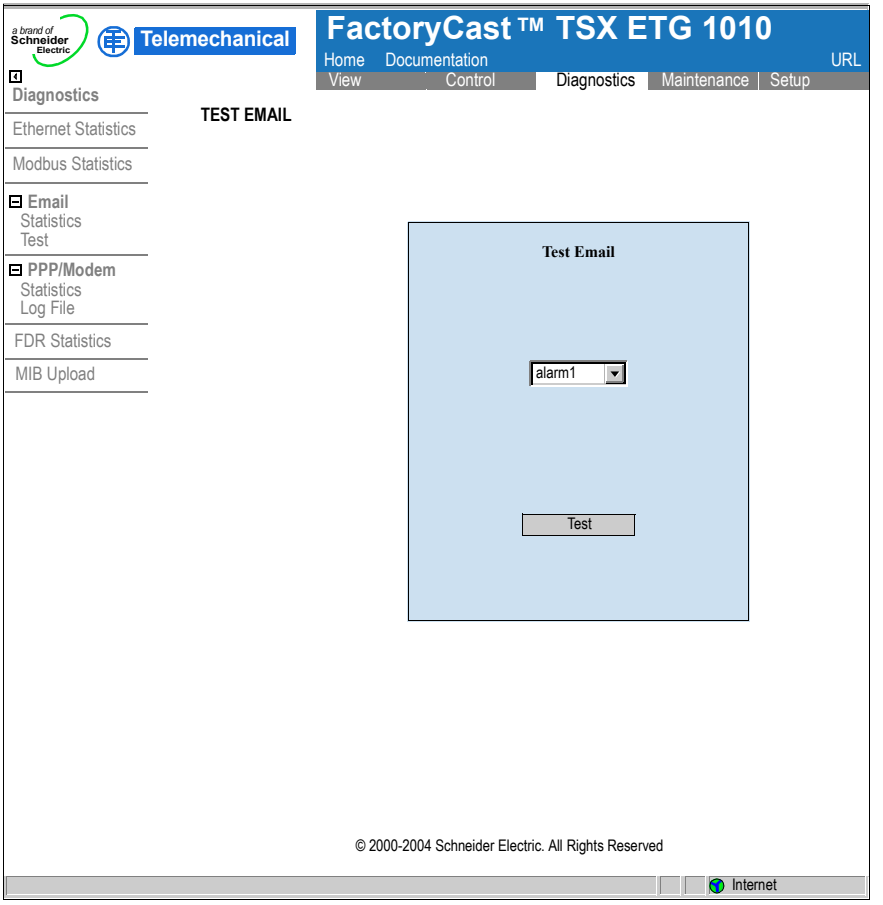
Presentation

This page can be used to test the sending of an email with just one click.

Note: before it can be used, you must configure at least one alarm in the alarm configuration page.

Illustration

View of the email test page:



Select the alarm to be sent and click on the Test button.

Note: to send an email, the page uses an internal module command register. If a command is in progress (status = -1), the email is not sent.

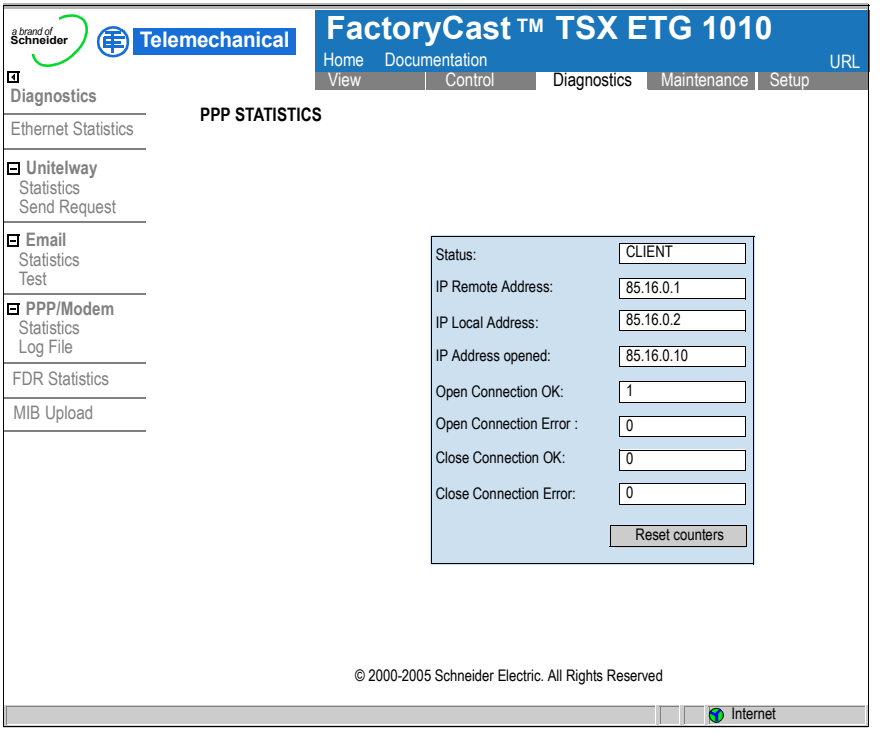
PPP/Modem Statistics Page

Presentation

This page can be used to view PPP/modem statistics.

Illustration

View of the PPP/modem statistics page:



Parameters

Description of parameters:

Text	Description
Status	Indicates the status of the PPP connection: ● inactive if there is no connection, ● server if there is a remote connection, ● client if the TSX ETG 1010 is connected (command or sending email).
IP remote address	PPP IP address of the remote connection. If the PPP connection is closed IP=0.0.0.0.
IP local address	PPP IP address of the local connection (module). If the PPP connection is closed IP=0.0.0.0.
IP address opened	Current IP address opened for the PPP connection (for client connections only). If the PPP connection is closed IP=0.0.0.0.
Open connection OK	Number of PPP connections opened without error.
Open connection error	Number of PPP client connections opened with errors (IP address error, no response from modem, line busy, etc.).
Close connection OK	Number of PPP connections closed without error.
Close connection error	Number of PPP client connections closed with errors (IP address error, no response from modem, line busy, etc.).

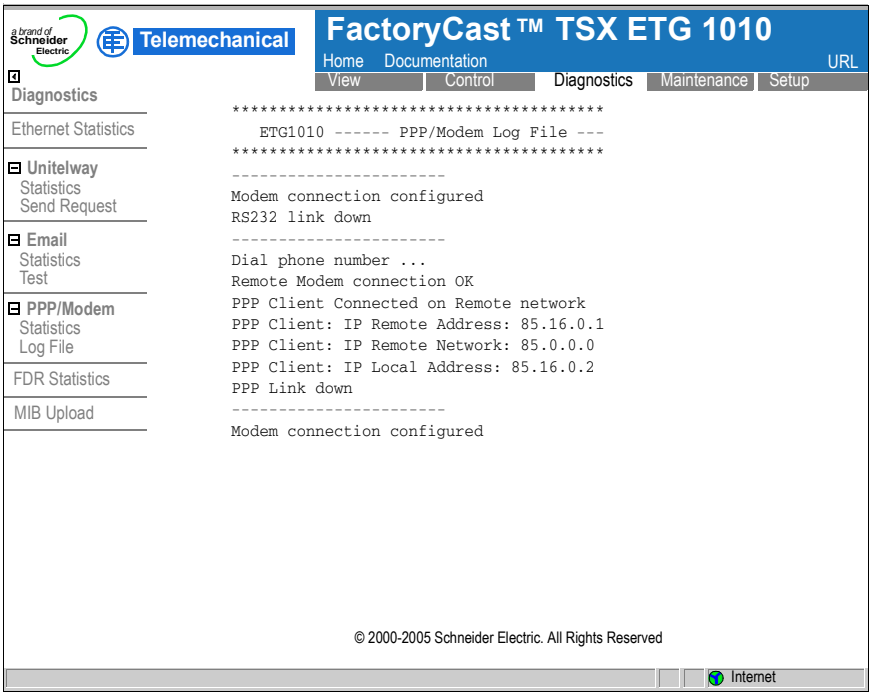
RS232 Modem Connection Diagnostics Page

Presentation

This page can be used to perform diagnostics on the RS232 Modem connection.

Illustration

View of the PPP/Modem Log File page:



Description

This page displays a text file showing a log of the last four connections.

The following reports can be displayed:

Text	Meaning
Dial phone number...	The modem is dialing the remote telephone number.
No Remote Modem Answer	The remote modem is not responding.
Remote Modem connection OK	The modem connection has been established.
Phone line busy	The remote modem is already connected.
Phone Line Error	No dialing tone on the phone line.
No Modem Answer	The local modem is not responding.
PPP Client Connected on Remote Network	The local client has successfully connected to a network or a remote station.
PPP Client: IP Remote Address: xx.xx.xx.xx	IP address of the station called.
PPP Client: IP Remote Network: xx.xx.xx.xx	IP network number of the station called.
PPP Client: IP Local Address: xx.xx.xx.xx	Local IP address of the station that is calling.
PPP Client Connection Error	No PPP connection has been established (password or IP address problem).
Direct cable connection configured	The RS232 connection is ready for a cable connection.
Modem connection configured	A modem connection has been configured.
PPP server ok	A call from a remote station has been established.
PPP server: IP Remote Address	IP address of the remote station that is calling.
PPP server: IP Local Address	Local IP address of the station.
RS232 link down	Communication interrupted (cable disconnected, etc.). **Caution**: this report is normal before the modem dials the remote number (Dial phone number).
PPP connection timeout expired	Connection timeout detected. Communication has been interrupted.
PPP link down	Modem communication has been interrupted.

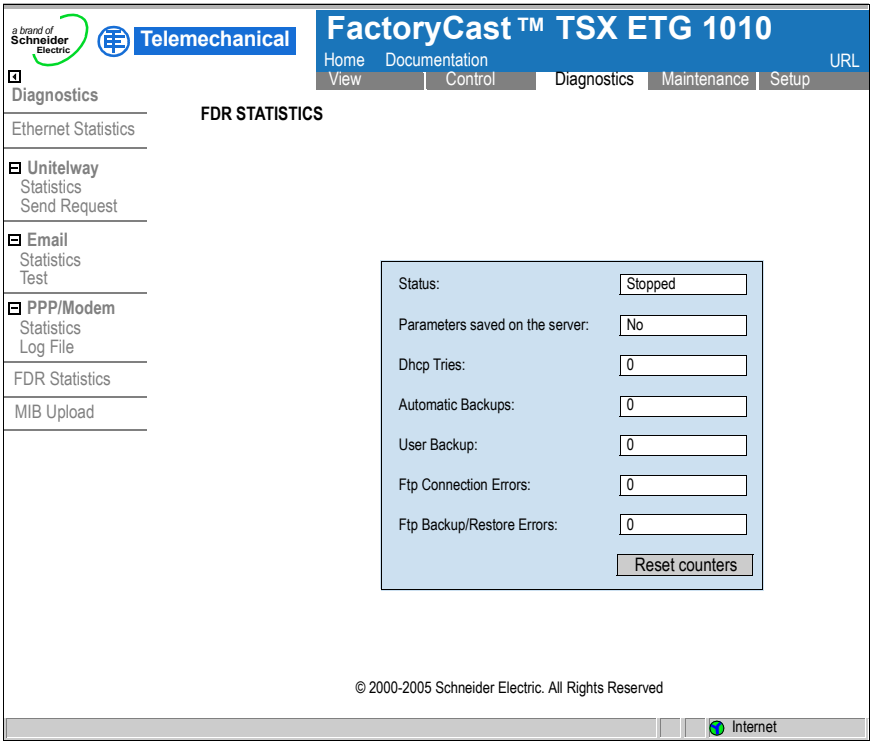
Statistics Page for Faulty Device Replacement - FDR

Presentation

This page can be used to perform diagnostics on the Faulty Device Replacement (FDR) function.

Illustration

View of the Faulty Device Replacement statistics page for a TSX ETG 1010:



Parameters

Description of parameters:

Text	Description
Status	Indicates the status of the FDR function: ● Starting, Running, Stopped, Error.
Parameters saved on server	Parameters saved on server: ● Yes, No. This information is only relevant if the FDR function is enabled.
Dhcp Tries	Total number of DHCP tries.
Automatic Backups	Total number of successful automatic backups of the TSX ETG 1010 configuration to the server.
User Backups	Total number of successful backups of the TSX ETG 1010 configuration to the server, initiated by the user by means of the Force Backup button on the **FDR Client** (See *Command Area, p. 143*) page.
Ftp Connections Errors	Number of failed FTP connections in FDR mode. This error counter shows FTP errors other than configuration file write or read errors.
Ftp Backup/Restore Errors	Number of failed configuration file backup or restore attempts by FTP in FDR mode.

MIB Upload Page

At a Glance

This page is used to upload the MIB of the TSX ETG to a PC connected to the module.

TSX ETG 1010 Setup Home Page

Home Page	This page lists the various setup services supported by the default web server of the TSX ETG 1010 module and provides links for accessing the service you require.
Accessing the Setup Page	To access the setup page, click Setup. You will be asked to enter your user name and password to access the services (default is USER).

Illustration View of the Setup page for a TSX ETG 1010:

To access the service you require, click one of the links.

- Security to configure user name or password
- Uni-Telway to configure the Uni-Telway connection.
- IP/PPP to configure IP and PPP services
- FDR Client to configure the choice of BootP or DHCP
- SNMP to configure the SNMP service
- SMTP to enter parameters for the SMTP server module
- Alarms to configure Email alarms
- Restart to reinitialize the module.

Security Page

Presentation

For HTTP access, this page allows you to change:

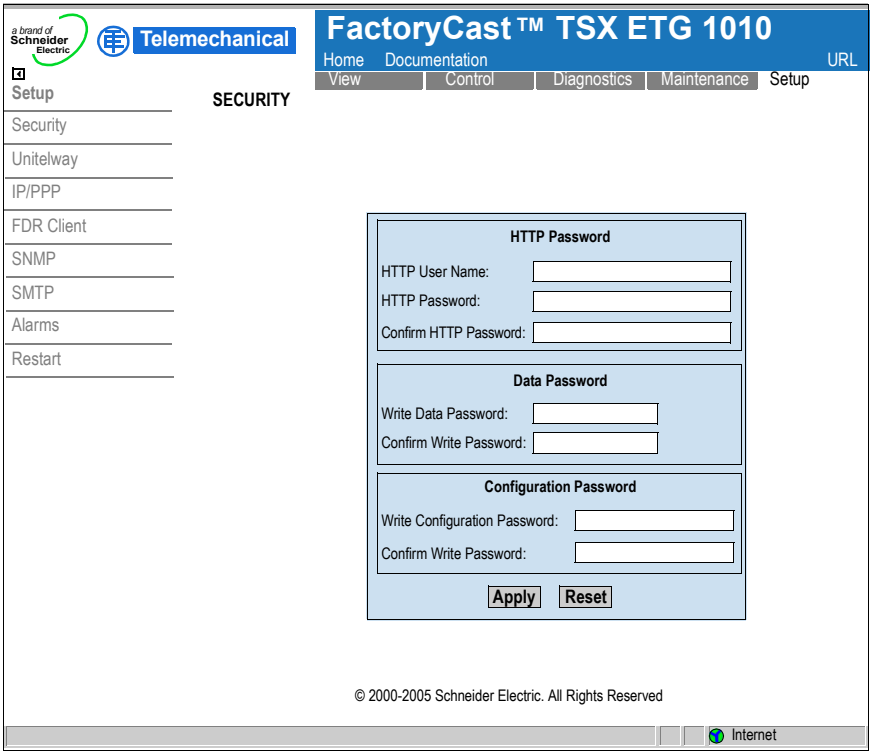
- The user name and password to access the home page,
- the password for writing variables to the data editor,
- the password for accessing the configuration parameters.

The maximum length of the user name and password is 15 letters or digits (a-z, A-Z and 0-9).

The default values for the Username/Password fields protecting web page access are **USER**/**USER**.

Illustration

View of the Security page for a TSX ETG 1010:



Modifying HTTP Access Permissions

The procedure is as follows:

Step	Action
1	Enter the new **User Name**.
2	Enter the new password.
3	Confirm the new password.
4	Confirm the change by clicking the Apply button. **Result:** a confirmation window appears.
5	Click Reboot for the changes to take effect in the module.

Changing the Data Password

The procedure is as follows:

Step	Action
1	Enter the current password (the field is case-sensitive).
2	Enter the new password.
3	Confirm the new password.
4	Confirm the change by clicking the Apply button. **Result:** a confirmation window appears.
5	Click **OK** for the changes to take effect in the module. **Result:** a window appears to confirm that the password has been changed successfully.

Changing the Configuration Password

The procedure is as follows:

Step	Action
1	Enter the current password (the field is case-sensitive).
2	Enter the new password.
3	Confirm the new password.
4	Confirm the change by clicking the Apply button. **Result:** a confirmation window appears.
5	Click **OK** for the changes to take effect in the module. **Result:** a window appears to confirm that the password has been changed successfully.

Uni-Telway Link Configuration Page

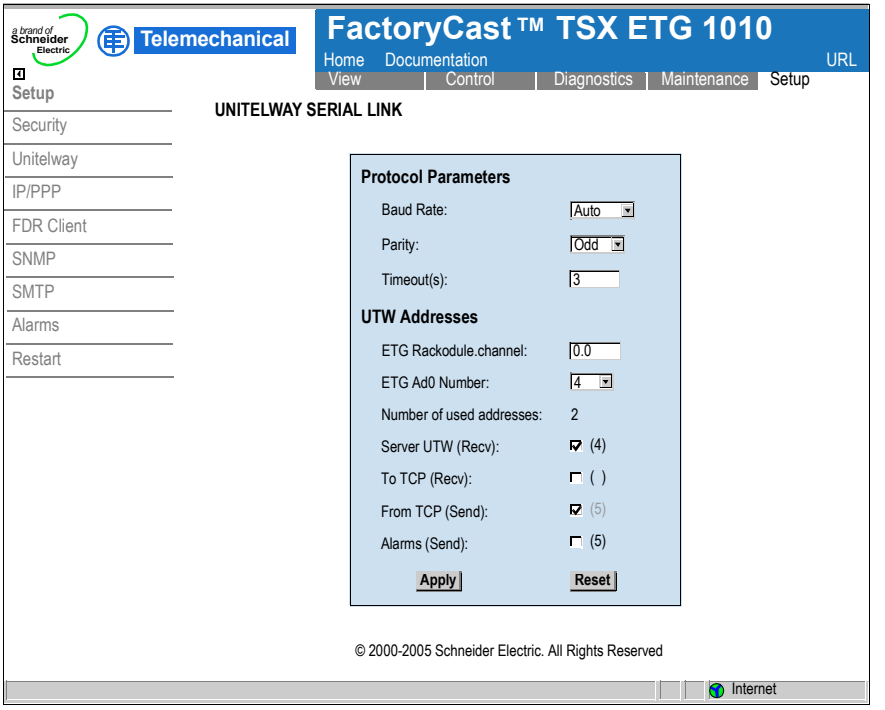
Presentation

This page is used to configure the Uni-Telway function for the TSX ETG 1010 module.

Note: Write access is controlled by a password (**Security**) whose default value is **USER**.
The contents of this page are described in more detail in Uni-Telway Configuration for the TSX ETG 1010 module (See *Configuration Parameters for the Uni-Telway link, p. 139*).

Illustration

View of the Uni-Telway Configuration page:



TCP/IP Services Configuration Page

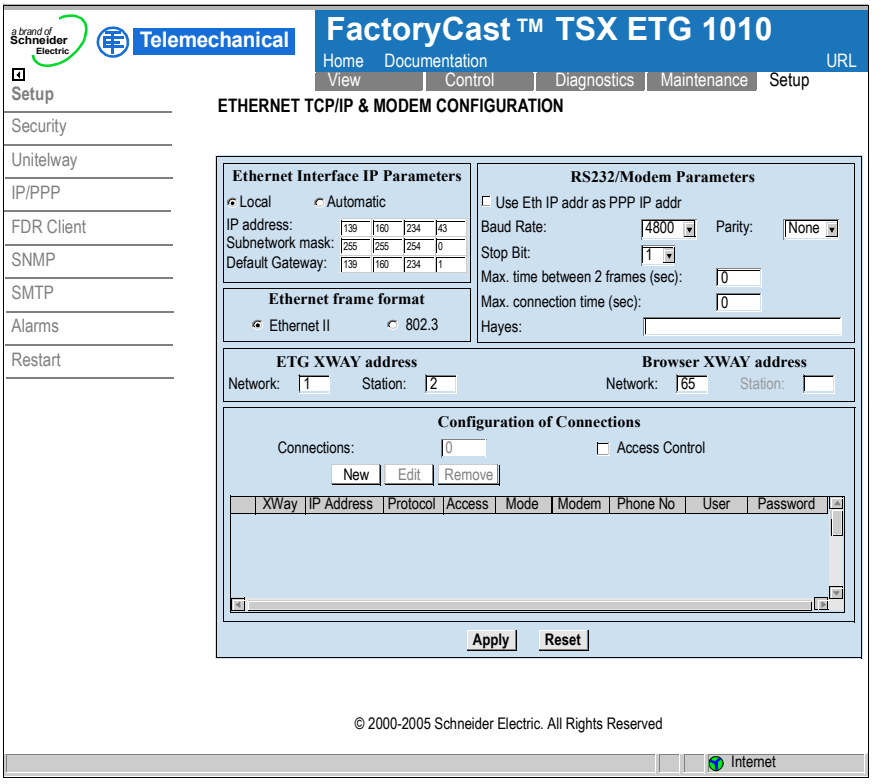
Presentation

This page is used to configure TCP/IP services for the TSX ETG 1010 module.

Note: Write access is controlled by a password (**Security**) whose default value is **USER**.
The contents of this page are described in more detail in IP/PPP Configuration for the TSX ETG Module (See *Configuration Parameters for TCP/IP Services, p. 131*).

Illustration

View of the IP Configuration page:



Automatic Configuration Page

Presentation

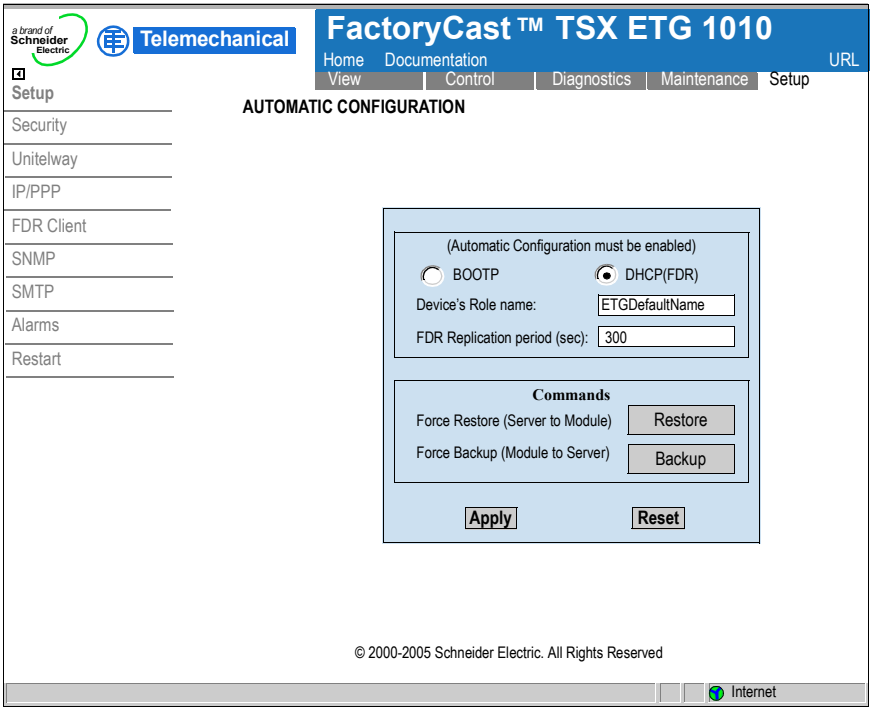
This page is used to configure the TSX ETG 1010 module as a BOOTP or DHCP(FDR) client.

Note: Important: The Automatic Configuration field must have been selected first in the **IP/PPP** (See *Configuration Parameters for TCP/IP Services, p. 131*) page.

Note: Write access is controlled by a password (**Security**) whose default value is **USER**.
The contents of this page are described in more detail in Automatic Configuration of the TSX ETG Module (See *Automatic Configuration, p. 142*).

Illustration

View of the FDR Client page:



SNMP Function Configuration Page

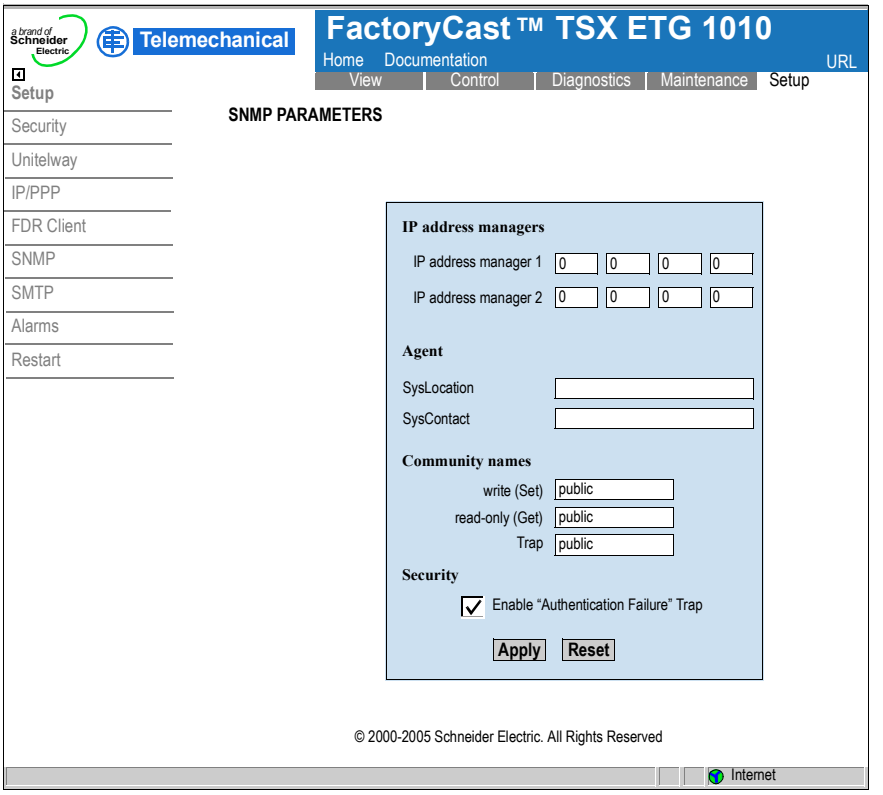
Presentation

This page is used to configure the SNMP function for the TSX ETG 1010 module.

Note: Write access is controlled by a password (**Security**) whose default value is **USER**.
The contents of this page are described in more detail in SNMP Service Configuration (See *SNMP Service Configuration, p. 144*).

Illustration

View of the SNMP Configuration page:



SMTP Function Configuration Page

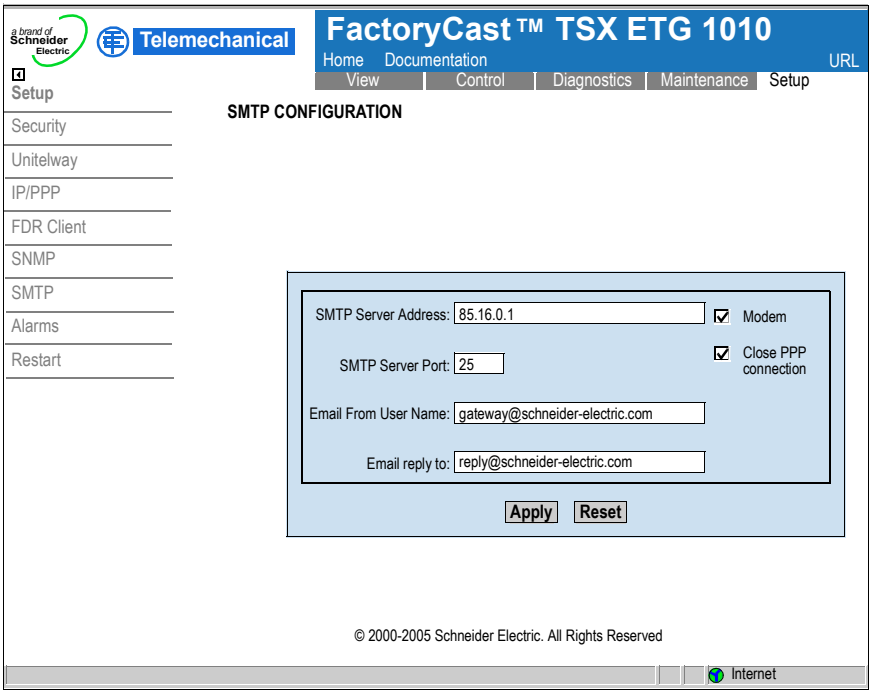
Presentation

This page is used to configure the SMTP function for the TSX ETG 1010 module.

> **Note:** Write access is controlled by a password (**Security**) whose default value is **USER**.
> The contents of this page are described in more detail in SMTP Service Configuration (See *SMTP Service Configuration, p. 146*).

Illustration

View of the SMTP Configuration page:



Alarm Configuration Page

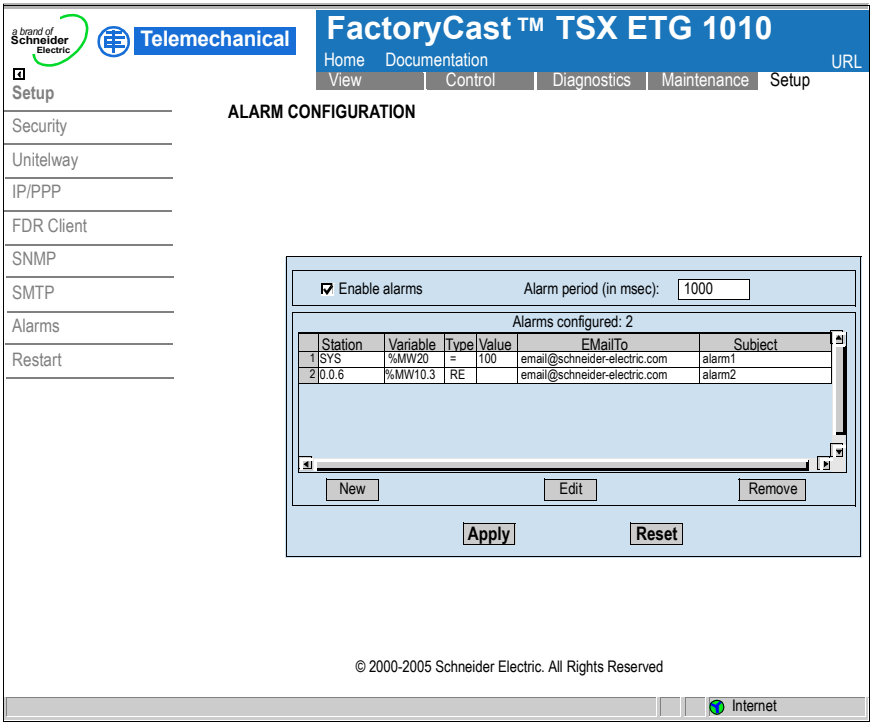
Presentation

This page is used to configure email alarms for the TSX ETG 1010 module.

Note: Write access is controlled by a password (**Security**) whose default value is **USER**.
The contents of this page are described in Alarm Configuration (See *Alarm Configuration, p. 148*).

Illustration

View of the Alarm Configuration page:



Module Restart Page

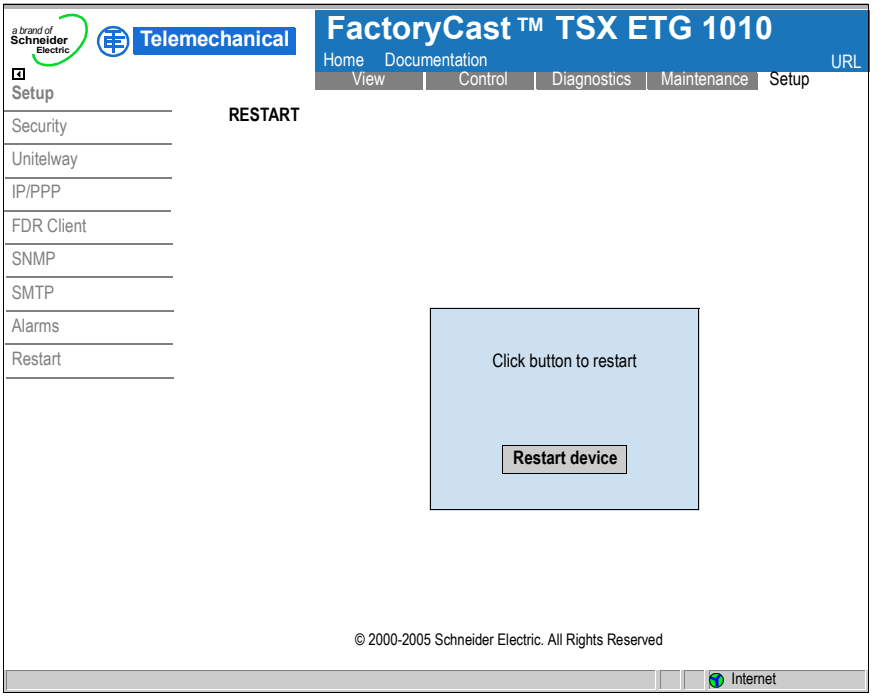
Presentation

This page is used to reinitialize the TSX ETG 1010 module. The module must be reinitialized (restarted) in order for new configuration parameters to take effect. All connections are interrupted when the module is restarted.

Note: Restarting is controlled by a **security** password whose default value is **USER**.

Illustration

View of the Restart page:



Viewing Pages for the TSX ETG 1010

Home Page	This page lists the various viewing services supported by the default web server of the TSX ETG 1010 module and provides links for accessing the services you require.
Accessing the View Page	Click on View. The various services are displayed on the left of the window.

Illustration

The View home page looks like this:

To access the service you require, click one of the links.

- Data Viewer to access data tables created by the user with the data editor.
- Data Editor to create data tables for Uni-Telway device variables or module variables so that the values can be displayed in the table animation.
- Custom Pages with password to view screen pages (accessible with password) created by the user
- Custom Pages without password to view screen pages (accessible to all) created by the user

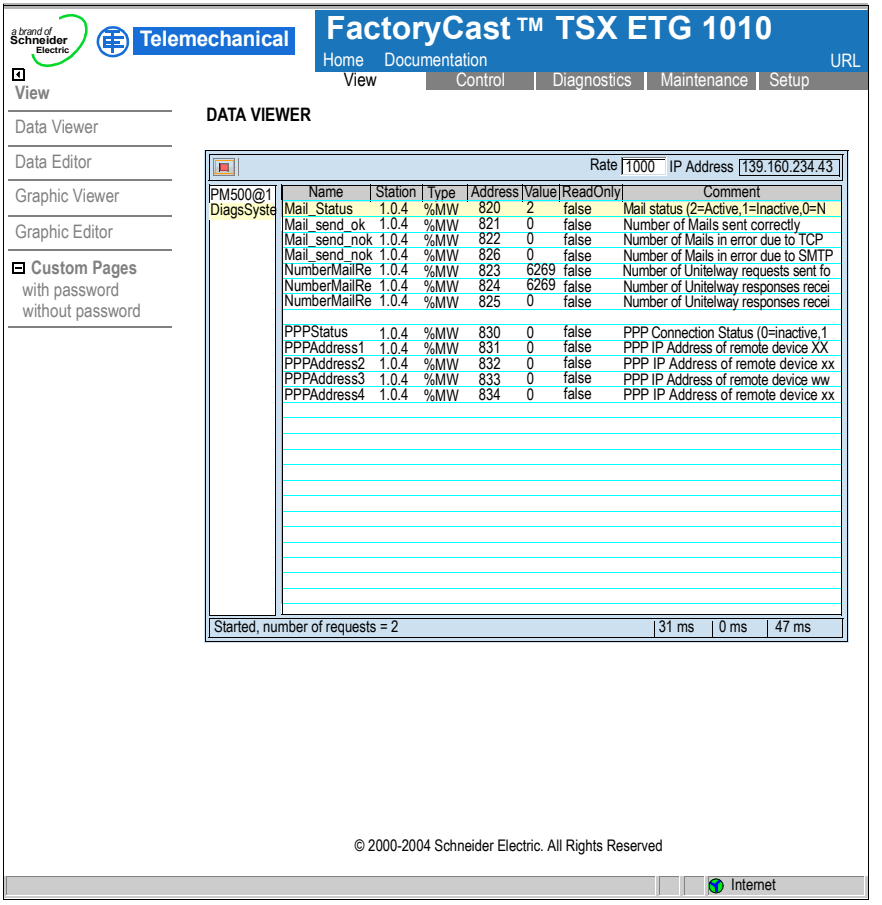
Data Viewer Page

Presentation

This page can be used to view animation tables containing lists of Uni-Telway device variables or internal module variables. This page cannot be used to create a table, to modify a variable or to force a variable value. The data viewer page uses the tables created by the data editor. The data viewer page is not password protected because it is only an animation page.

Illustration

View of the data viewer page for a TSX ETG 1010:



Note: In the left-hand field the window displays the available tables created by the editor. The user can select which table to display.

The variable comprises the following elements:

FIELD	FUNCTION
Name	Name of the variable (mnemonic)
Station	Address of the Uni-Telway device (See *Uni-Telway Device Addressing, p. 126*).
Type	Data type.
Address	Variable address (0 to 65535)
Value	Value of the variable in unsigned decimal format. If there is a communication error or the variable is not accessible the value is "????"
ReadOnly	If this box is checked the variable cannot be output directly
Comment	Comment about the variable

Note: The data types are as follows:
- %M : internal bit (Boolean),
- %MW : internal word,
- %MD : internal double word,
- %MF : floating-point word,
- %S : system bit (Boolean),
- %SW : system word,
- %KW : constant word,
- %KD : constant double word.

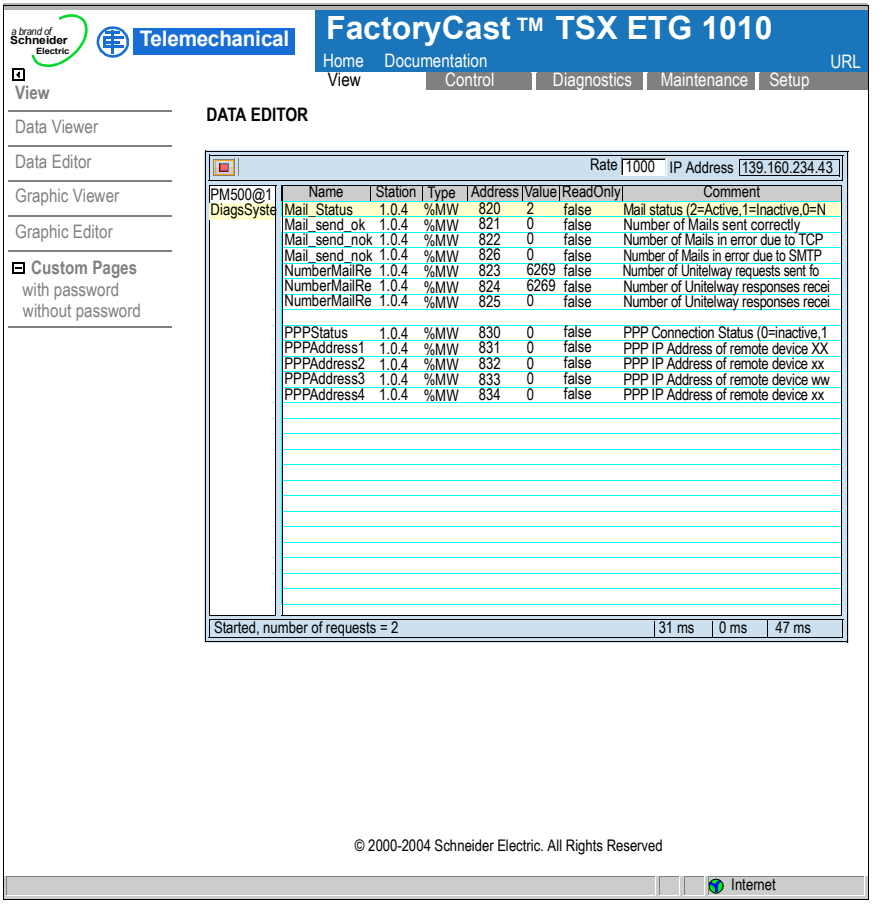
Data Editor Page

Presentation

This page is used to create animation tables containing lists of PLC or device variables to be viewed or modified.

Illustration

View of the Data Editor page for a TSX ETG 1010:



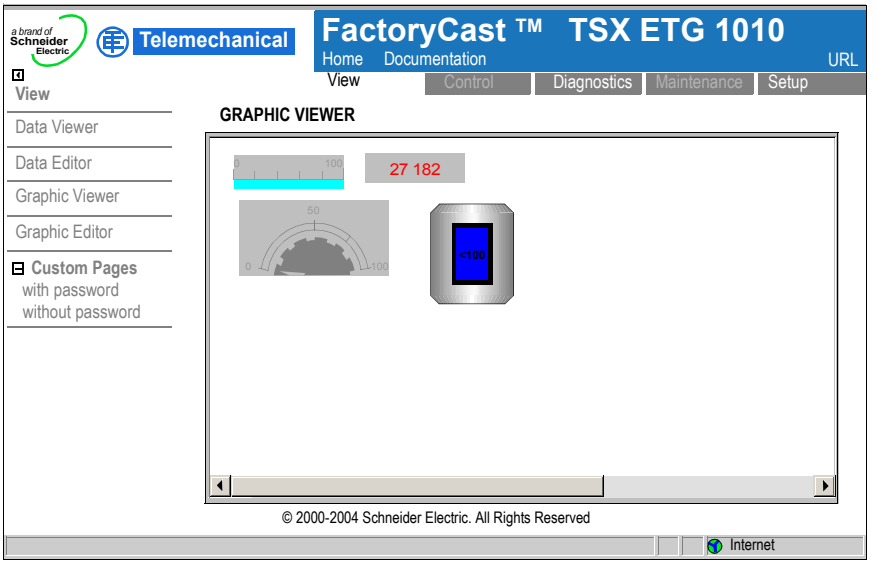
Graphic Viewer page

Presentation

This page can be used to view graphical animation pages about the variables of Uni-Telway devices or internal module variables. The page does not allow graphical pages to be created or modified.

Illustration

View of the Graphic Viewer page for a TSX ETG 1010:



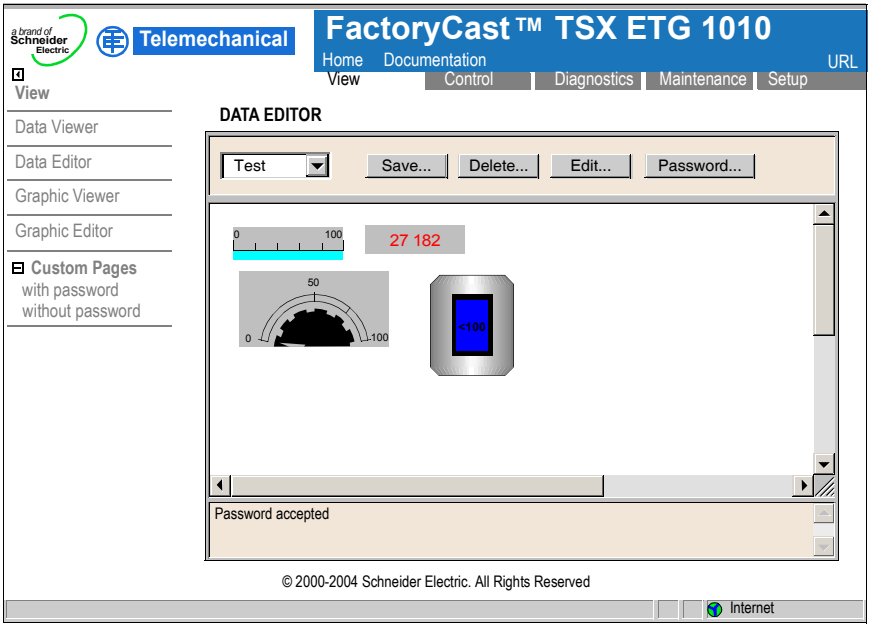
Graphic Editor page

Presentation

This page can be used to create graphical animation pages about the variables of Uni-Telway devices or internal module variables.

Illustration

View of the Graphic Editor page for a TSX ETG 1010:



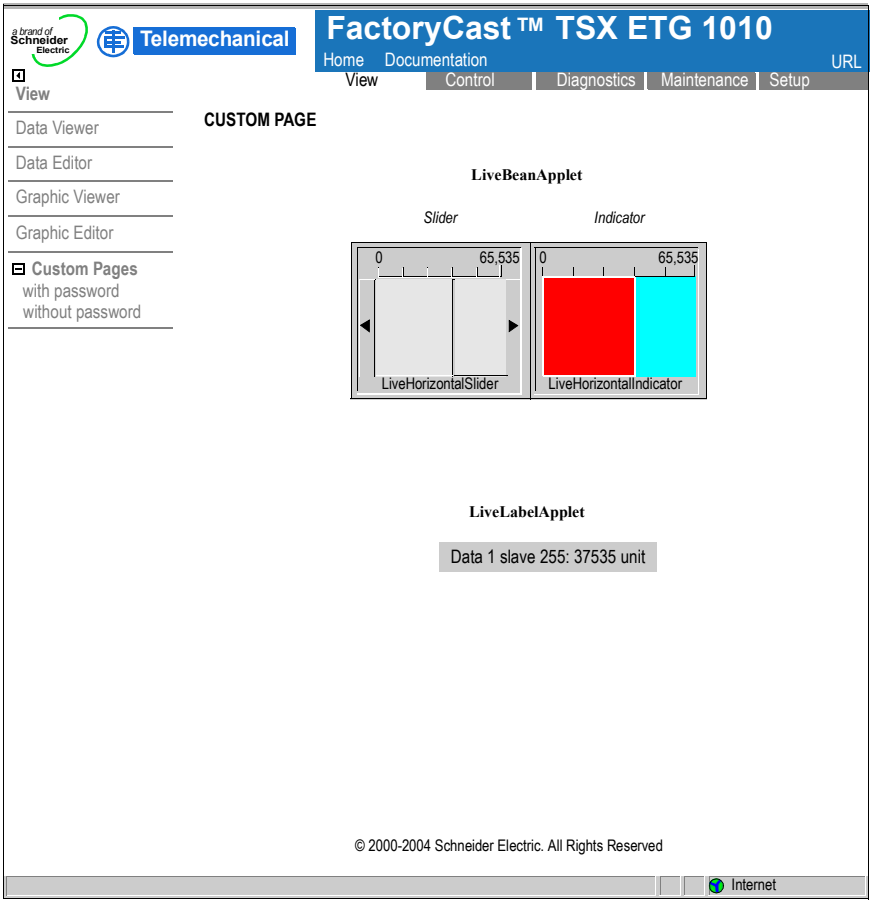
Custom Pages

Presentation

This page gives access to pages created by the user with FrontPage or similar programs. These pages can be accessible to all users (pages without password) or protected (with password). They allow the user to interpret the values of Uni-Telway device variables more effectively (other than via a data table). The Creating Custom Pages (See *Creating User Pages, p. 207*) chapter provides information about creating and transferring pages.

Illustration

View of a custom page for a TSX ETG 1010:



Setting Up the TSX ETG 1010 Module

4

At a Glance

Scope of this Chapter

This chapter describes how to set up the TSX ETG 1010 module.

What's in this Chapter?

This chapter contains the following sections:

4.1 Main Topologies

Presentation

Scope of this Section

This section describes the main connection topologies for the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

General

At a Glance

The TSX ETG 1010 is an autonomous module.

Its speed on the Ethernet medium (10/100 Mbps) is adjusted automatically. In order for the module to be used, it must be supplied with power and connected via a Uni-Telway network to a Uni-Telway master.

The module is always **slave** on the Uni-Telway network.

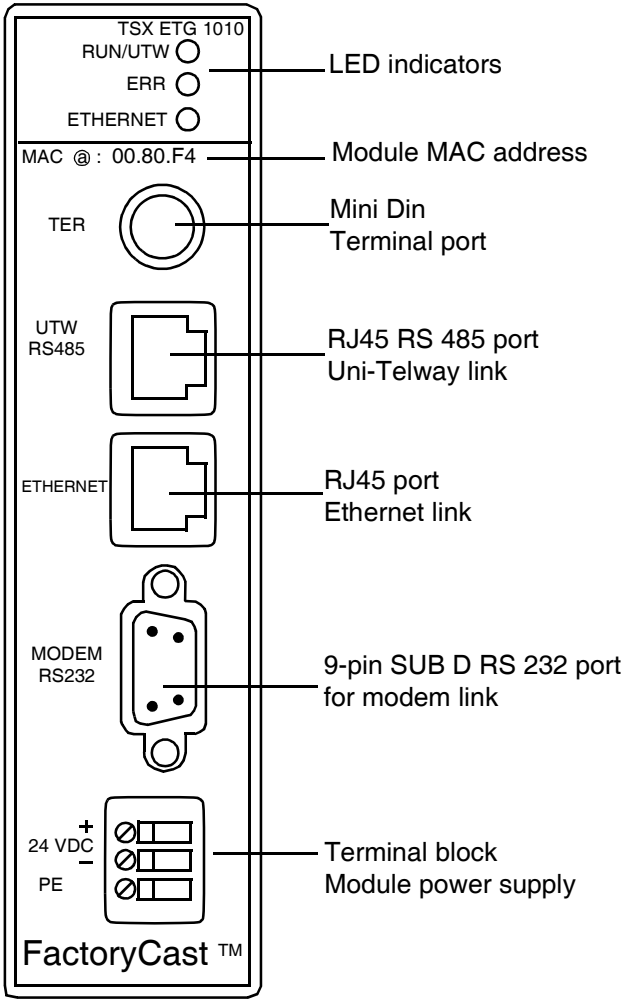
The RUN/UTW LED flashes according to the Uni-Telway communication speed (module configured for TCP/IP, etc.).

There is no concept of cold or warm startup for the module, since the memory is not saved when the power supply is disconnected.

When it is powered up, the module systematically performs a hardware and software reboot.

Front Panel

View of the TSX ETG 1010 module front panel:



Connection Options

At a Glance

The TSX ETG 1010 offers various types of connection option:

- for accessing device data,
- for accessing maintenance,
- for accessing the mail service,
- for the RAS function (Remote Access Service),
- For the routing function.

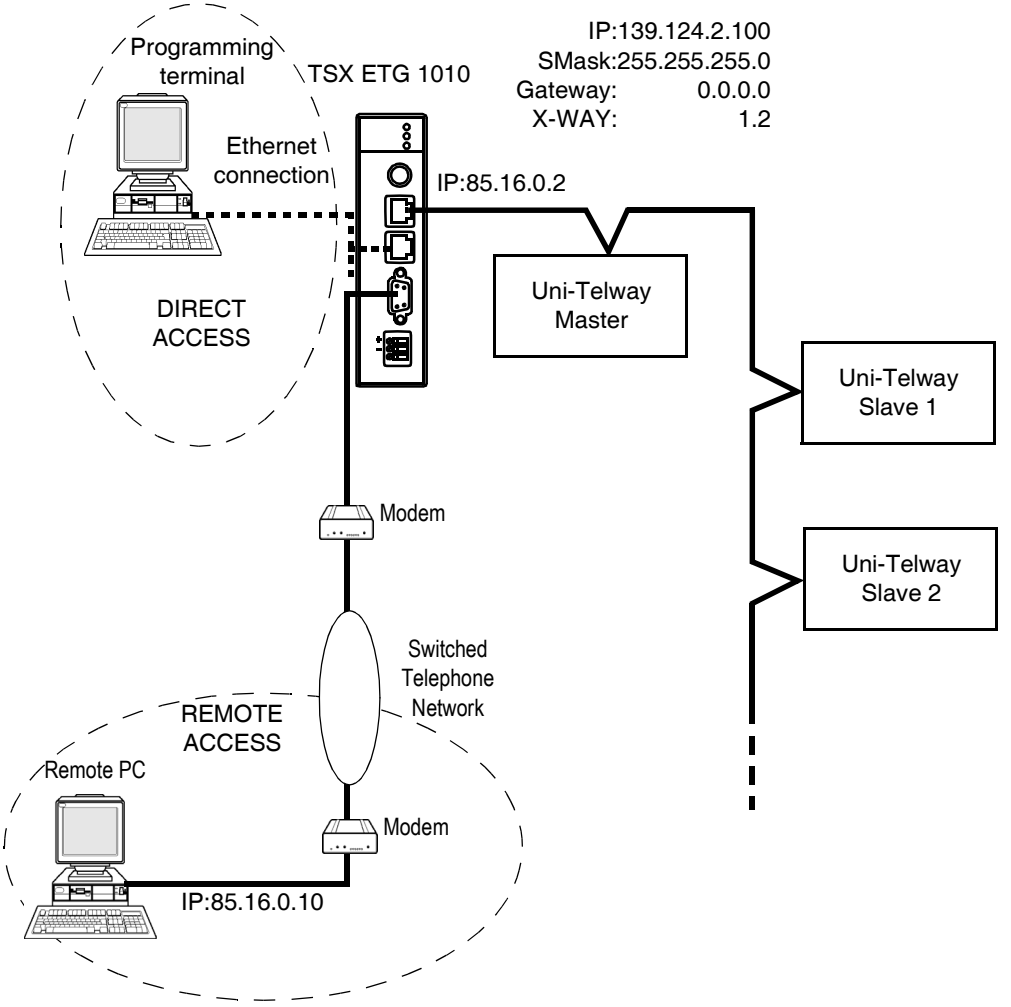
Connection for Accessing Data

There are 3 ways of accessing remote device data:

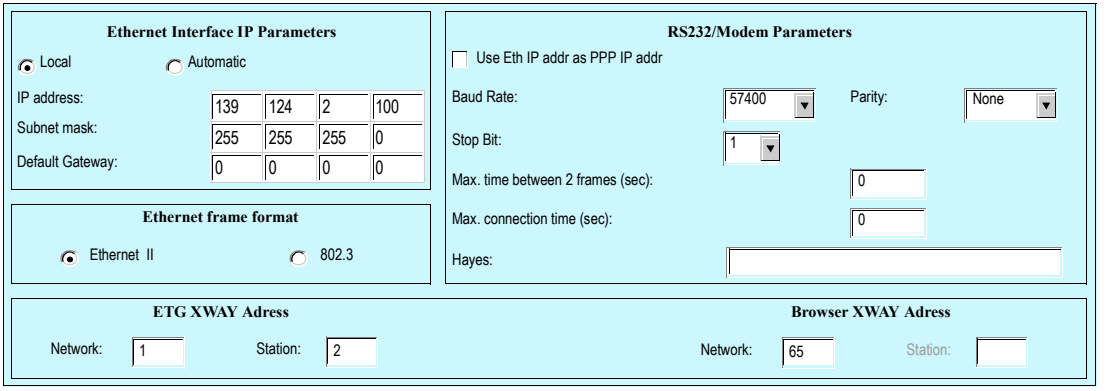
- Directly, where the PC is connected directly to the module via the Ethernet network,
- Remotely, where the PC polls the module via the telephone network (via modem) and can therefore acquire Uni-Telway device data,
- By a combination of the two (direct and remote), where the PC is connected to the module directly (via Ethernet) and remotely (via modem).

With any of these 3 connections, the user can access Uni-Telway device data, HTML pages, variable tables, animation tables, and screen pages.

Connection example:



For this example the module must be configured in the IP/PPP Configuration page as follows:



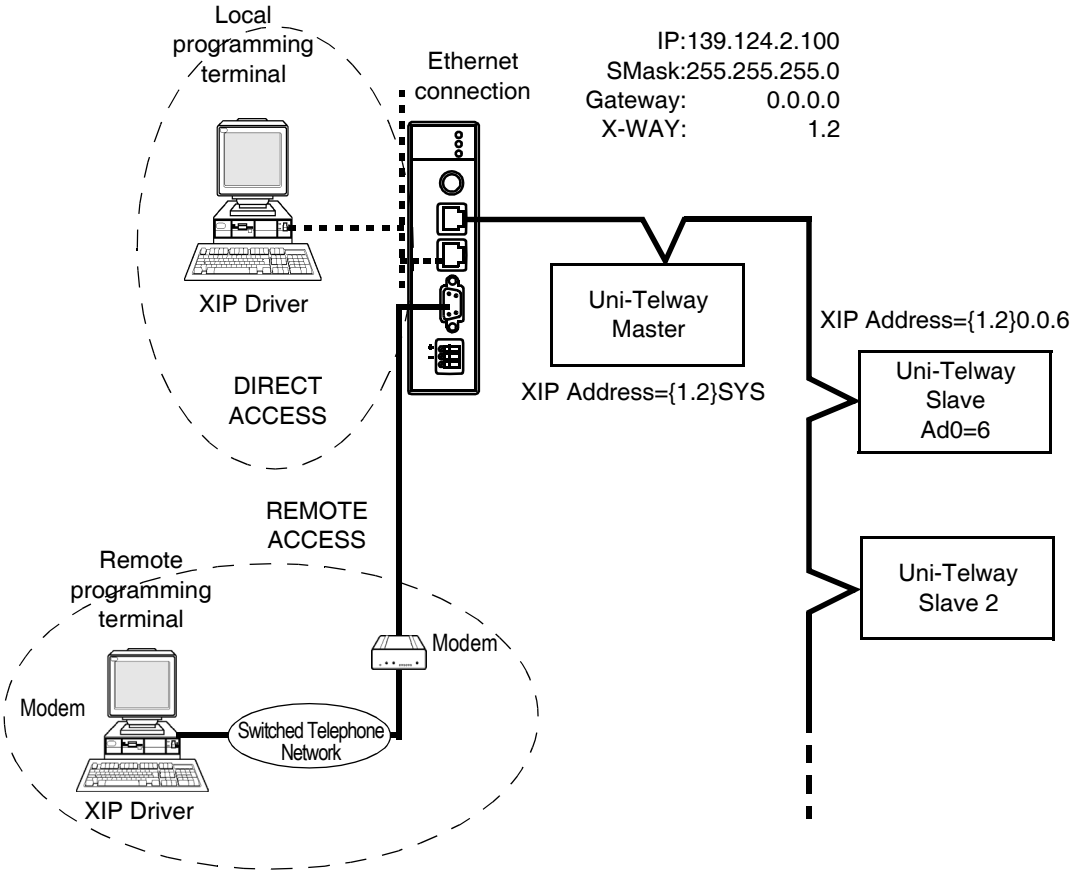
Maintenance Connection

There are two ways of modifying a PLC program using the module:

- Locally, the PC is connected to the module via the Ethernet network,
- remotely, where the PC polls the module via the telephone connection (via modem)

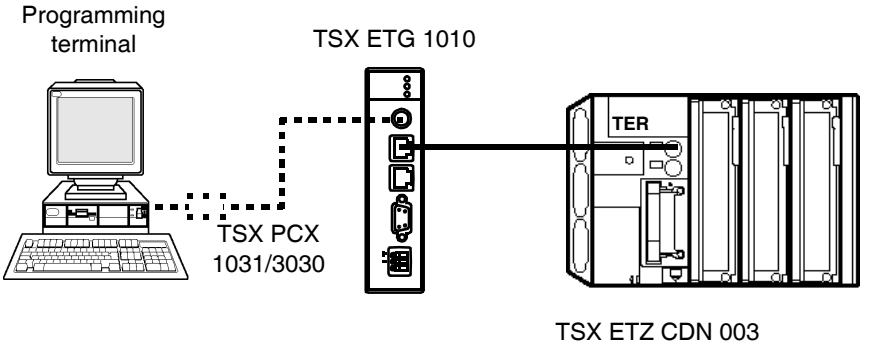
To modify the PLC program via the TSX ETG 1010, use the XIP driver (in the PL7 or Unity Pro programming tool).

Example:

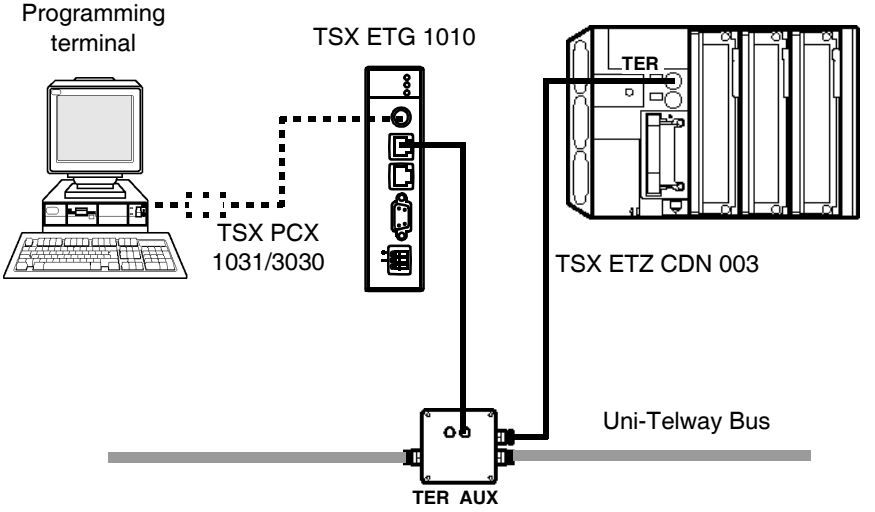


Maintenance Connection on TER Port of the TSX ETG 1010

Direct Connection of the Uni-Telway TSX ETG 1010 with the master:



Connection of the Uni-Telway via a TSX P ACC 01 box:



This configuration leaves the TER port of the TSX ETG 1010 module free to be used to connect a programming terminal, for example.

Connection for Mail Service

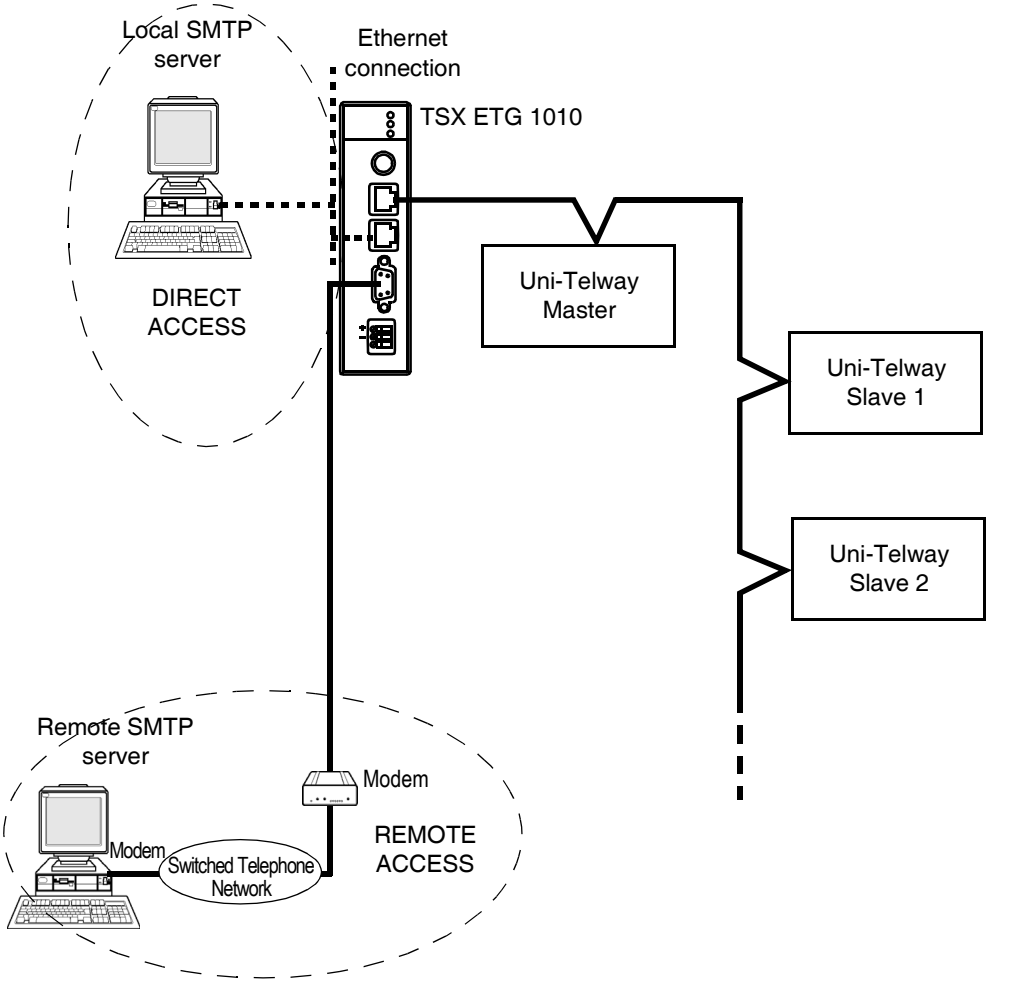
There are 2 ways of accessing mail services:

- directly, where the PC is connected directly to the module via the Ethernet network
- remotely, where the PC polls the module via the telephone connection (via modem)

With either of these 2 connections, the SMTP server can receive by email all internal (module) or external (device) data or events (that have been set up).

Note: The 2 configurations cannot be combined because there can only be one SMTP server.

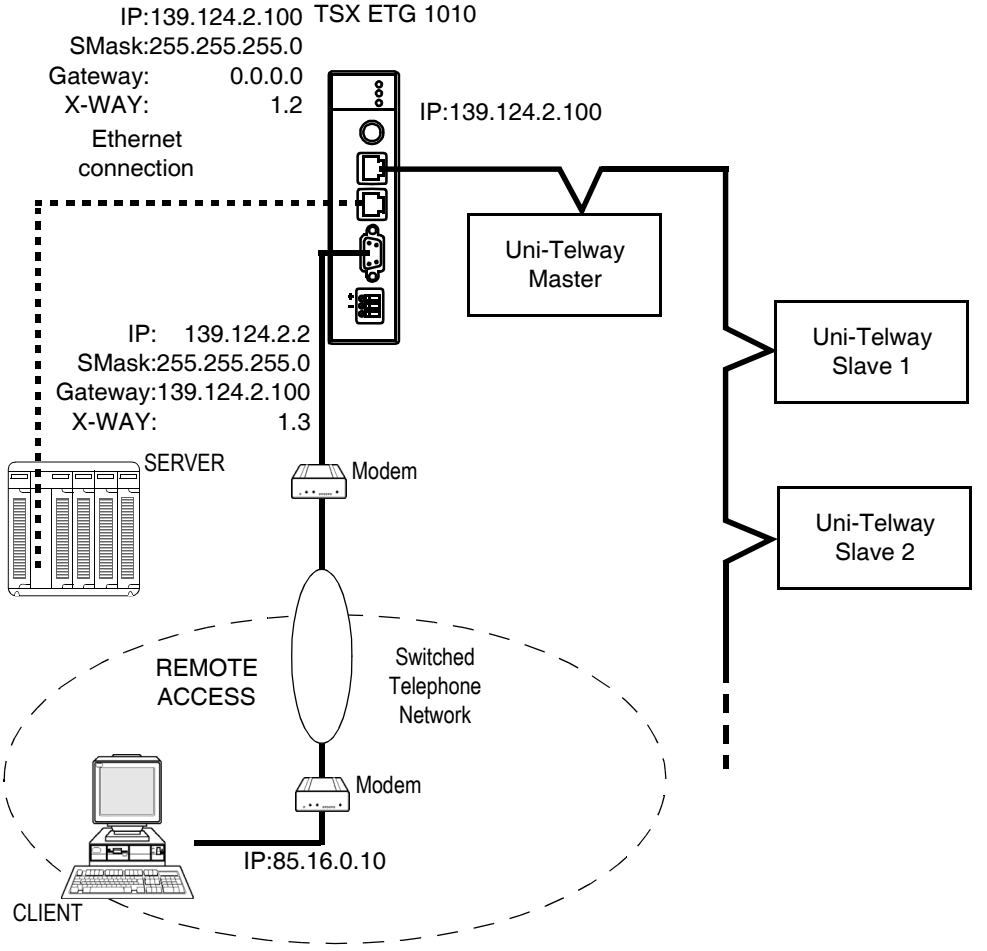
Example:



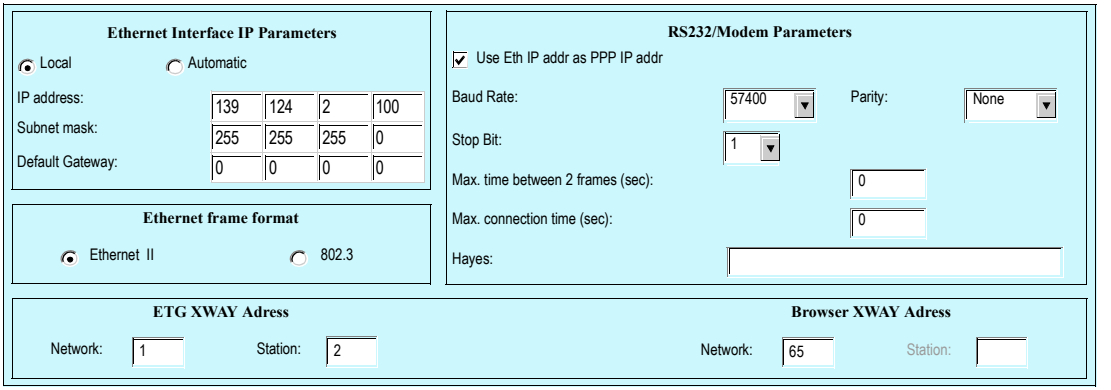
Remote Access Server Connection

With this modem connection the user can access the device Uni-Telway data and the server Ethernet data. Simply check the **Use Eth IP Addr as PPP IP Addr** box in the **IP/PPP Configuration** page so that the PPP address of the module (85.16.0.2) becomes that of the IP address. The client PC then polls the Ethernet server device directly.

Connection example:



For this example the module must be configured in the IP/PPP Configuration page as follows:



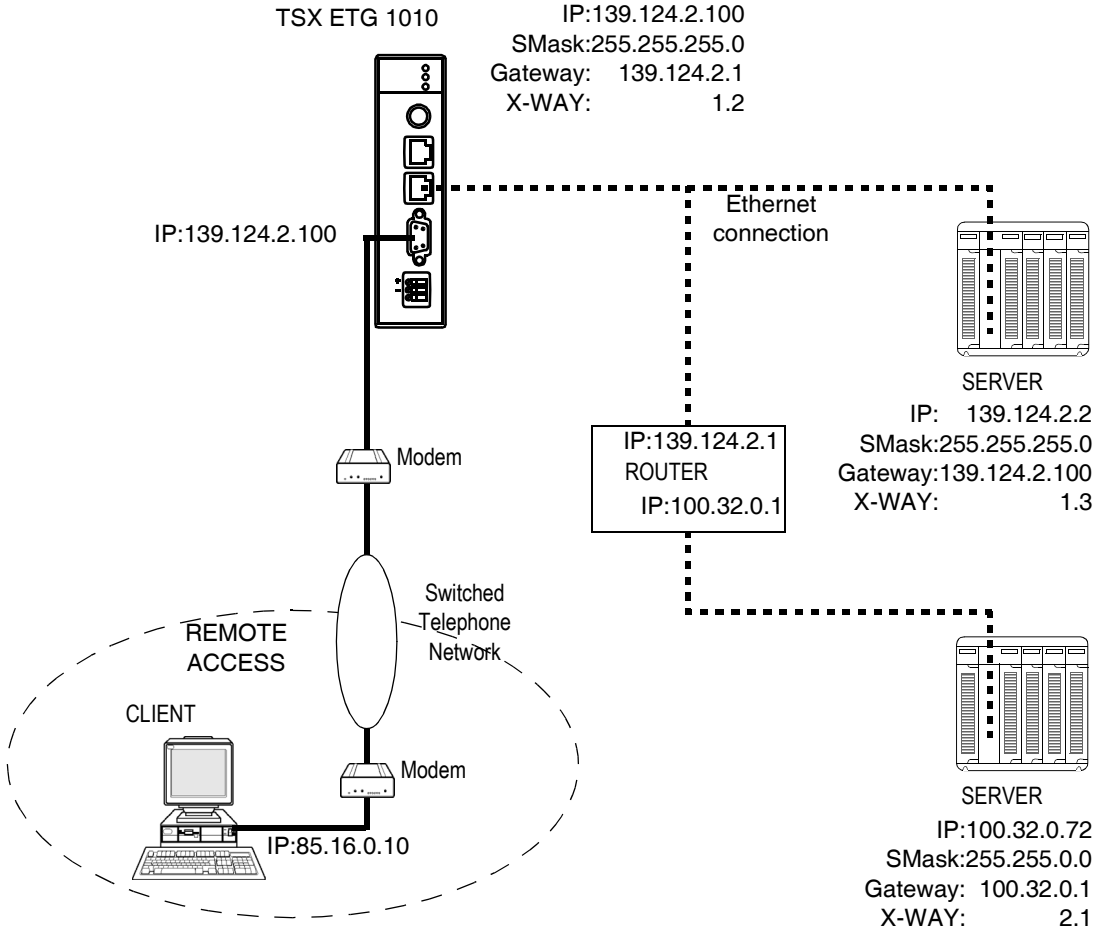
Routing Connection

With this modem connection the user can access Modbus device data and Ethernet server data and can also access the server on a different network.

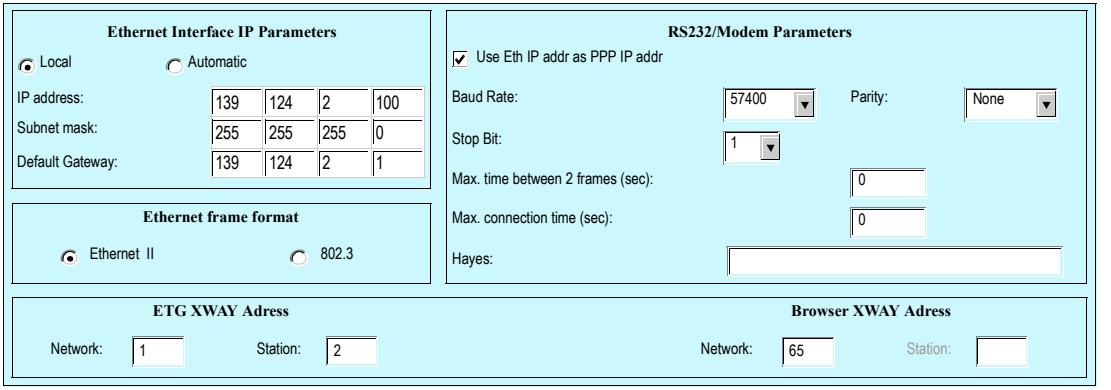
Simply:

- check the **Use Eth IP Addr as PPP IP Addr** box in the **IP/PPP Configuration** page so that the PPP address of the module (85.16.0.2) becomes that of the IP address. The client PC then polls the Ethernet server device directly
- Give the IP address of the router to the module gateway address (Default Gateway) so that requests pass through the router
- Modify the server gateway addresses (Default Gateway) so that requests arrive at the correct destination

Connection example:



For this example the module must be configured in the IP/PPP Configuration page as follows:



Uni-Telway Device Addressing

At a Glance

The TSX ETG 1010 module supports Uni-Telway addresses with the following syntax (PL7 type addressing):
`[{network.station}]rackmodule.channel.slave ad`

For local access, the `network` and `station` information is not necessary. It is enough to specify the following: `rackmodule.channel.slave ad`

Examples:

- master: SYS
- slave 6 (rackmodule=0, channel0): 0.0.6
- ETG 1010 (address 4, rackmodule=0, channel0): 0.0.4
- slave 3 (rackmodule=206, channel1): 206.1.3

Routing

To route to another X-WAY network, via the master, you must add the `{network.station}` information.

Example: slave 6 of network 1 and of station 3: `{1.3}0.0.6`

Alternative Syntax

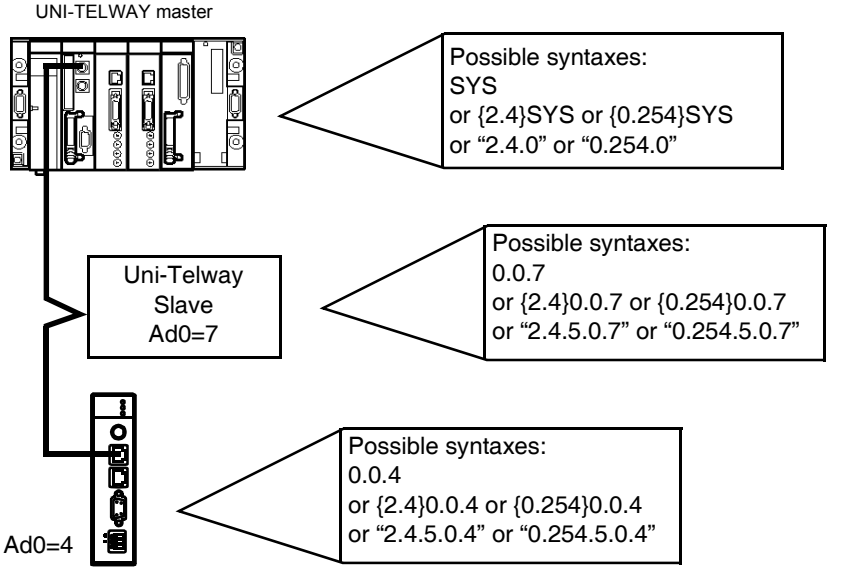
The TSX ETG 1010 also supports 3, 5 or 6-level X-WAY syntax (with double or simple quotes).

Examples:

- master: ‘0.254.0’
- slave 6: "0.254.5.0.6"

Illustration

Example:



Note: This addressing syntax is used for the ‘Data Editor’, ‘Custom Pages’, ‘Alarms’, and ‘Send Request’ services.

4.2 Configuration of the TSX ETG Module

At a Glance

Scope of this Section

This section covers the configuration of the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

Accessing the Module Configuration

At a Glance

The TSX ETG 1010 module can only be configured using an industry-standard Internet browser.

The configuration pages can be accessed via either an Ethernet link or an RS232 serial link.

Configuration via Ethernet Link

To access the module configuration pages **for the first time**, via an HTTP link, follow the steps below:

Step	Action
1	Connect the module to the Ethernet network and power up.
2	Open your Internet browser on the PC.
3	In the "Address" field enter the command: http://<default_ETG_IP_address>, then press <Enter>. **Note:** The default IP address is derived from the module's MAC address, which is printed on the front panel. The home page appears on the screen.
4	Click the **Setup** link.
5	The configuration index page appears: click the service you require.
6	Enter the default UserName "USER" and the default password "USER" (without inverted commas), then press <Enter>.

Note: For subsequent connections proceed in the same way, but enter the appropriate IP address, UserName and password if they have been changed.

Default IP address:

The default module IP address is 85.16.x.y, where x and y are the last two decoded hexadecimal/decimal numbers of the MAC address.

If the module MAC address is 00.80.F4.01.53.CF, then the IP address of the module will be 85.16.83.207. In hexadecimal format 53 becomes 83, in decimal format, CF becomes 207.

Configuration via RS232 Serial Link

For the first connection you must configure the components of your operating system in order to be able to communicate with the TSX ETG 1010 module. All the configuration steps are explained in a manual called 'ETZ & ETG access' supplied with the CD. Once these components have been configured, follow the steps below:

Step	Action
1	Connect an RS 232 crossed cable between a COM port on the PC and the 9-pin SUB D socket on the TSX ETG 1010 module (see *Connection Cables, p. 278*).
2	Establish the serial connection between the PC and the module.
3	Open your Internet browser on the PC.
4	In the "Address" field type: **http://85.16.0.2**, then press <Enter>.
5	The configuration index page appears: click on the service you require.
6	Enter the default UserName "USER" and the default password "USER" (without inverted commas), then press <Enter>.

Note: For subsequent connections, the IP address to be entered is always the same, but enter the appropriate UserName and password if they have been changed.

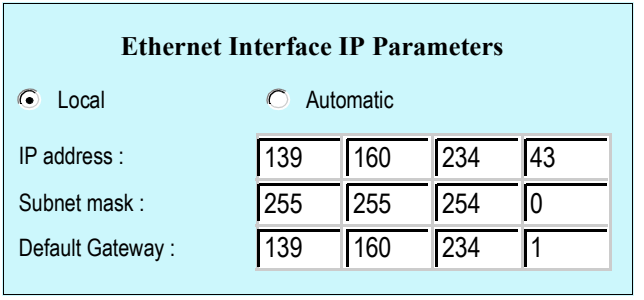
Configuration Parameters for TCP/IP Services

At a Glance

TCP/IP services are configured with the **IP/PPP Configuration** (See *TCP/IP Services Configuration Page, p. 96*) screen accessed via the **Setup** menu for the module's embedded HTTP server.

Area: IP Parameters

View of the IP Parameters



This area is used to define the Ethernet interface IP address of the module in two different ways:

- either the address is configured manually by clicking on Local
- Or the address is provided by a BOOTP server device by clicking the Automatic button, in which case the address input area is grayed out
- If you choose Local, you can then enter:
  - the module IP address in IP Address,
  - the subnetwork mask, Subnet mask,
  - the address of the Default Gateway.
- If you choose Automatic, the IP address of the module is configured via a remote device acting as a BOOTP/DHCP server.

Note: The Automatic service is not available if the format of the Ethernet frames is 802.3

Area: XWAY Address

Illustration:

- ETG XWAY Address :
  enter the X-WAY address of the TSX ETG 1010 module: network number (Network field) and station number (Station field).
- Browser XWAY Address :
  X-WAY source address allocated to client PC connected to TSX ETG 1010 module for ‘Data Viewer’, ‘Data Editor’, ‘Custom Pages’, and ‘Send Request’ exchanges.

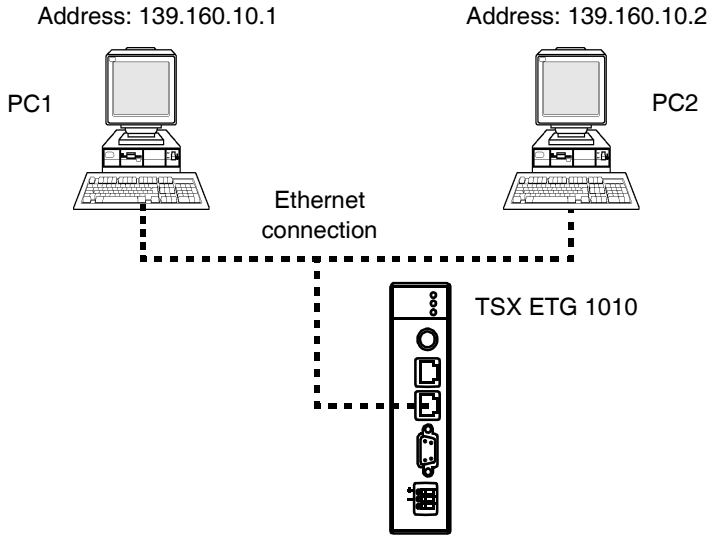
Note: For the browser, use a network address that does not already exist in your configuration.

Browser Connection Check

To test the connection, in the authorized connections table, enter the IP address of the PC and the X-WAY address with the configured network address and any station address between 0 and 63.

In this table, you must declare the same number of browser connections and exchanges.

Illustration: if you wish to authorize two connections for PC1 and one connection for PC2.



Configuration of Connections

Connections: 3 Access Control

New Edit Remove

	XWay	IP Address	Protocol	Access	Mode	Modem	Phone N°	User	Password
1	65.63	139.160.10.1	UNITE	Allowed	MULTI	No			
2	65.62	139.160.10.1	UNITE	Allowed	MULTI	No			
3	65.61	139.160.10.2	UNITE	Allowed	MULTI	No			

Ethernet Connection Parameters

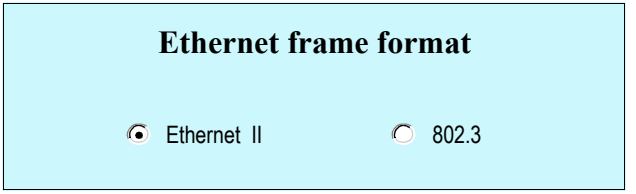
At a Glance

If **Ethernet** is selected in the Network Connection zone, the configuration page can be used to modify:

- the Ethernet format in Ethernet frame format
- the configuration and the list of connections that can be opened by the module, in Configuration of connections

Ethernet Format

This is configured in the following area:



The two buttons can be used to select either:

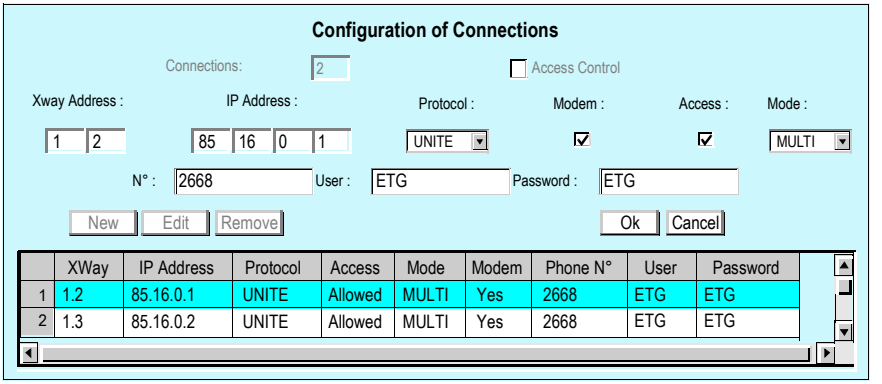
- Ethernet II format, corresponding to standard RFC 894 (the most commonly used),
- 802.3 format, corresponding to standard RFC 1042. This format is used if the remote devices are using this format.

Configuration of Connections

This zone is used:

- to configure the number of connections that can be opened by the module,
- to activate an access control service,
- to enter the remote devices which can connect to the module, depending on whether a mono- or multi-connection communication protocol is used.

Illustration:



General parameters:

Parameters	Value to be entered
Connections	This field is used to enter the maximum number of remote devices that are able to connect to the module in parallel. ● the default value is 8 ● the setting range is from 1 to 32 connections
Access Control	This check box is used to enable or disable control of remote devices wishing to open a TCP connection to the module: ● If the box is checked, access control management is enabled, and the Access column in the table is active. If the module is operating in server mode, only remote devices with a check mark in the Access box are authorized to connect as client and then communicate. ● If the box is unchecked, control management is disabled and the Access column in the table is grayed out. If the module is operating in server mode, third party remote devices can connect as client and then communicate with the module without being declared in the table.

Entering data for remote devices connecting to the module:

Parameters	Values
Edit buttons	
	• New : Enter a new device • Edit : Modify a device • Remove : Delete a device • OK : Confirm the input • Cancel : Cancel current changes
Input fields	

XWay	Enter the X-WAY address.
	• Network number: between 0 and 127.
	• Station number. Between:
	  • 0 and 63 for a UNI-TE connection
	  • 100 and 163 for a Modbus connection

IP Address	Enter the device IP address.
Protocol	List that allows you to select the communication protocol used by each remote device: • UNI-TE (by default) • MODBUS
Access	If this box is checked, it indicates that the remote device is authorized to open a TCP connection.
Mode	• MONO: The module only allows a single connection to a remote IP address. • MULTI: The module allows a single connection in client mode to a remote IP address and multiple connections in server mode to the same remote IP address.
The checked modem box:	
No.	Enter the telephone number for each remote device
User	Enter the name of each remote device
Password	Enter the password for each remote device.
Modem	If this box is checked, you can configure the three previous fields (No, User, Password).

Note: If the module is used for routing, the Ethernet and modem IP addresses are identical and the connection screen applies to all connections (TCP/IP and PPP). Checking the Modem box enables the modem link. You can then configure the No., User and Password fields and distinguish between PPP connection and TCP connection.

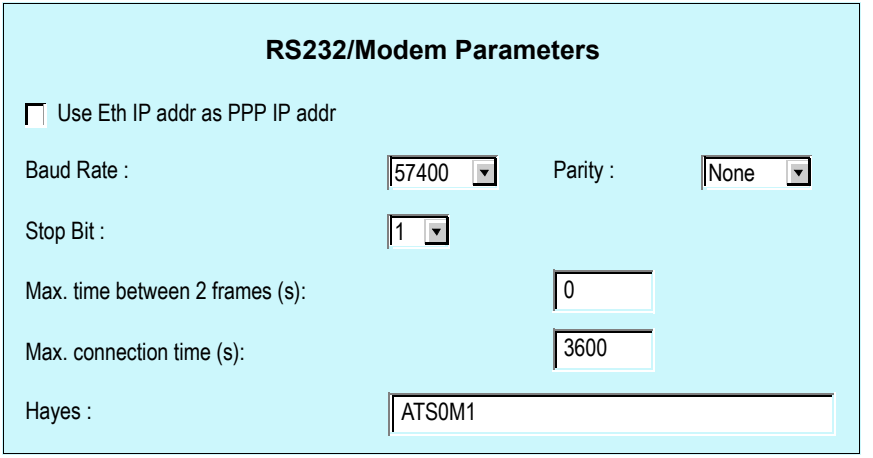
Modem Connection Parameters

Presentation

The configuration page is used to modify the configuration and the list of connections that can be opened by the module, in the Configuration of connections area.

Configuring RS 232/Modem Parameters

The parameters are configured in the following area:



Parameters to be configured:

Parameters	Values
Baud Rate	Speed of the RS 232 link; the choice depends on the modem you are using: 4800, 9600, 19200, 38400 and 57400.
Parity	Even, odd or no parity
Stop Bit	Number of stop bits
Max. time between 2 frames	If the time between two frames exceeds the value entered (in seconds) in this field, the connection is broken. If the time entered is 0, no control is performed.
Max. connection time	This field is used to define the maximum connection time (in seconds). At the end of this time the connection is broken. If the time entered is 0, no control is performed.
Hayes	Configuration by Hayes character string (maximum of 40). This can be used to send commands to the modem in Hayes format*.
Use Eth IP addr as PPP IP addr	If this box is checked, the IP address of the modem interface will be the same as that of the Ethernet interface, otherwise the IP address of the modem interface will be 85.16.0.2.

* Refer to your modem documentation to find out which Hayes commands are supported.

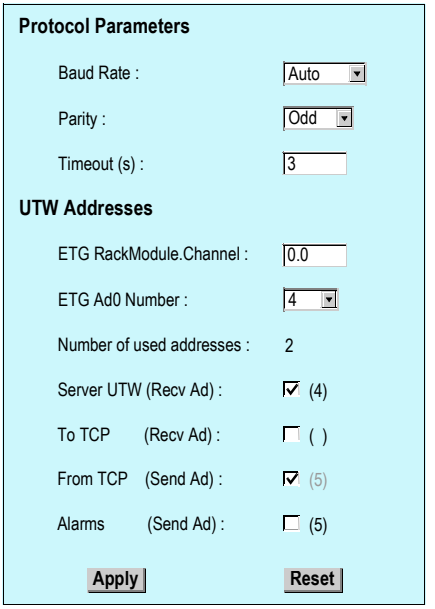
Example: AT&FS0=2

Configuration Parameters for the Uni-Telway link

Presentation

The Uni-Telway link is configured using this screen, which can be accessed from the **Setup** menu for the module's embedded HTTP server.

View of the entry field:



Parameters

Table of parameters:

Parameter	Values
Protocol Parameters	
Baud Rate	Auto, 9600 or 19200 baud.
Parity	Odd, Even, None.
Timeout (s)	Value of the completion time (in seconds).
UTW Adresses	
ETG RackModule.Channel	ETG 1010 connection address on the master (e.g.: 1.0 if the module is connected on the rack0 module1 channel0).
ETG Ad0 Number	First Uni-Telway network access address used by the module. Values: 1 to 98
Number of used addresses	2, 3 or 4 depending on the options selected below.
Server UTW (Recv Ad)	If checked, the first Ad0 address is used to receive standard Uni-Telway requests (addressed to the UNI-TE server of the ETG 1010).
To TCP (Recv Ad)	If checked, a Uni-Telway address is used to receive requests, allowing them to be routed to TCP .
From TCP (Send Ad)	A Uni-Telway address is used to send TCP requests to the Uni-Telway (gateway function). This option is always checked and active.
Alarms (Send Ad)	If checked, a different Uni-Telway address from the previous one is used to send alarm requests.

Click on the **Apply** button to validate the changes made.

Click on the **Reset** button to cancel the current changes.

Note: The parameter "Number of used addresses" is automatically updated depending on the options checked. The address used for each flow is also displayed in brackets.

Various Configuration Possibilities

Table of possible configurations:

Number of addresses	Receive (from Uni-Telway)		Send (to Uni-Telway)	
	Server UTW	**To TCP**	**From TCP**	**Alarms**
2 addresses	Ad0		Ad1	Ad1
		Ad0	**Ad1**	**Ad1**
3 addresses	Ad0	Ad1	Ad2	Ad2
	Ad0		Ad1	Ad2
		Ad0	Ad1	Ad2
4 addresses	Ad0	Ad1	Ad2	Ad3

Note: The default configuration of the TSX ETG 1010 module is that shown in bold.

ETG Address

The "ETG RackModule.Channel" field is used to configure direct access to the UNITE server of the ETG 1010 via TCP, **without going through** the Uni-Telway network.

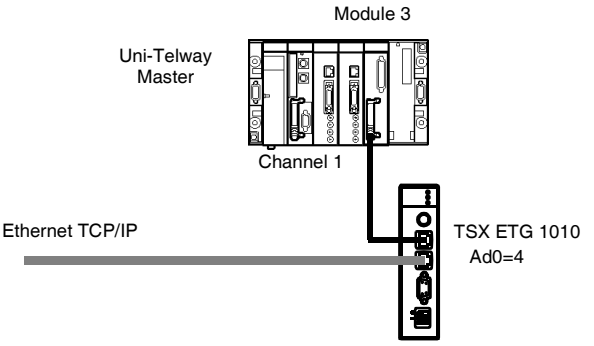
Example:

ETG RackModule.Channel = 3.1

ETG Ad0 Number = 4

The TSX ETG 1010 module will respond directly to the address 3.1.4

Illustration:



Automatic Configuration

At a Glance

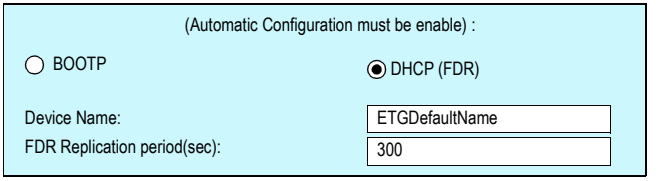
In order to use the module in automatic configuration mode, you must set the configuration parameters. These parameters are configured using the **FDR Client** (See *Main Parameters Area, p. 142*) page, which is accessed from the **Setup** menu.

The Automatic option must also be selected in the **IP/PPP** (See *At a Glance, p. 131*) page .

Two buttons, Apply and Reset are used to confirm changes or to restore the previous values.

Main Parameters Area

Illustration:



Choice of service:

- The BOOTP and DHCP(FDR) buttons are used to choose between a BOOTP or a DHCP(FDR) server.

If you wish to use the Faulty Device Replacement function (FDR), select DHCP(FDR) and then:

- In the Device Name field enter the name of the module
- In the FDR Replication period(sec) field enter the time (in seconds) for automatic comparison between the configuration of the TSX ETG 1010 and that stored on the DHCP server. If a difference is found, the TSX ETG 1010 automatically saves the configuration to the server.

Note: Do not modify the Device Name when the module is configured for automatic mode with the DHCP(FDR) service.

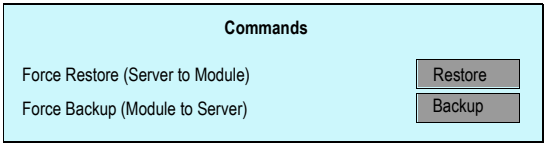
Note: To switch back to automatic mode with the DHCP(FDR) service when the module is configured for local mode, you must do the following twice:

- select the automatic mode in the **IP/PPP**service,
- confirm the change by clicking on Apply
- Reinitialize the module with Reboot

Once this is done the FDR server is updated.

Command Area

Illustration:



- The button Restore forces the TSX ETG 1010 to retrieve the configuration from the server.
- The button Backup forces the TSX ETG 1010 to save its configuration to the server.

Important

Note: When DHCP(FDR) mode is enabled, any changes to the contents of a configuration page will be automatically saved to the server (Backup), once the changes are confirmed by clicking the Applybutton.

Note: The TSX ETG 1010 module automatically saves its configuration in the DHCP(FDR) server as soon as the server is available.

SNMP Service Configuration

At a Glance

In order to use the module as an SNMP agent, you must set the configuration parameters.

The SNMP service is configured using the **SNMP** (See *SNMP Administrator IP Address Area, p. 144*) screen, which is accessed from the **Setup** menu for the module's embedded HTTP server.

The parameters for SNMP services are divided into 4 areas:

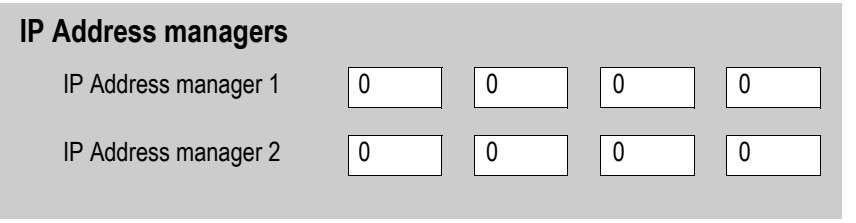
- IP address managers area
- Agent area
- Community names area
- Security area

The two buttons Apply and Reset are used to confirm changes or to restore the previous values.

Note: Only ASCII 7-bit characters can be used in the character string input fields.

SNMP Administrator IP Address Area

Illustration:

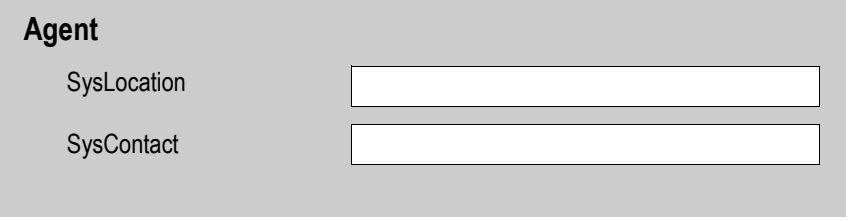


This area is used to enter the IP addresses of the SNMP administrators. The modules allow a maximum of two administrators.

These addresses are used for transmitting events (TRAP).

Location Area

Illustration:

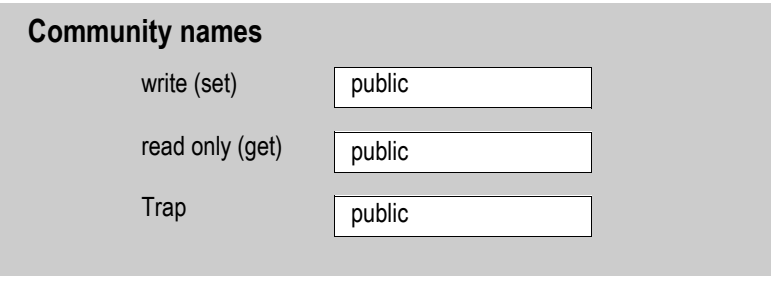


This area is used to locate and identify an agent, from the SNMP administrator. It comprises two fields:

- The SysLocation field: indicates the physical location of the device (string of 32 characters maximum).
- The SysContact field: indicates the person to contact for management of the device and the way to contact them (string of 32 characters maximum).

Community Names Area

Illustration:

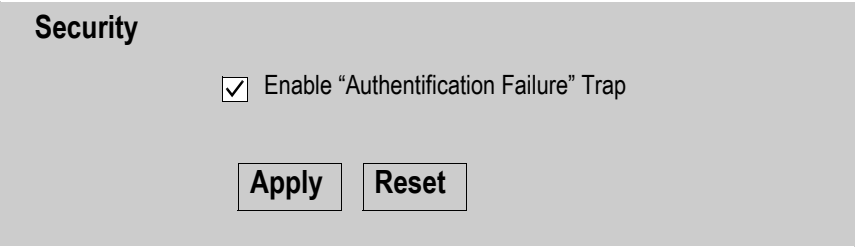


This area is used to define a community name for the Set, Get and Trap service families. It comprises three fields:

- The write (Set) field: defines the community name for the Set service (string of 16 characters maximum). The default value is "Public".
- The read only (Get) field: defines the community name for the Get service (string of 16 characters maximum). The default value is "Public".
- The Trap field: defines the community name for the Trap service (string of 16 characters maximum). The default value is "Public".

Security Area

Illustration:



This area contains a check box which allows you to enable sending an SNMP agent authentication fault event (TRAP) to the administrator who originated the request.

This allows the agent to notify the administrator that the request has been refused due to an authentication failure (community name configured in the administrator differs from that configured in the agent).

SMTP Service Configuration

Presentation

The email function is used to send an email when an alarm is triggered.

An alarm is triggered when a variable in a Uni-Telway device or the module reaches the defined limit value (setpoint): upper limit, lower limit, equal measurement, rising or falling edge of a bit, etc.

Configuring the SMTP Server

In order to use the email function to send an alarm, you must configure the SMTP server.

Illustration:

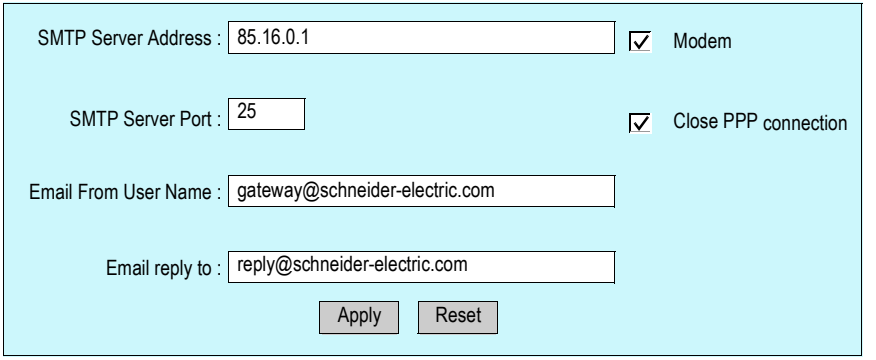


Table of parameters:

Parameters	Value
SMTP Server Address	IP address of the SMTP server (the domain name is not handled).
Modem	Check this box if a remote server is being used (transfer via modem).
Close PPP connection	If the Modem box has been checked, check the Close PPP connections box to close the line connection automatically after sending an email. Otherwise the line will remain open.
SMTP Port Server	TCP port used by the SMTP server (the port number is often 25).
Email From User Name	Email sender address. The module is identified as the sender when the email is opened by the user.
Email Reply to	The email sender address to reply to if the recipient is not found by the SMTP server.

Note: If the modem box is checked, do not forget to set up the modem connection in the IP/PPP page (See *Configuration of Connections, p. 135*) by specifying the telephone number to dial and the password. The PPP connection is opened automatically.

Alarm Configuration

The module allows the user to configure up to 32 alarms. The alarms are setpoints of Uni-Telway device variables. If the variable value reaches the alarm setpoint, the alarm triggers the sending of an email.

Illustration for alarm configuration:

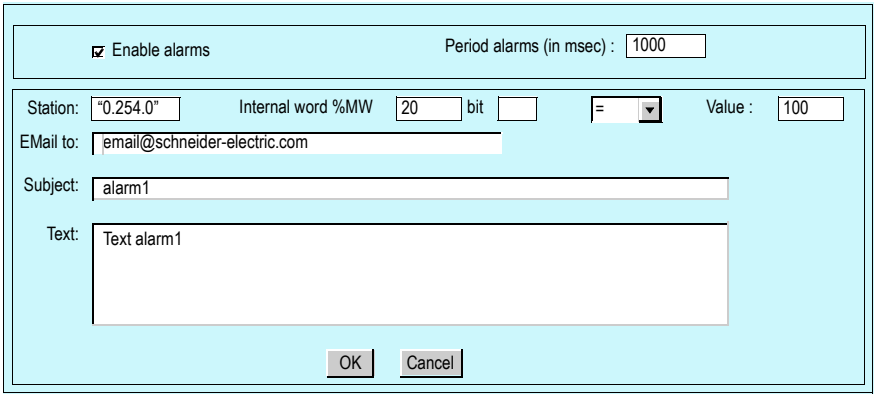
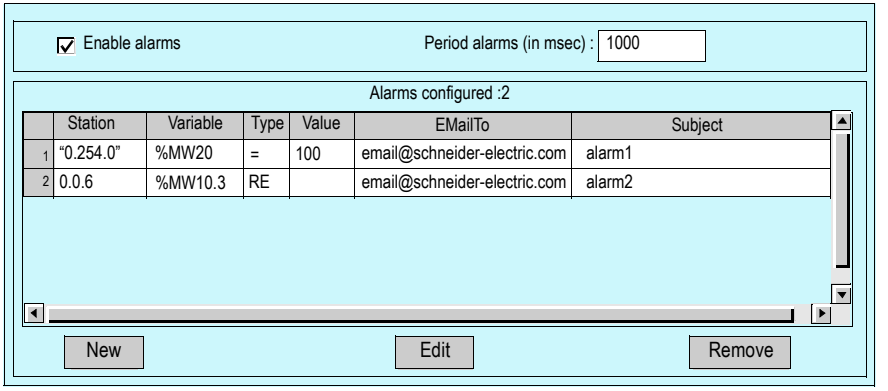


Illustration of configured alarms:



In this illustration, 2 alarms are configured:

- for the first one, as soon as the value of register 20 of the master reaches the setpoint of 100, an email is sent to "email@schneider.electric.com" with the subject "alarm1".
- for the second one, at the rising edge of bit 3 of register 10 of the Uni-Telway slave, an email is sent to "email@schneider.electric.com" with the subject "alarm2".

Table of parameters for the two illustrations:

Parameters	Value
Enable alarms	Check this box to send alarm emails. Otherwise the configured emails will not be sent and the registers will not be scanned.
Period alarms	Scanning period in milliseconds for the configured register values.
Station	Uni-Telway slave address. (See *Uni-Telway Device Addressing, p. 126*)
Type	Bit for word bit or Word for a complete word.
Variable	Variable address.
Bit	Accessible if Bit is selected as the type, this field indicates the word bit number.
Operator	Trigger operation: • for words: None (no alarm to trigger), <, <=, >, >=, =, <>, bad (for exceptions and timeouts on request). • for word bits: None (no alarm to trigger), RE (rising edge), FE (falling edge), bad (for exceptions and timeouts on request).
Value	Setpoint, decimal value to be compared with the current value of the variable.
Email to	Destination email address (maximum length 80 characters).
Subject	Subject of the email (80 characters maximum).
Text	Text part of the email (512 characters maximum).

4.3 Configuration of RS232 Serial Links

Configuration of RS232 Serial Links

At a Glance

In order to use a connection via modem serial link, you must install and configure certain elements of your operating system. For more information, refer to the ‘ETZ & ETG access’ documentation supplied on the CD.

4.4 Data Editor

Configuration of the Data Editor

At a Glance

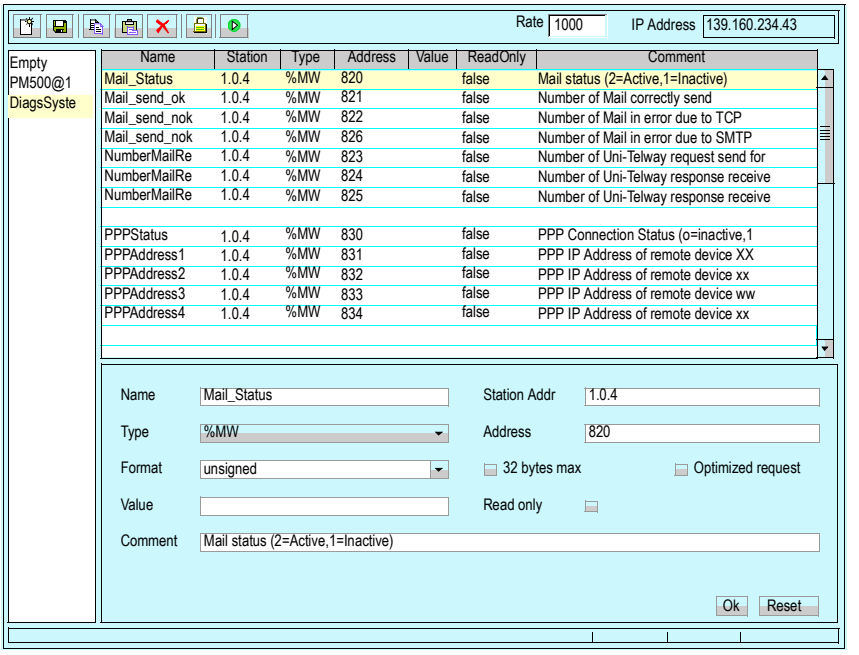
In a data editor table, the configured variables come from Uni-Telway devices or from the module (internal register). You can view or force the variable values. There are two ways of creating animation tables containing these lists of variables.

- By means of the module site via an Internet browser
- By means of the executable file **RdeETG1010W.exe**, which is included in the CD and installed on the PC.

Note: Write access is password controlled (default value is USER).

Illustration using an Internet Browser

View of the Data Editor page for a TSX ETG 1010: (example of a table used to read the module diagnostics internal variables).



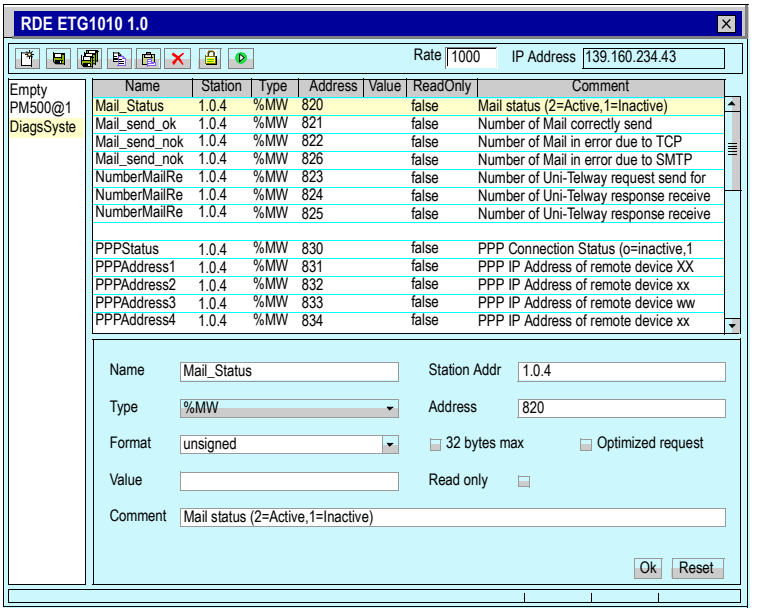
Description of the data editor buttons for a TSX ETG 1010:

In the order shown above:

- create a new table of variables
- save a table
- copy the selected table or the selected variable
- paste the copied table or the copied variable
- delete a table or a variable
- change the password
- start or stop the animation

Illustration using the executable file RdeETG1010W

View of the Data Editor page for a TSX ETG 1010:



Description of the data editor buttons for a TSX ETG 1010:

In the order shown above:

- create a new table of variables
- save the file containing the tables
- upload the file containing the tables to another module
- edit an existing table
- copy the selected table or the selected variable
- paste the copied table or the copied variable
- delete a table or a variable
- change the password
- start or stop the animation

Note: Tables can be saved in one of the following ways:
- In the module if the module's IP address is entered in the IP address
- In the directory on the hard disk containing RdeETG1010W.exe (Desktop, for example) if localhost is entered in the IP address field

Table Fields

Description of the data editor table fields:

Name	Station	Type	Address	Value	ReadOnly	Comment
NAME1	1.0.4	%MW	820	0	true	
NAME2	1.0.4	%MW	821	1000	false	

Double click a variable line in the table to display the properties of the variable and modify a value. Double click in the table to close the information window.

Field	**Function**
Name	Name of the variable (mnemonic)
Station	Uni-Telway device address (See *Uni-Telway Device Addressing, p. 126*)
Type	Data type
Address	Variable address (0 to 65535)
Value	Value of the variable in unsigned decimal format; if there is a communication error the value is "????"
ReadOnly	If this box is checked the variable cannot be output directly
Comment	Comment about the variable
Format	Display format of the value (unsigned, signed, hexa, bits)
32 bytes max	If this box is checked, the read request cannot exceed 32 octets (to be used when a PLC can only support requests of up to a maximum of 32 octets)
Optimized request	If this box is checked, the Data Editor/Viewer will use the READ_OBJECT request to optimize sending of requests; otherwise, requests will be sent individually.

Note: Uni-Telway requests are optimized if the variables come from the same device, if they have the same data type and if they are adjacent.

Note: The three fields **Format**, **32 bytes max** and **Optimized request** only appear in the edit box of the selected variable.

Requests used:

	Optimized request checked	**Optimized request unchecked**
%M	READ_OBJECT (36h)	READ_INTERNAL_BIT (00h)
%MW	READ_OBJECT (36h)	READ_INTERNAL_WORD (04h)
%MD	READ_OBJECT (36h)	READ_INTERNAL_DWORD (40h)
%MF	READ_OBJECT (36h)	READ_INTERNAL_DWORD (40h)

	Optimized request checked	**Optimized request unchecked**
%S	READ_OBJECT (36h)	READ_SYSTEM_BIT (01h)
%SW	READ_OBJECT (36h)	READ_SYSTEM_WORD (06h)
%KW	READ_OBJECT (36h)	READ_CONSTANT_WORD (05h)
%KD	READ_OBJECT (36h)	READ_CONSTANT_DWORD (41h)

Note: If your device cannot support the READ_OBJECT request on all data types, use the individual requests(e.g.: Series 7 PLC).
For Premium or Micro PLCs, the READ_OBJECT request is recommended for optimum performance (**Optimized request** checked).

4.5 Graphic Editor

Graphic Editor

Overview

This section describes the features of the Graphic Editor, a Java applet which enables you to create dynamic graphic displays with the help of a Web browser using a set of predefined graphic objects. This editor serves only for the creation and modification of displays. The Graphic Viewer is the execution environment which enables you to obtain dynamically animated displays using the Uni-Telway devices' execution data. This viewer is smaller than the editor and allows the loading and execution time to be shortened.

Note: The Graphic Editor and Viewer use the READ_OBJECT_LIST (38h) request. If your Uni-Telway device does not support this request, they may not be used to display the variables' values. In this case, use the data editor.

What's in this Section?

This section contains the following topics:

Overview of the Graphic Editor

Interface

The Graphic Editor applet is made up of three windows.

- Top window: features an area for presenting the user commands and dialog boxes for creating, saving, reading and editing a graphic display.
- Display window: presents the current graphic display. When you create a new graphic display, this window turns into a blank space into which you can add the graphic objects that will make up the required graphic display.
- Message window: contains messages generated by the Graphic Editor.

Illustration

The figure below shows the Graphic Editor applet with its initial top window and empty display and message windows.

Graphic Objects

All the graphic objects supplied with the Graphic Editor are able to communicate with the Uni-Telway devices from which the Graphic Editor applet was downloaded. There is no extra "wiring" between the graphic objects and the "communication objects". All the graphic objects are designed as standalone objects, which means no connection is needed between the objects, and that each object is capable of operating on its own.

Obtaining a Graphic Display

Once the Graphic Editor applet has loaded in your web browser, you will generally want to obtain a graphic display or create/modify a graphic display. Users who just wish to obtain existing graphic displays (operators, for example) and to dialog with these displays can click on the **Graphic Viewer** link instead of **Graphic Editor**. A window containing the graphic elements of the interface appears. It does not have the Edit menu. The Graphic Viewer is smaller than the Graphic Editor, and thus loads more quickly. You only need a password to write data.

Creating and Modifying Graphic Displays

To create and modify graphic displays, click on the Edit... button. The standard functions of the Graphic Editor are displayed. With these tools, you can select objects from a palette, position them in an area, move and resize them with the mouse and define their properties. You can immediately test the graphic display modified with the execution data from Uni-Telway devices by clicking the Done button to leave edit mode. If you are satisfied with the graphic display you have created, you can save it in the ETG for later use by clicking the Save... button, as long as you have entered the correct password.

User Functions

Most of the user functions in the Graphic Editor can be found in the top window (see User functions in the top window (See *User Functions in the Top Window, p. 159*)). You can modify the size and position of a graphic object directly in the display window. All the properties of a graphic object (such as its scale, labels, colors and Uni-Telway execution data device addresses) are defined in the properties sheet (See *Properties Sheet, p. 167*).

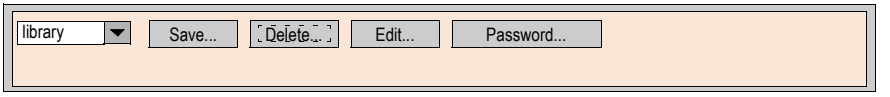
User Functions in the Top Window

Overview

The top window in the Graphic Editor applet can contain several "dialog panels", only one of which can be displayed at a time. To move from one panel to another, just click the buttons in the current dialog box. This section describes the dialog panels in the top window.

Top Dialog Box

The **top dialog box** is the first panel to be displayed in the top window when the Graphic Editor applet is run. All the other panels in the top window can be accessed through this dialog box.

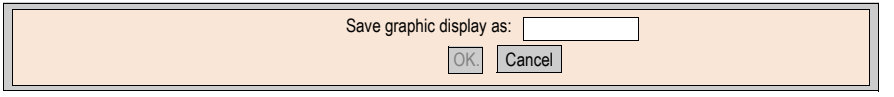


The commands in the **top dialog box** offer the following functions.

- **Drop-down list box**. The drop-down list box contains all the graphic display files saved on the Web server module that are available. When you select a graphic display from this list, the graphic display in the current window is replaced by the one you have chosen. If the current graphic display has been modified since it was last saved, you will be asked to confirm that the changes should be ignored. If you select the <new> entry in the list, the display window is cleared and a new graphic display can be created.
- **Save**. The Save button brings up the **Save dialog box**. This button remains disabled until a valid write password is entered.
- **Delete**. The Delete... button brings up the **Delete dialog box**. This button remains disabled until the correct password is entered or until the current graphic display is saved.
- **Modify**. The Edit... button brings up the **Modify dialog box**.
- **Password**. The Password button brings up the **Password dialog box**.

Save Dialog Box

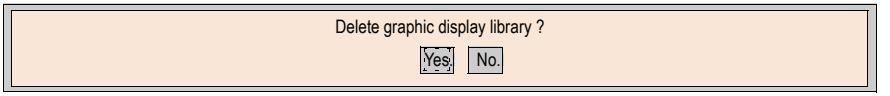
The **Save dialog box** saves the current graphic display.



When the **Save dialog box** is displayed, the name of the current graphic display is shown in the text field of the dialog box. If the current graphic display has never been saved (the "new" graphic display, for example), the text field is blank. Once the current name has been confirmed (the "Save" operation) or a new name entered (the "Save As" operation), you can click on the OK button to save the content of the graphic display in the Web server module. The Cancel button displays the **top dialog box** again, and any actions that have been taken are ignored.

Delete Dialog Box

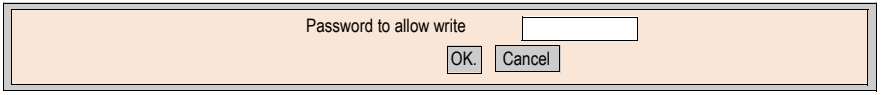
The **Delete dialog box** removes the current graphic display.



If you click on the Yes button, the existing graphic display is deleted and the graphic files on the Web server module are removed. If you click on No, the **top dialog box** reappears, and any actions that have been taken are ignored.

Password Dialog Box

The **Password dialog box** enables you to enter the password that will provide access to the user functions for modifying graphic display files and execution data values.

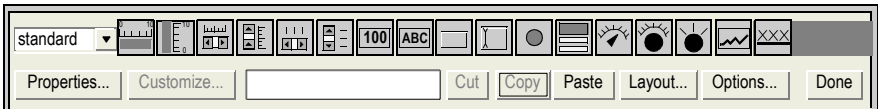


If you enter the correct password and click on the OK button, you will be authorized to save or delete the current graphic display. The correct password also authorizes you to write new values to Uni-Telway devices (via graphic objects that are able to write values). If you click on the OK button while the text field is blank, any authorizations associated with the current password are removed. The Cancel button brings back the **top dialog box**. The authorizations associated with the current password are not affected.

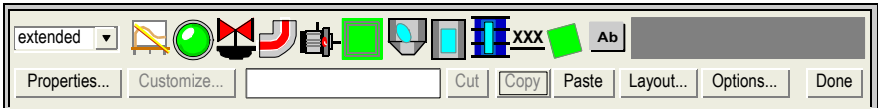
Edit Dialog Box

The **Edit dialog box** enables you to select a graphic object to place in the display window and to access all the graphic editing functions. The available graphic objects are presented in a series of palettes, with only one palette being visible at a time. There are two palettes:

The standard palette:



The extended palette:

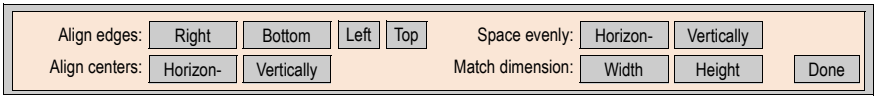


The commands in the **Edit dialog box** offer the following functions:

- The **drop-down list box** displays the palettes available. When you select a palette name from the list, the graphic objects in the selected palette are shown in the palette display area of the dialog box.
- The **palette** contains the graphic objects in the current palette. Each type of graphic object (counter, button etc.) is represented by an icon. When you click on an icon in the palette, a graphic object of the corresponding type is selected for insertion. If you then click on a free area in the display window while the Graphic Editor is in "insert" mode, an instance of the selected graphic object is inserted in the graphic display.
- The **status bar** displays the name and size of the selected graphic object.
- The Cut button removes the graphic objects that are selected in the graphic display and saves them to the internal clipboard, replacing the previous contents of the internal clipboard.
- The Copy button copies the selected graphic objects to the internal clipboard, replacing the previous contents of the internal clipboard.
- The Paste button inserts the contents of the clipboard at the top left of the graphic display. You can then move the pasted graphic objects to the required area of the display.
- The Properties button displays the properties sheet (See *Properties Sheet, p. 167*) of the selected graphic object.
- The Customize button displays the customization module (See *Properties Sheet, p. 167*) of the selected graphic object (if the object has a customization module).
- The Layout button brings up the **Layout dialog box**.
- The Options button brings up the **Options dialog box**.
- The Done button brings back the **top dialog box**.

Layout Dialog Box

The **Layout dialog box** enables you to modify the position and size of a group of graphic objects.



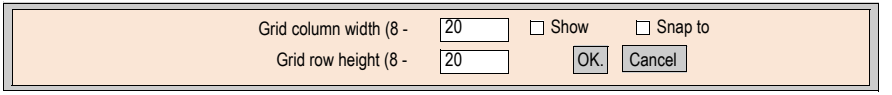
The commands in the **Layout dialog box** offer the following functions:

- To line up the edges of graphic objects, the Right, Bottom, Left and Top buttons move the selected graphic objects so that the specified edges are in the same position. You must select at least two graphic objects to enable these buttons.
- To line up the middles of graphic objects, the Horizontally and Vertically buttons move the selected graphic objects so that their horizontal or vertical mid-lines, respectively, are at the same position. You must select at least two graphic objects to enable these buttons.
- To space out graphic objects regularly, the Horizontally and Vertically buttons move the selected graphic objects so that the horizontal or vertical spacing between them is equal. You must select at least three graphic objects to enable these buttons.
- To resize graphic objects automatically, use the Width and High buttons to equalize the widths or heights of the selected graphic objects. You must select at least two graphic objects to enable these buttons.
- The Done button brings back the **Modify dialog box**.

Note: For all layout operations (except **Space evenly**), one of the selected objects is considered to be the "reference object", and all the other selected objects refer to it for their new position or size. For example, when you click on the "Width" button, all the selected objects are resized to the width of the reference object. The reference object can be distinguished from the other selected objects because its selection box is a different color.

Options Dialog Box

The **Options dialog box** enables you to change the settings of a grid that you can draw in the display window. The sole purpose of the grid is to help you modify a graphic display, and it is only shown when the Graphic Editor is in "Edit mode". Edit mode starts when you access the **Edit dialog box** and ends when you return to the **top dialog box**.



The commands in the **Options dialog box** offer the following functions:

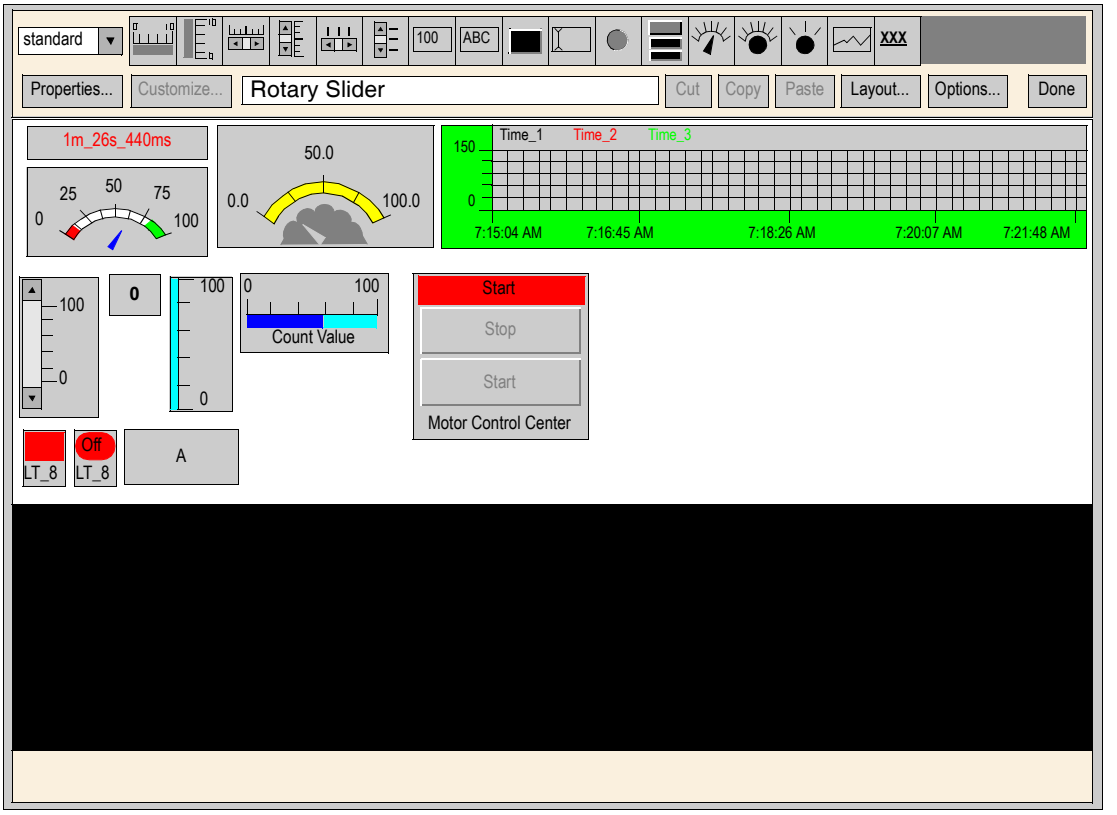
- You can change the size of the grid cells by entering a column width and a row height in the text fields in the dialog box.
- If the Show box is checked, the grid is displayed; otherwise it is hidden.
- When the Snap to box is checked and you modify the size or position of a graphic object, the modified coordinates or dimensions automatically adjust to coincide with a point on the grid.
- The OK button activates an option's current settings and displays the **Edit dialog box** again.
- The Cancel button displays the **Edit dialog box** again without changing the option settings.

User Functions in the Display Window

Overview

The user functions available in the **Graphic Editor** display window enable objects to be selected, moved and resized. To move or resize an object or objects, start by selecting the graphic object(s) to be modified. An object is selected when it is surrounded by a selection box. Objects that are not selected do not have selection boxes.

The figure below shows the **Graphic Editor** display window.



Selecting Graphic Objects

You can set the selection status (selected/deselected) for a graphic object by performing one of the following actions:

- To select a graphic object, just click on it with the mouse. If other objects have already been selected, they will immediately be deselected.
- You can select several graphic objects at a time using the selection box in the display window. If you click the mouse button in a free area of the display window (not on a graphic object) and move the mouse without releasing the button, a box bordered with dotted lines will appear. One corner of the box remains fixed where you first pressed the button, while the opposite corner follows the mouse cursor position. When you release the mouse button, all the objects within the selection box are selected. Objects outside the selection box are deselected.
- You can select/deselect a graphic object without altering the selection status of other objects. To do this, hold down the CTRL key when you click on an object. This allows you to add or remove individual graphic objects in a group of selected objects.
- You can also select a graphic object without altering the selection status of other objects by holding down the SHIFT key when you click on the object. When you select an object in this way, it becomes the *reference object* (see*User Functions in the Top Window, p. 159* - Page layout dialog box) in the group of selected objects. The main purpose of this action is to modify the reference object in a group of selected objects before using one of the **Page layout** operations.
- You can deselect all the graphic objects by clicking the mouse button in a free area of the display window, not on a graphic object.

Sizing Graphic Objects

To change the size of a graphic object, select it and then use the mouse to change the size of the selection box around the object. When you move the mouse cursor over the object's selection box, the cursor's appearance changes according to the type of resizing you want to perform. If you press the mouse button while the cursor is over the object's selection box and move the mouse without releasing the button, a box bordered with dotted lines will appear. When you release the mouse button, the object is resized to fit the dimensions of the area you have defined. You can carry out eight different resizing operations depending on which part of the object's selection box you move. Each corner of the box enables the adjacent sides to be moved, and each side enables that side only to be moved.

Moving Graphic Objects

You can move a graphic object in the display window using the mouse. If you press the mouse button while the cursor is over an object and move the mouse without releasing the button, a selection box will appear. When you release the mouse button, the object is moved into the selection box.

To move several graphic objects, select them and then move the group of objects in the same way as you would a single object. When you move a group of objects, a selection box appears for each object in the group.

Defining Graphic Object Properties

You can define the properties of a graphic object using the properties sheet (See *Properties Sheet, p. 167*). If this window is displayed, you can modify the properties of the selected graphic object. You can display the properties sheet by clicking on the Properties... button or by double-clicking on the selected object in the display window.

Customizing Complex Graphic Objects

Certain complex graphic objects have a very wide range of properties. Configuring these objects using the properties sheet can be long-winded. You can use a customization module to make it easier to configure complex graphic objects. The customization module is a dialog box designed specially for configuring the graphic object with which it is associated. When the Graphic Editor detects a customization module associated with the selected graphic object, the Customize... button is enabled so that the module can be accessed. When you double-click on a graphic object that has an associated customization module, the module is displayed instead of the properties sheet. If a graphic object has an associated customization module, only its name is displayed in the properties sheet.

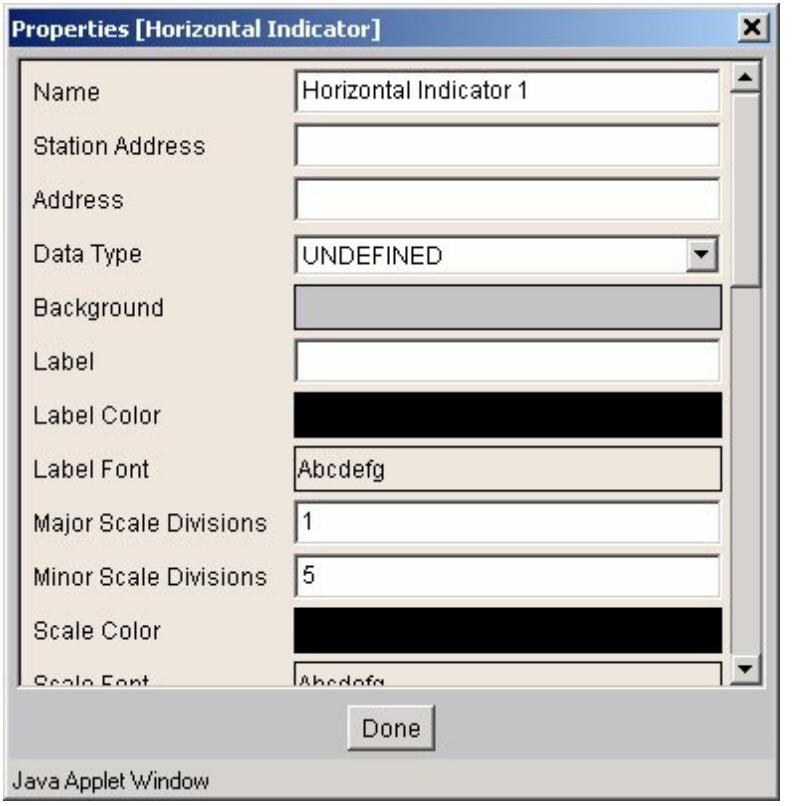
Display Background Image

The Background image property of the Graphic Editor allows you to choose an image that will be used as the background for the display. The image may be a GIF file or a JPEG file. File location depends on the /wwwroot directory of the built-in server. For example, if the image "cool.gif" is placed in the /wwwroot/images directory on the built-in server, the Background Image property should be set to /images/cool.gif.

Properties Sheet

Overview

The properties sheet is a "floating" non-modal dialog box which presents all the configurable properties of the selected graphic object:



The properties of a graphic object are specific to its type. They are contained in a drop-down list, and are identified by a name and a value. The Graphic Editor provides a description of the graphic objects (See *Graphic Objects, p. 170*).

Security

Security

Your data is protected by three security devices.

- The HTML page which contains the Graphic Editor applet has been placed in a "secure" directory on the Web module. The Web browser user is therefore invited to enter a password which will allow him/her to download the HTML page.
- You must enter the correct password in the **Password** dialog box to be able to save/delete files or send data values. For the transfer of data values, the Graphic Editor reinforces the "read only" mode by deactivating all the graphic objects' user commands.
- The Web Designer configuration program allows you to indicate if an element is read only. The**Graphic Editor** reinforces the "read only" attribute of a symbol (variable) or address by rejecting any request which would define a new data value and by warning the user via the **Graphic Editor** message window.

Graphic Editor Applet Parameters

Overview

Three applet parameters allow the behavior of the **Graphic Editor** to be customized. These are defined by the <PARAM> tags inside the <APPLET> tag on the Graphic Editor HTML page. The parameters recognized by the **Graphic Editor** applet are as follows:

- **LOAD**: this parameter asks the **Graphic Editor** to automatically load a specific graphic file at start-up. If this file does not exist, an error message is displayed. If this parameter does not appear in the <APPLET> tag, no file will be automatically loaded at start-up and you must choose an initial graphic file from the list proposed by the **Graphic Editor**.
- **MODE**: this parameter asks the **Graphic Editor** to start either in Edit (normal mode) or View mode (specific mode). When starting in View mode, the **Graphic Editor** only displays the display window. When this parameter is used with the LOAD parameter, you can design a Website with HTML pages dedicated to specific graphic displays. The user does not need to select a graphic file, so the behavior of the HMI screen is more standard. This parameter may take the following values:
  - **EDIT** (default value): the **Graphic Editor** starts up in Edit mode (normal mode).
  - **VIEW_RO**: the **Graphic Editor** starts up in View mode (read only). The user of the web browser is not authorized to send data values to Uni-Telway devices.
  - **VIEW_RW**: the **Graphic Editor** starts up in View mode (read/write). The user of the web browser is authorized to send data values to Uni-Telway devices after having entered the password to allow write access.
- **AUTO_LOGIN**: this parameter asks the **Graphic Editor** to automatically indicate the password which authorizes write access to Uni-Telway devices. If the **MODE** parameter is set to **VIEW_RW** or **EDIT**, and if you set AUTO_LOGIN to **TRUE**, the **Graphic Editor** authorizes write access to Uni-Telway devices without asking the user to enter a password. This parameter may take the values **FALSE** (default value) and **TRUE**.

Example

Here is an example of an APPLET tag which asks the **Graphic Editor** to start in View mode and automatically load a graphic file called **UNIT_1**. In this case, the web browser allows you to send values to Uni-Telway devices via any graphic object handling the sending of values (providing that the password to allow write access has been entered).

```
<APPLET codebase="/classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.GdeApplet"
width="700" height="514">
<PARAM name="LOAD" value="UNIT_1">
<PARAM name="MODE" value="VIEW_RW">
<PARAM name="AUTO_LOGIN" value="FALSE">
</APPLET>
```

Graphic Objects

Overview

All graphic objects offered by the **Graphic Editor** help you to create graphic displays imitating conventional instrument panels. All the data control and monitoring objects have integrated communication functions and are designed as standalone graphic objects.

In addition, all the objects in the **Graphic Editor** exist in the form of applets to help clients who wish to insert several simple applets into a single HTML page. When combined with the `LiveBeanApplet`, the graphic objects in the **Graphic Editor** can be used in the same way as the `LiveLabelApplet`.

This section describes the standard graphic objects and their properties.

Horizontal Indicator

A horizontal indicator gives an analogue representation of the value of a variable in a device. This is a horizontal bar which represents a percentage of its range in physical units. It is possible to display the value's digital indication in the centre of the bar.

The table below describes the horizontal indicator's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Major Scale Divisions	Number of major scale divisions (marked)	0 to 100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0 to 100
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Scale Precision	Number of decimal places to be shown for the scale labels (set to -1 to use a general exponential format)	-1 to 6
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Value Visible	Indicates if there should be digital display of the value on the scale	
Value Font	Font used for digital display of the value (where this exists)	

Property	Description	Limits
Bar Background	Background color of the indicator bar	
Bar Color	Color of the indicator bar (if the scale value is within the High/Low range)	
High High Limit Value	Value expressed in physical units of the "High High" limit.	
High High Limit Color	Color of the indicator bar if the scale value is greater than the "High High" limit	
High Limit Value	Value expressed in physical units of the "High" limit.	
High Limit Color	Color of the indicator bar if the scale value is greater than the "High" limit.	
Low Limit Value	Value expressed in physical units of the "Low" limit	
Low Limit Color	Color of the indicator bar if the scale value is less than the "Low" limit	
Low Low Limit Value	Value expressed in physical units of the "Low Low" limit	
Low Low Limit Color	Color of the indicator bar if the scale value is less than the "Low Low" limit	
Limit Deadband	Neutral range (as a percentage of the EU range) to apply to verification of the High/Low limit	0 to 10
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	
Value	Simulated gross starting value (without scale) for testing the graphic object	See Note 3, *Notes, p. 200*

Vertical Indicator

A vertical indicator gives an analogue representation of the value of a variable in a device. This is a vertical bar which represents a percentage of its range in physical units.

The table below describes the vertical indicator's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Major Scale Divisions	Number of major scale divisions (marked)	0 to 100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0 to 100
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Scale Precision	Number of decimal places to be shown for the scale labels (set to -1 to use a general exponential format)	-1 to 6
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the variable in the device	See Note 3, *Notes, p. 200*
Bar Background	Background color of the indicator bar	
Bar Color	Color of the indicator bar (if the scale value is within the High/Low range)	
High High Limit Value	Value expressed in physical units of the "High High" limit.	

Property	Description	Limits
High High Limit Color	Color of the indicator bar if the scale value is greater than the "High High" limit	
High Limit Value	Value of the "High" limit expressed in physical units	
High Limit Color	Color of the indicator bar if the scale value is greater than the "High" limit.	
Low Limit Value	Value of the "Low" limit expressed in physical units	
Low Limit Color	Color of the indicator bar if the scale value is less than the "Low" limit	
Low Low Limit Value	Value of the "Low Low" limit expressed in physical units	
Low Low Limit Color	Color of the indicator bar if the scale value is less than the "Low Low" limit	
Limit Deadband	Neutral range (as a percentage of the EU range) to apply to verification of the High/Low limit	0 to 10
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	
Value	Simulated gross starting value (without scale) for testing the graphic object	See Note 3, *Notes, p. 200*

Horizontal or Vertical Slider

A horizontal or vertical slider gives an analogue representation of the value of a variable in a device. This is a slider, whose position is indicated by the cursor, which represents a percentage of its range in physical units. Using the mouse, you can change the value of the slider by sending a new value to the device.

The table below describes the horizontal or vertical slider's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	

Property	Description	Limits
Major Scale Divisions	Number of major scale divisions (marked)	0 to 100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0 to 100
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Scale Precision	Number of decimal places to be shown for the scale labels (set to -1 to use a general exponential format)	-1 to 6
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Block Increment	Amount by which the scale value is modified when the user clicks on the bar's slide area.	
Unit Increment	Amount by which the scale value is modified when the user clicks on the slider arrows	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Horizontal or Vertical Selector

A horizontal or vertical selector allows you to choose from a number of options. Once the selection has been made, the value corresponding to the choice is sent to the device. The choices are represented by the marks on a "scale", the current selection being indicated by the position of the cursor on a slider.

The table below describes the horizontal or vertical selector's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	

Property	Description	Limits
Choices	Selector choices Each choice is indicated in the form of a "label=value" input (when you select a "label", the "value" is sent to the device).	At least two choices required
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Scale Visible	Indicates if a "scale", labeled with the choices should be displayed	
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Digital Indicator

A digital indicator gives a digital representation of the value of a variable in a device. The value may be displayed in different formats and may be set to change color when a predefined high or low limit is exceeded.

The table below describes the digital indicator's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Value Format	Format (decimal, hexadecimal, etc.) to be used to display the value on the scale	
Value Precision	Number of decimal places to be shown for the value on the scale (set to -1 to use a general exponential format)	-1 to 6
Value Background	Background color of the value's display zone	
Value Color	Color of the value's digital display text	

Property	Description	Limits
Value Font	Font used for digital display of the value	
Units	Label of the value's physical units (attached to the value's digital display)	
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
High High Limit Value	Value of the "High High" limit expressed in physical units	
High High Limit Color	Color of the indicator bar if the scale value is greater than the "High High" limit	
High Limit Value	Value of the "High" limit expressed in physical units	
High Limit Color	Color of the indicator bar if the scale value is greater than the "High" limit.	
Low Limit Value	Value of the "Low" limit expressed in physical units	
Low Limit Color	Color of the indicator bar if the scale value is less than the "Low" limit	
Low Low Limit Value	Value of the "Low Low" limit expressed in physical units	
Low Low Limit Color	Color of the indicator bar if the scale value is less than the "Low Low" limit	
Limit Deadband	Neutral range (as a percentage of the EU range) to apply to verification of the High/Low limit	0 to 10
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	
Value	Simulated gross starting value (without scale) for testing the graphic object	See Note 3,*Notes, p. 200*

Message Display

A message display shows a text message based on the value of a variable in a device For each specified message, a set value triggers its display.

The table below describes the message display's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Messages	All messages to be displayed. A "value=text" input corresponds to each message (when the device value is equal to "value", the "text" message is diplayed).	At least one message required
Message Background	Background color of the message display zone	
Message Color	Message text color	
Message Font	Message text font	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	
Value	Simulated input value for testing the graphic object	See Note 3, *Notes, p. 200*

Push Button

When activated with the mouse, a push button allows you to send one or more preset values to a device.

The table below describes the push button's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Values	Values to send to the device	See Note 4, *Notes, p. 200*
Reset Values	Values to send to the device once the reset delay has expired. If no reset value is given, the reset will not take place.	
Reset Delay	Delay (in milliseconds) that the push button must comply with between sending the values to the device and sending the reset values	0-2000
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Button Label	Text of the button label	
Button Background	Button color	0 to 100
Button Label Color	Color used for the button label	
Button Label Font	Font used for the button label	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Direct Output Station

The direct output station allows you to enter a digital value in a text zone directly from the keyboard. If the value entered is between the upper and lower preset limits, a **Set** button is activated. In this case, the value entered is sent to the device when you click the **Set** button or press the ENTER key (if keyboard input is authorized for the input zone).

The table below describes the direct output station's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Maximum Input	Maximum value, expressed in physical units, authorized for the value entered in input	
Minimum Input	Minimum value, expressed in physical units, authorized for the value entered in input	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Indicator Light

The indicator light provides a double indication of the value of a variable in a device. If the Input Inverted property is not set to TRUE, a zero input value is declared as being OFF and a non-zero value is declared as being ON. If the Flash Interval property is set to a positive value, the indicator light will flash when the input value is equal to ON.

The table below describes the indicator light's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Off Word	Text to be displayed when the input value is OFF	
Off Word Background	Background color of the indicator light when **Off Word** is displayed	
Off Word Color	Color of the**Off Word** text	
Off Word Font	Font used for the **Off Word** text	
On Word	Text to be displayed when the input value is ON	
On Word Background	Background color of the indicator light when **On Word** is displayed	
On Word Color	Color of the **On Word** font	
On Word Font	Font used for the **On Word** text	
Flash Interval	The flashing time for the indicator light (expressed in milliseconds) when the input value is ON. Set to zero for no flashing.	200 to 2000
Shape	Shape (circular, rectangular, etc.) of the indicator light	
Input Inverted	On **TRUE**, inverts the input value. (The indicator displays **Off Word** when the input value is ON.)	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Property	Description	Limits
Value	Simulated input value for testing the graphic object	See Note 3, *Notes, p. 200*

Motor Control Station

The motor control station is designed to imitate the on/off push button standard station which is frequently used to control the motors. This graphic object is essentially compose of two push buttons and an indicator light. To facilitate the configuration of this object's many properties, a custom module is provided. It is by means of this module, and not the**Graphic Editor** properties sheet, that all the properties (apart from the name) are configured.

The table below describes the motor control station's properties:

Property	Description	Limits
Name	Name of the graphic object	
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	
Indicator Light	Properties identical to those of the Indicator Light graphic object with the exception of the shared properties listed above	
Top Push Button	Properties identical to those of the Push Button graphic object with the exception of the shared properties listed above	
Bottom Push Button	Properties identical to those of the Push Button graphic object with the exception of the shared properties listed above	

Analog Meter

An analog meter gives an analog representation of the value of a variable in a device. It is represented by a pointer on a circular dial whose position corresponds to a percentage of its range in physical units. You can set the size of the meter's circular dial (circle degrees sweep), its colors and the style of the pointer.

The table below describes the analog meter's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Major Scale Divisions	Number of major scale divisions (marked)	0 to 100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0 to 100
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Scale Precision	Number of decimal places to be shown for the scale labels (set to -1 to use a general exponential format)	-1 to 6
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Dial Degrees Sweep	Portion of circular arc to be used to draw the dial	60 to 300
Pointer Type	Type of pointer used (needle, arrow, etc.)	
Pointer Color	Color used for the pointer	

Property	Description	Limits
Dial Color	Color used for the dial (for the part in the High/Low range)	
High High Limit Value	Value of the "High High" limit expressed in physical units	
High High Limit Color	Color of the indicator bar if the scale value is greater than the "High High" limit	
High Limit Value	Value of the "High" limit expressed in physical units	
High Limit Color	Color of the indicator bar if the scale value is greater than the "High" limit.	
Low Limit Value	Value of the "Low" limit expressed in physical units	
Low Limit Color	Color of the indicator bar if the scale value is less than the "Low" limit	
Low Low Limit Value	Value of the "Low Low" limit expressed in physical units	
Low Low Limit Color	Color of the indicator bar if the scale value is less than the "Low Low" limit	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	
Value	Simulated gross starting value (without scale) for testing the graphic object	See Note 3, *Notes, p. 200*

Rotary Slider

A rotary slider gives an analog representation of the value of a variable in a device. It is represented by a knob on a circular dial whose position corresponds to a percentage of its range in physical units. You can set the size of the dial and the color of the knob. Using the mouse, you can change the position of the knob by sending a new value to the device.

The table below describes the rotary slider's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*

Property	Description	Limits
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Major Scale Divisions	Number of major scale divisions (marked)	0 to 100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0 to 100
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Scale Precision	Number of decimal places to be shown for the scale labels (set to -1 to use a general exponential format)	-1 to 6
Dial Degrees Sweep	Portion of circular arc to be used to draw the dial	60 to 300
Dial Color	Color of the dial	
Knob Color	Color used for the knob	
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Rotary Selector

A rotary selector allows you to choose from a number of options. Once the selection has been made, the value corresponding to the choice is sent to the device. The choices are represented by the marks on a "scale", the current selection being indicated by the position of the knob. The size of the circular dial (circle degrees sweep) and the color of the knob can be configured.

The table below describes the rotary selector's properties:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Background	Graphic object background color	
Choices	Selector choices Each choice is indicated in the form of a "label=value" input (when you select a "label", the "value" is sent to the device).	At least two choices required
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Scale Visible	Indicates if a "scale", labeled with the choices should be displayed	
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Dial Degrees Sweep	Portion of circular arc to be used to draw the dial	60 to 300
Knob Color	Color used for the knob	
Border Width	Width (in pixels) of the graphic object border	0 to 32
Border Color	Color of the graphic object border	

Trend Recorder

A trend recorder enables you to obtain a continuous, time-based graphic of the values of a maximum of six variables in a device. It emulates a strip-chart recorder, with the pens on the right and the "paper" moving from right to left. A vertical scale to the left of the graphic indicates the range of registered values and a horizontal scale beneath the graphic displays the range's time frame. You can set the update frequency and the appearance of the graphic.

To facilitate the configuration of this object's many properties, a custom module is provided. It is by means of this module, and not the**Graphic Editor** properties sheet, that all the properties (apart from the name) are set.

The table below describes the trend recorder's properties: The properties available for each of the pens are described in the second table:

Property	Description	Limits
Name	Name of the graphic object	
Background	Graphic object background color	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Major Scale Divisions	Number of major scale divisions (marked)	0 to 100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0 to 100
Scale Color	Color of the scale and its labels	
Scale Font	Font used for the scale labels	
Scale Precision	Number of decimal places to be shown for the scale labels (set to -1 to use a general exponential format)	-1 to 6
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Update Period	Graphic update interval (in seconds)	0.5 to 120
Time Scale Divisions	Number of divisions on the horizontal scale	0 to 6
Chart Background	Color of the graphic zone	
Grid Color	Color of the grid drawn in the graphic zone	
Vertical Grid Divisions	Number of vertical divisions in the grid	0 to 100
Border Width	Width (in pixels) of the graphic object border	0 to 32

Property	Description	Limits
Border Color	Color of the graphic object border	

The following trend recorder properties are available for each pen:

Property	Description	Limits
Station Address	Uni-Telway device address (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor.	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Variable data type	See Note 2, *Notes, p. 200*
Maximum Value	Maximum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Minimum Value	Minimum gross value (without scale) of the device variable	See Note 3, *Notes, p. 200*
Pen Color	Color of the "pen" which allows the value placed on the scale to be recorded	
Pen Label	Label used to identify the pen	

Display Link

A display link is a special graphic object which allows you to move to another graphic display by clicking on it with the mouse. To indicate that the object represents a link towards another display, the link's text label is underlined and the mouse cursor changes to a hand when it passes over it. This object is especially useful when the **Graphic Editor** is used in **View mode** which has no drop-down list of graphic displays.

A display link can also be used as a hypertext link to an HTML file. If you enter a URL such as Link Display Name, you can open it in a new browser window by pressing the SHIFT key while clicking on the link. If you only click on the link, the existing browser window is replaced by the URL.

If the Link Display Name is blank, the **label** is not displayed underlined and the object displayed becomes a simple text label.

The table below describes the display link's properties:

Property	Description	Limits
Label	Label of the link	
Link Display Name	Name of the graphic display to load when the user clicks on the link, or URL of a Web page	
Label Color	Color of the label	
Label Font	Font used for the label	

Extended Graphic Objects

Overview

The extended graphic objects available in the Graphic Editor are designed to help you to create graphic displays imitating advanced graphic display panels. All the data control and monitoring objects have integrated communication functions and are designed as standalone graphic objects.

In addition, to help clients who wish to insert several simple applets into a single HTML page, all the objects in the Graphic Editor exist in the form of applets. When combined with the `LiveBeanApplet`, the graphic objects in the Graphic Editor can be used in the same way as the `LiveLabelApplet`.

ASCII Text Editor

The ASCII text editor is based on the message display graphic element. It enables new text to be entered.

The properties of the ASCII text editor are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Max. Text Length	Maximum length of the text	
Text Color	Color of the text	
Text Font	Font of the text	
Swap Bytes	False if the target byte order is the same as on the PC	
Value	The text itself	

Bar Graph

A bar graph gives an analogue representation of the value of a variable in a device. It draws a vertical bar whose length is proportional to the value and represents a percentage of its range in physical units.

The properties of the bar graph are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Maximum EU Value	Maximum value of the variable in physical units	
Minimum EU Value	Minimum value of the variable in physical units	
Maximum Value	Gross maximum value (without scale) of the variable in the device	See Note 3, *Notes, p. 200*
Minimum Value	Gross minimum value (without scale) of the variable in the device	See Note 3, *Notes, p. 200*
Bar Background	Background color of the indicator bar	
Bar Color	Color of the indicator bar (if the scale value is within the High/Low range)	
High High Limit Value	Value of the "High High" limit expressed in physical units	
High High Limit Color	Color of the indicator bar if the scale value is greater than the "High High" limit	
High Limit Value	Value of the "High" limit expressed in physical units	
High Limit Color	Color of the indicator bar if the scale value is greater than the "High" limit.	
Low Limit Value	Value of the "Low" limit expressed in physical units	

Property	Description	Limits
Low Limit Color	Color of the indicator bar if the scale value is less than the "Low" limit	
Low Low Limit Value	Value of the "Low Low" limit expressed in physical units	
Low Low Limit Color	Color of the indicator bar if the scale value is less than the "Low Low" limit	
Limit Deadband	Neutral range (as a percentage of the EU range) to apply to verification of the High/Low limit	0 to 10
Border Width	Width (in pixels) of the border of the graphic object	0 to 32
Border Color	Color of the border of the graphic object	
Value	Simulated gross input value (without scale) for testing the graphic object	See Note 3, *Notes, p. 200*

Bitmap

The bitmap graphical interface element displays a static bitmap on the screen.

The properties of the bitmap graphical interface element are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Background	Background color of the graphic object	See Note 1, *Notes, p. 200*
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Border Width	Width (in pixels) of the border of the graphic object	
Border Color	Color of the border of the graphic object	
Bitmap Choices	File names of custom bitmaps to display The default root path for the file's directory is **/FLASH1/wwwroot;**; **":images/** and actually corresponds to **/FLASH1/wwwroot/images/**.	

Generic Bitmap

The generic bitmap graphical interface element can display a static bitmap for each separate value of a variable. It can be used to display dynamic animations, such as the variation in level of a reservoir.

The properties of the generic bitmap graphical interface element are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	See Note 1, *Notes, p. 200*
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Bitmap Choices	File names of custom bitmaps to display This property enables a text editor to be opened, where you can enter the device's value conditions and the associated bitmaps to display, e.g. "0:key.gif:images/", where 0 is the device value, "key.gif" is the bitmap file associated with the value and "images" is the directory where the file can be found. The default root path for the file's directory is **/FLASH1/wwwroot/images/**.	
Border Width	Width (in pixels) of the border of the graphic object	
Border Color	Color of the border of the graphic object	
Value	Simulated input value for testing the behavior of the graphic object	

Graphic Link

A graphic link is a special graphic object that moves to another graphic display when you click on it with the mouse. Graphic links can also be recognised by their underlined labels, and by the fact that the mouse cursor changes to a hand shape when it passes over them. They are especially useful when the Graphic Editor is used in Display mode, in which there is no pull-down list of graphic displays.

A graphic link can also be used as a hypertext link to an HTML file. If you enter a URL such as **Link Display Name**, you can open the URL in a new browser window by pressing the SHIFT key while clicking on the link. Otherwise, the URL will open in the existing browser window when you click on the link.

If the **Link Display Name** is not filled in, the label will not be underlined and the object displayed will just be a simple text label.

The properties of the graphic link are as follows:

Property	Description	Limits
Label	Label of the link	
Link Display Name	Name of the graphic display to load when the user clicks on the link, or URL of a web page	
Label Color	Color of the label	
Label Font	Font used for the label	
Bitmap Choices	Name of the bitmap file to be clicked on	

Indicator Light

The indicator light displays the value of a variable in a device. The input value of 0 is equal to OFF, and any value other than 0 is equal to ON. If the **Flash Interval** property is set to a positive value, the indicator light will flash when the input value is equal to ON. There is one bitmap for the ON state and another for the OFF state.

The properties of the indicator light are as follows.:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
OFF Word	Text to be displayed when the input value is OFF	
OFF Bitmap Choice	Indicator bitmap when the OFF word is displayed	
OFF Word Color	Color of the OFF word text	
OFF Word Font	Font of the OFF word text	
ON Word	Text to be displayed when the input value is ON	
ON Bitmap Choice	Indicator bitmap when the ON word is displayed	
ON Word Color	Color of the ON word font	
ON Word Font	Font of the ON word text	
Flash Interval	The flashing time for the indicator light (expressed in milliseconds) when the input value is ON. Defined as 0 for no flashing.	200 to 2,000
Input Inverted	On TRUE, inverts the input value. (The indicator displays the OFF word when the input value is ON.)	
Border Width	Width (in pixels) of the border of the graphic object	0 to 32
Border Color	Color of the border of the graphic object	
Value	Simulated input value for testing the graphic object	See Note 3, *Notes, p. 200*

Motor

The Motor graphical interface element displays the value of a variable in a device. The input value of 0 is equal to OFF, the value 1 is equal to ON and other values are equal to DEFAULT. These three states are represented by different bitmaps.

The properties of the Motor graphical interface element are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
OFF Word	Text to be displayed when the input value is OFF	
OFF Bitmap Choice	Motor bitmap when the OFF word is displayed	
OFF Word Color	Color of the OFF word text	
OFF Word Font	Font of the OFF word text	
ON Word	Text to be displayed when the input value is ON	
ON Bitmap Choice	Motor bitmap when the ON word is displayed	
ON Word Color	Color of the ON word font	
ON Word Font	Font of the ON word text	
DEFAULT Word	Text to be displayed when the input value is ON	
DEFAULT Bitmap Choice	Motor bitmap when the DEFAULT word is displayed	
DEFAULT Word Color	Color of the DEFAULT word font	
DEFAULT Word Font	Font of the DEFAULT word text	
Border Width	Width (in pixels) of the border of the graphic object	0 to 32
Border Color	Color of the border of the graphic object	
Value	Simulated input value for testing the graphic object	See Note 3, *Notes, p. 200*

Pipe

A pipe displays the value of a variable in a device that has two possible states. The input value of 0 is equal to OFF, and any value other than 0 is equal to ON. There is one bitmap for the ON state and another for the OFF state.

The properties of the pipe are as follows:.

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
OFF Word	Text to be displayed when the input value is OFF	
OFF Bitmap Choice	Pipe bitmap when the OFF word is displayed	
OFF Word Color	Color of the OFF word text	
OFF Word Font	Font of the OFF word text	
ON Word	Text to be displayed when the input value is ON	
ON Bitmap Choice	Pipe bitmap when the ON word is displayed	
ON Word Color	Color of the ON word font	
ON Word Font	Font of the ON word text	
Border Width	Width (in pixels) of the border of the graphic object	0 to 32
Border Color	Color of the border of the graphic object	
Value	Simulated input value for testing the graphic object	See Note 3, *Notes, p. 200*

Push Button

When activated with the mouse, a push button allows the user to send one or more preset values to a device.

The properties of the push button are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	
Values	Values to send to the device	See Note 4, *Notes, p. 200*
Reset Values	Values to send to the device once the reset delay has expired. If no reset value is given, the reset will not take place.	
Reset Delay	Delay (in milliseconds) that the push button must respect between sending the values to the device and sending the reset values.	0-2000
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
Button Label	Text of the button label	
Button Label Color	Color used for the button label	
Button Label Font	Font used for the button label	
OFF Bitmap Choice	Button bitmap when the OFF state is displayed	
ON Bitmap Choice	Button bitmap when the ON state is displayed	
Border Width	Width (in pixels) of the border of the graphic object	0 to 32
Border Color	Color of the border of the graphic object	

Distributor

A distributor displays the value of a variable in a device that has two possible states. The input value of 0 is equal to OFF, and any value other than 0 is equal to ON. There is one bitmap for the ON state and another for the OFF state.

The properties of the distributor are as follows:

Property	Description	Limits
Name	Name of the graphic object	
Station Address	Device address Uni-Telway (see *Uni-Telway Device Addressing, p. 126*) of the variable to monitor	
Address	Direct address of the variable to monitor	See Note 1, *Notes, p. 200*
Data Type	Data type of the variable	See Note 2, *Notes, p. 200*
Background	Background color of the graphic object	
Label	Label to be displayed as part of the graphic object	
Label Color	Color of the label	
Label Font	Font used for the label	
OFF Word	Text to be displayed when the input value is OFF	
OFF Bitmap Choice	Distributor bitmap when the OFF word is displayed	
OFF Word Color	Color of the OFF word text	
OFF Word Font	Font of the OFF word text	
ON Word	Text to be displayed when the input value is ON	
ON Bitmap Choice	Distributor bitmap when the ON word is displayed	
ON Word Color	Color of the ON word font	
ON Word Font	Font of the ON word text	
Flash Interval	The flashing time for the indicator light (expressed in milliseconds) when the input value is ON. Defined as 0 for no flashing.	200 to 2,000
Border Width	Width (in pixels) of the border of the graphic object	0 to 32
Border Color	Color of the border of the graphic object	
Value	Simulated input value for testing the graphic object	See Note 3, *Notes, p. 200*

Notes

The notes relating to this chapter are as follows:

<table>
<tr><td>1.</td><td colspan="2">Direct address of the variable.
Syntaxes supported: %Mi, %MWi, %Mdi, %MFi, %Si, %SWi, %KWi, %KDi
If the Data Type property is set to UNDEFINED, a default type is used (BOOL, INT, DINT or REAL depending on the implicit type of the data value).</td></tr>
<tr><td>2.</td><td colspan="2">The various values of the Data Type property have the following meanings:</td></tr>
<tr><td></td><td>Type de données</td><td>Signification</td></tr>
<tr><td></td><td>UNDEFINED</td><td>no data type is specified</td></tr>
<tr><td></td><td>BOOL</td><td>bit TOR 1 bit (boolean)</td></tr>
<tr><td></td><td>INT</td><td>16-bit signed integer</td></tr>
<tr><td></td><td>UINT</td><td>16-bit unsigned integer</td></tr>
<tr><td></td><td>DINT</td><td>32-bit signed integer</td></tr>
<tr><td></td><td>UDINT</td><td>32-bit unsigned integer</td></tr>
<tr><td></td><td>REAL</td><td>32-bit IEEE floating point</td></tr>
<tr><td>3.</td><td colspan="2">The limits of the Maximum PLC Value and Minimum PLC Value properties are the natural limits of the configured Data Type property.</td></tr>
<tr><td>4.</td><td colspan="2">For a push button you must specify at least one value. If several values are entered, they will be assigned to an address table starting with the direct address indicated.</td></tr>
<tr><td>5.</td><td colspan="2">For the applet to display a numerical data value instead of a label, specify parameters in the HTML code as follows: name = "label" value = "$data$".</td></tr>
</table>

4.6 Graphic Viewer

Graphic Viewer

Overview

The Graphic Viewer is a smaller version of the Graphic Editor. Its small size increases the speed of downloading. With the Graphic Viewer you can only view interface graphic elements. You cannot modify them.

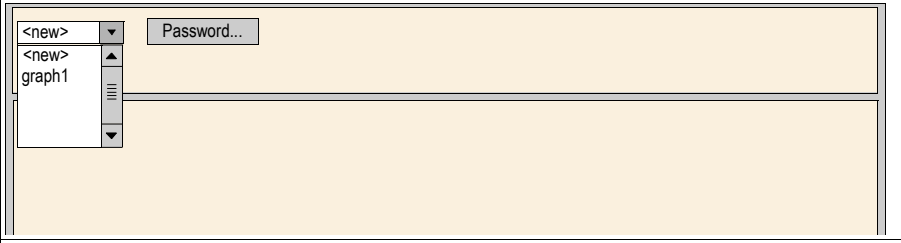
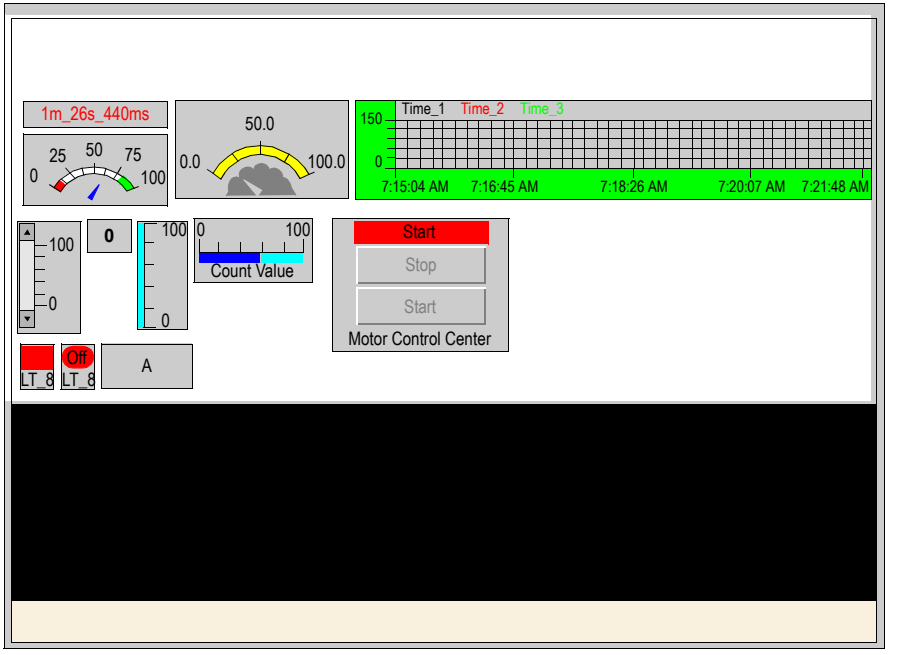
The Graphic Viewer is made up of two windows:

- **Top Window**: This area displays the user commands. You can select a graphic to modify in the drop-down menu.
- **Display Window**: This area displays the graphics selected.

When you view a graphic in full screen mode the **Top Window** is not displayed.

Selecting a Graphic

The following instructions explain how to select a graphic created in the Graphic Editor:

Step	Action
1	Click on **Graphic Viewer**. The **top window and display window** appear: 
2	Select a graphic from the drop-down menu. **Result**: The graphic selected appears in the **display window**:  **Note:** Click in the active graphic's **display window** twice (unless the active graphic is a command type interface graphic element) to refresh the **top window**.

4.7 Configuration Using Web Designer

Configuration Using Web Designer

Introduction

The Web Designer software supplied with the module allows simplified and optimized management of your Website.

Web Designer Features

It allows you to:

- Create data tables and graphic pages on your PC
- Manage protections
- Simulate your custom site on the PC
- Make the link with the device symbol files
- Transfer your custom site and pages to the module
- Etc.

For all the Web Designer software features, refer to the Web Designer User Manual supplied on the CD-ROM in the "WebDesigner/Doc" directory.

Installing the Software

The Web Designer installation files are provided on the CD-ROM in the "Web Designer directory.

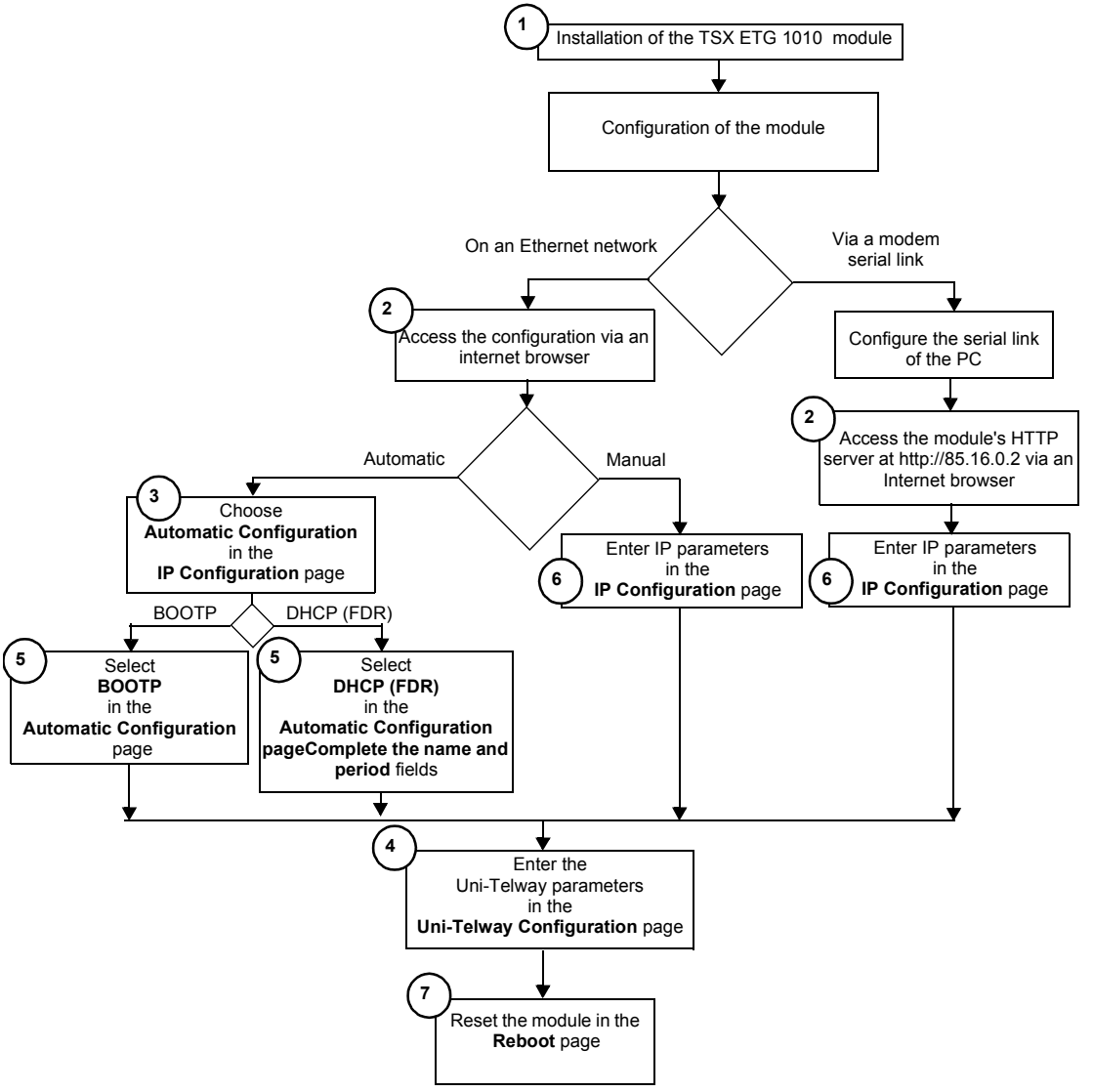
Launch the setup.exe file

Note: Decompacting the installation files requires at least 3 Mbytes on drive C:

4.8 Setting up the TSX ETG 1010 - Summary

Setting up the TSX ETG 1010 - Summary

Illustration Summary of the operations to be performed



Rapid Access

Reference	Page number
1	*Installation of TSX ETG 1010 module, p. 269*
2	*Accessing the Module Configuration, p. 129*
3	*Configuration Parameters for TCP/IP Services, p. 131*
4	*Configuration Parameters for the Uni-Telway link, p. 139*
5	*Automatic Configuration, p. 142*
6	*Ethernet Connection Parameters, p. 134*
7	*Module Restart Page, p. 101*

Creating User Pages

5

Add Custom Pages to the Site

Overview

You may choose to add your own Web pages to the embedded server site. The configuration toolWeb Designer allows you to protect these pages by using the same passwords as those required for the pages by default. You may also place them in an unprotected zone where no password is required.

This section explains how to add custom Web pages to the site as well as how to use Java applets on these pages.

Note: If you are planning to add custom Web pages, make sure that the customizing memory is sufficient.

What's in this Chapter?

This chapter contains the following sections:

5.1 Working With Custom Pages

Working With Custom Pages

Overview

To customize the site, you can create as many pages as you like. To add these pages to the site:

- You can add support pages and protect them with a password.
- You can add support pages and authorize all users access.

What's in this Section?

This section contains the following topics:

Uploading Support Pages via an FTP Client

Overview

If you add support web pages to the default website, you may choose to protect them with the same user name and the same password as those used for the default pages, or to authorize access to all users (no password required).

To add pages to the site, you must specify the folder in which the pages are stored before you can upload them to the server.

Indicating the File Location

Place the folders containing your web pages and any associated graphics in a shared directory. Each subdirectory should normally contain a page called `index.htm`.

Make sure that all graphics file names are in DOS 8.3 format (a maximum of eight characters for the name and three characters for the extension).

Security pages (with a password) should be copied to the \wwwroot\secure\user directory of the embedded server.

Pages accessible to all should be copied to the \wwwroot\unsecure\user directory of the embedded server.

Note: Do not forget to create new hyperlinks to other web pages to enable these pages to be accessed via the browser.

Uploading to a Server

To upload the pages to the server, follow the steps below.

Step	Action
1	Save your project.
2	Open an FTP client (e.g.: filezilla).
3	Enter the IP address, the user name (**wsupgrade**) and the password (**wsupgrade**) to connect to the site. Find your web project in the tree structure for your local site (hard disk). In the tree structure for the remote site select /FLASH1/wwwroot/unsecure/user for your free access pages. In the tree structure for the remote site select /FLASH1/wwwroot/secure/user for your password-secured pages.
4	Copy the relevant files from the local site to the desired location in the remote site (module).

Uploading a Custom Home Page

Overview

To replace the default home page with a page of your choice, follow the steps below:

- Save the initial configuration so that you can restore it later if necessary
- Create your home page
- Move the default home page to a secure location
- Replace it with your own home page
- Upload your home page to the embedded server

Saving the Initial Configuration

Before modifying the default home page, you should save the configuration. In this way, in the event of a problem on the embedded server, you can restore the initial configuration.

Note: The CD-ROM contains a backup copy of the default site under Web\FLASH1\wwwroot.

Creating your Home Page

You must give your home page the same name as the default home page: index.htm.

Positioning your Home Page

Copy your home page to the wwwroot directory containing the default home page.

Uploading

To upload your new home page to the embedded server, follow the steps in the table below.

Step	Action
1	Save your project.
2	Open an FTP client.
3	Enter the IP address, the user name (**wsupgrade**) and the password (**wsupgrade**) to connect to the site. Find your web project in the tree structure for your local site (hard disk). In the tree structure for the remote site select /FLASH1/wwwroot/secure/user for your custom pages.
4	Copy the relevant files from the local site to the desired location on the remote site.

5.2 Using Java FactoryCast Applets With HTML Code

Using Java FactoryCast Applets on Custom Web Pages

Overview

This section describes how to use the Java applets related to FactoryCast. Use these applets to create custom Web pages. To create custom pages, use a text editor such as Microsoft Notepad.

Creating custom Web pages using HTML code enables you to display the device's dynamic data on your browser.

What's in this Section?

This section contains the following topics:

Inserting Applets into a Web Page

Overview

FactoryCast includes graphic objects (or Java beans) which are used to view the devices' dynamic data in a graphic display. Generally, the final constructs a graphic display using the **Graphic Editor** tool. You can however construct a graphic display by using the graphic objects inserted into the Web page using the LiveBeanApplet. Any graphic object, such as an analog dial or a push button, can be inserted into a Web page in such a way that the dynamic data may be displayed outside the Graphic Editor.

To display the devices' dynamic data using a browser, you can choose one of the two methods of inserting a FactoryCast applet into a Web page.

- (1) Enter the HTML code which is given in sections:
  - Inserting a `LiveBeanApplet` Using HTML Code
  - Inserting a `LiveBeanApplet` Using HTML Code
- (2) Insert a Java applet and then complete the dialog boxes using the FactoryCast extension forMicrosoft FrontPage 2000. Refer to *Using the FactoryCast Extension for Microsoft FrontPage, p. 225*.

Inserting a LiveBeanApplet

Overview

This section examines general concepts relating to inserting a `LiveBeanApplet`.

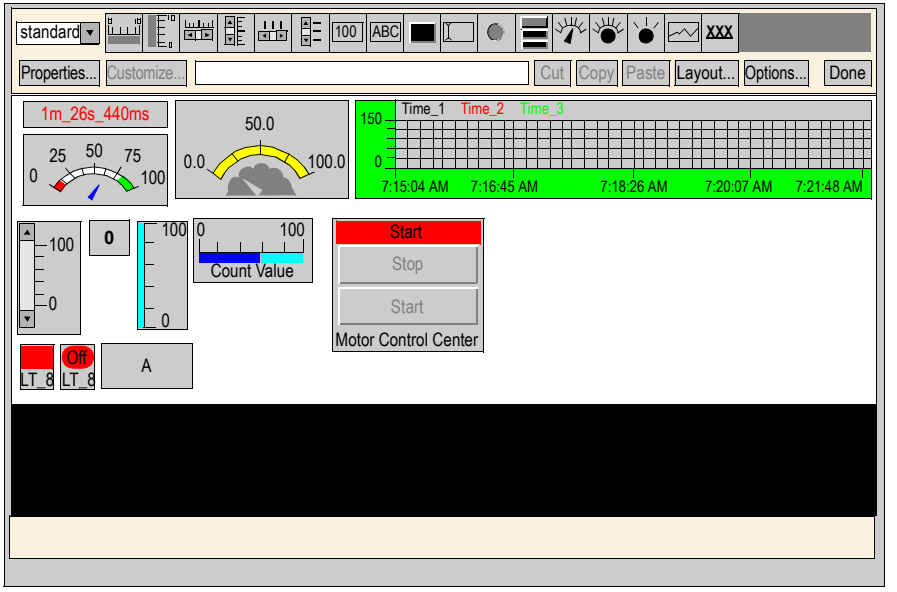
Note:
In this guide, you will find information about inserting a `LiveBeanApplet` using:
- HTML code, (See *Using Java FactoryCast Applets With HTML Code , p. 212*)
- the FrontPage extension from Microsoft. (See *Installing the Macro in Microsoft FrontPage, p. 226*)

Note: Before inserting a `LiveBeanApplet` into a web page, you must create a JavaBeans library using the Graphic Editor included in the FactoryCast software. In general, a user will create a JavaBeans library that contains an instance of each object he wants to use in a web page. Consider this library as a set of templates, copied and customized in your web pages. A library could, for example, contain an analog counter, a rotary selector and a push button. It would then be possible to add several instances of each bean to a web page, each with a unique set of parameters, such as an address.

Inserting a LiveBeanApplet

To insert a `LiveBeanApplet`:

Step	Action
1	Using your web browser, enter the name or the IP address of your web server module and access the Graphic Editor applet via the Graphic Viewer and Editor link.

Step	Action
2	Enter **Edit** mode and create the JavaBeans library to use in your web pages. Customize each bean using a common set of parameters, so that only unique parameters are configured, such as the register address.  **Note:** For further information on the use of the Graphic Editor applet, refer to the Graphic Editor (See *Graphic Editor, p. 156*) section.
3	Once you have created your library, click on the **Done** button in the editor window and save the library.

Inserting a LiveBeanApplet Using HTML Code

Overview

To graphically display data, use graphic objects such as the analog dial or the push button. Before inserting an applet into a Web page, a special applet called `LiveBeanMgrApplet` must be installed on the server.

LiveBean-MgrApplet

The Web page can display the devices' dynamic data using the `LiveBean-MgrApplet`. This applet **must** feature **once** on the page if it already contains instances of `LiveBeanApplet`.

The `LiveBeanMgrApplet` applet can be included in a Web page in two different ways.

- Invisible applet — if the Web page is only used to check the device values, no input is required by the user.
- Key icon — if the Web page is used both to send new values to the devices and to check these values, the user must enter elements in such a way as to be able to send new values.

Note: If the applet is used as a key icon, the user must enter a password to be able to send data values to the devices. When the user clicks on the applet (key icon) in the Web browser, a dialogue box invites him/her to enter a password which will allow him/her to write to the devices.

The HTML code which enables the applet to be included in a Web page used purely for monitoring purposes is as follows:

```
<APPLET codebase="/classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.LiveBeanMgrApplet"
width=0 height=0>
</APPLET>
```

The HTML code which enables the applet to be included in a Web page used both to send values to the devices and for monitoring purposes is as follows:

```
<APPLET codebase="classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.LiveBeanMgrApplet"
width=32 height=32>
<PARAM name=MODE value="READWRITE">
<PARAM name=AUTO_LOGIN value="FALSE">
</APPLET>
```

In the example given above, if the value of the **AUTO_LOGIN** parameter is set to **TRUE** as opposed to **FALSE**, the password is entered automatically (the user does not need to enter it).

LiveBeanApplet

The `LiveLabelApplet` applet is included once for each symbol (variable) or direct address monitored/checked on the Web page. For example, if you monitor three symbols (variables), you must include the applet three times. Using the `LiveBeanApplet`applet, all graphic objects/Java beans created using the**Graphic Editor** can be included in a Web page as separate applets. (Refer to *Graphic Editor, p. 156* to find out more about the**Graphic Editor**.) All graphic objects saved as part of a **Graphic Editor** graphic display can be retrieved in the graphic file and presented by the applet.

LiveBeanApplet Parameters

The `LiveBeanApplet` applet uses parameters which allow you to specify the graphic object presented by the applet and to define the applet's background color.

The applet parameters and their meanings are listed below.

Parameter	Definition
LIBRARY	The name of the graphic display containing the graphic object which must be presented by the applet. (This name is the same as that used when the graphic display is saved with the **Graphic Editor**). **This parameter is obligatory.**
BEAN	The name of the graphic object which must be retrieved in the graphic display specified by the LIBRARY parameter. (The name will be that which is displayed as the graphic object's 'Name' property). **This parameter is obligatory.**
BACKGRND	Applet background color. The authorized values are as follows: WHITE, LT_GRAY, GRAY, DK_GRAY, BLACK, RED, PINK, ORANGE, YELLOW, GREEN, MAGENTA, CYAN and BLUE. It is also possible to use an RGB value in the "0xRRGGBB" format, where RR, GG and BB are the hexadecimal values of the red, green and blue components respectively. This parameter is optional but is usually set to correspond to the color of the HTML page.

In addition to the parameters above, the `LiveBeanApplet` <APPLET> must mention the **width** and **height**attributes. A `LiveBeanApplet` applet must usually be the same size as the graphic object it presents. To know the size of a graphic object, select it whilst the **Graphic Editor** is in Edit mode. The name and size of the selected object are specified in the**Information Area** which can be found at the top of the **Graphic Editor** applet.

Example of LiveBeanApplet

All instances of the `LiveBeanApplet` applet featuring in a Web page follow the same template; only the applet parameters and size vary.

This is the HTML code which allows the inclusion of a `LiveBeanApplet` presenting the **MyDial**graphic object, saved by the **Graphic Editor** as part of the **Library1**graphic display.

```
<APPLET codebase="/classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.LiveBeanApplet"
width=180 height=160>
<PARAM name=LIBRARY value="Bibliothèque1">
<PARAM name=BEAN value="MonCadran">
<PARAM name=BACKGRND value="0xDDEEFF">
</APPLET>
```

Inserting a LiveLabelApplet Using HTML Code

Overview

Before inserting an interactive label into a web page, you must first insert a special applet called `LiveLabelMgrApplet` into the page.

> **Note:** However, if a web page contains both a `LiveLabelApplet` and a `LiveBeanApplet`, it must contain only a single instance of `LiveBeanMgrApplet` and not `LiveLabelMgrApplet`. (`LiveBeanMgrApplet` handles `LiveLabelApplet` and `LiveBeanApplet`, while `LiveLabelMgrApplet` only handles `LiveLabelApplet`.)

LiveLabelMgrApplet

Using the `LiveLabelMgrApplet`, the web page can display dynamic data from the PLC. You **must** include this applet **once** in the page if it already contains instances of `LiveLabelApplet`.

Here is the HTML code to use to insert the applet into a page.

```
<APPLET>
codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveLabelMgrApple"
width=0 height=0>
</APPLET>
```

LiveLabelApplet

Use a `LiveLabelApplet` for each symbol (variable) or direct address displayed on the web page being used. For example, if you display three symbols (variables), you must include the applet three times.

The applet displays the following three fields.

Field	Description
Label	Label of your variable
Value	Execution value of the variable
Units	Units that you specify for the value

Data Settings

The applet settings, their meanings and their default values are listed below.

Setting	Definition		With the default value of
LABEL	A text label to identify the data element		No label
UNITS	A text label to identify the physical units of the value		No unit displayed
STATION	Address of the Uni-Telway device (see *Uni-Telway Device Addressing, p. 126*)		
ADDRESS	The name of the variable		None
DATATYPE	The data type of the variable. Valid values for this parameter are:		UNDEFINED
	UNDEFINED	no data type is specified	
	BOOL	1 bit discrete bit(Boolean)	
	INT	16-bit signed integer	
	UINT	16-bit unsigned integer	
	DINT	32-bit signed integer	
	UDINT	32-bit unsigned integer	
	REAL	32-bit IEEE floating point	
FORMAT	Display format of the value. Valid values for this parameter are:		DEC for most data types BOOL for the BOOL data type
	DEC	decimal	
	HEX	hexadecimal	
	BIN	binary	
	ASCII	bytes displayed as ASCII characters	
	TIME	'day_hr_min_sec_ms'	
	DATE	'yyyy-mm-dd-hh and/or hh:mm:ss	
	BOOL	ON_WORD or OFF_WORD (see below)	
GAIN	The gain (multiplier) used for the scale of the value retrieved in physical units.		1.0
	NOTE: It is only possible to use the scale if GAIN or BIAS is set and if the FORMAT is DEC. The linear scale follows the formula: SCALED_VALUE=GAINxRAW_VALUE+BIAS		
BIAS	The bias (offset) used for the scale of the value retrieved in physical units. See the NOTE under GAIN		0.0
ON_WORD	Text value to be displayed when the value is not zero (To be used only if the FORMAT is BOOL.)		ON

Setting	Definition	With the default value of
OFF_WORD	Text value to be displayed when the value is zero (To be used only if the FORMAT is BOOL.)	OFF
FOREGRND	Color of the applet foreground Valid values are: WHITE, LT_GRAY, DK_GRAY, BLACK, RED, PINK, ORANGE, YELLOW, GREEN, MAGENTA, CYAN and BLUE It is also possible to use an RGB value in the format "0xRRGGBB" where RR, GG and BB are the hexadecimal values of the red, green and blue components respectively.	BLACK
BACKGRND	Color of the applet background For the valid values, see FOREGRND.	LT_GRAY
ERROR_COLOR	Color of the foreground of the VALUE field if the value cannot be retrieved from the PLC. For the valid values, see FOREGRND.	MAGENTA
LABEL_ALIGN	Alignment of text in the LABEL field if the size of the field is greater than the length of the text Valid values are: LEFT, CENTER and RIGHT.	LEFT
VALUE_ALIGN	Alignment of text in the VALUE field if the size of the field is greater than the length of the text Valid values are: LEFT, CENTER and RIGHT.	LEFT
UNITS_ALIGN	Alignment of text in the UNITS field if the size of the field is greater than the length of the text Valid values are: LEFT, CENTER and RIGHT.	LEFT
FONT_NAME	The name of the font used by the applet Valid values are: SERIF, SANSSERIF and MONOSPACE.	SANSSERIF
FONT_BOLD	If this parameter is set, all the text in the applet will be displayed in bold Valid values are: TRUE and FALSE.	FALSE
FONT_ ITALIC	If this parameter is set, all the text in the applet will be displayed in italics Valid values are: TRUE and FALSE.	FALSE
FONT_SIZE	The size of the font used by the applet	12
LABEL_WIDTH	The width of the LABEL field.	
UNITS_WIDTH	The width of the UNITS field.	

Size Parameters

The size of a `LiveLabelApplet` is specified in the width and height attributes of its <APPLET> tag. The LABEL and UNITS fields of the applet will always have the necessary sizes to display the text values of the associated applet parameters, unless the width of the LABEL or UNITS field is configured using the LABEL_WIDTH or UNITS_WIDTH parameters. The remaining width of the applet is allocated to the associated VALUE field.

LiveLabelApplet, Sample 1

The sample applet in this section contains almost all the applet settings. Here is the HTML code of the sample.

```
<APPLET codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveLabelApplet"
width=300 height=30>
<PARAM name=LABEL value="Reactor 1 Temperature">
<PARAM name=UNITS value="F">
<PARAM name=STATION value="SYS">
<PARAM name=ADDRESS value="%MW100">
<PARAM name=DATATYPE value="INT">
<PARAM name=FORMAT value="DEC">
<PARAM name=GAIN value="2.0">
<PARAM name=BIAS value="100.0">
<PARAM name=FOREGRND value="WHITE">
<PARAM name=BACKGRND value="BLACK">
<PARAM name=ERROR_COLOR value="RED">
<PARAM name=FONT_NAME value="SERIF">
<PARAM name=FONT_BOLD value="TRUE">
<PARAM name=FONT_ITALIC value="FALSE">
<PARAM name=FONT_SIZE value="10">
</APPLET>
```

LiveLabelApplet, Sample 2

This minimal applet sample uses the default values for most of the settings. Here is the HTML code of the sample.

```
<APPLET codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveLabelApplet"
width=300 height=30>
<PARAM name=LABEL value="Reactor 1 Pressure">
<PARAM name=UNITS value="PSI">
<PARAM name=STATION value="SYS">
<PARAM name=ADDRESS value="%MW101">
<PARAM name=DATATYPE value="UINT">
</APPLET>
```

5.3 Using the FactoryCast Extension for Microsoft FrontPage

Using the FactoryCast Extension for Microsoft FrontPage

Overview

This section describes using an extension for the Microsoft FrontPage application. The extension allows a FrontPage user to easily insert FactoryCast applets for real time PLC data display on a Web page.

What's in this Section?

This section contains the following topics:

Installing the Macro in Microsoft FrontPage

Overview

This section describes how to install the ETG1010_applet extension or macro for Microsoft FrontPage 2000.

Installing the Macro

To install the ETG1010_Applet macro for FrontPage 2000, proceed as follows:

- for Windows 95/98: copy the file "Microsoft FrontPage.fpm" to the C:\WINDOWS\Application Data\Microsoft\FrontPage\Macros folder (create the final "Macros" folder, if it does not exist).
- for Windows NT/2000/XP: copy the file "Microsoft FrontPage.fpm" to the %USERPROFILE%\Application Data\Microsoft\FrontPage\Macros folder. (create the "Macros" folder if it does not exist). The value of the USERPROFILE environment variable is normally C:\WINNT\Profiles\<username> for NT, or C:\Documents and Settings\<username> for Windows XP. You can check this value by typing SET at a command prompt.

Note: The "Microsoft FrontPage.fpm" macro is located on the CD-ROM under Tools\Microsoft FrontPage.fpm.

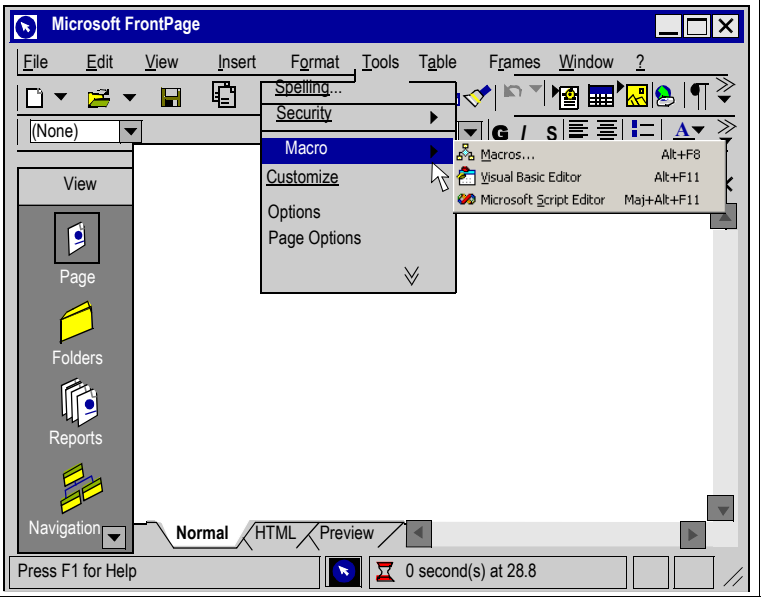
Inserting a LiveBeanApplet with FrontPage

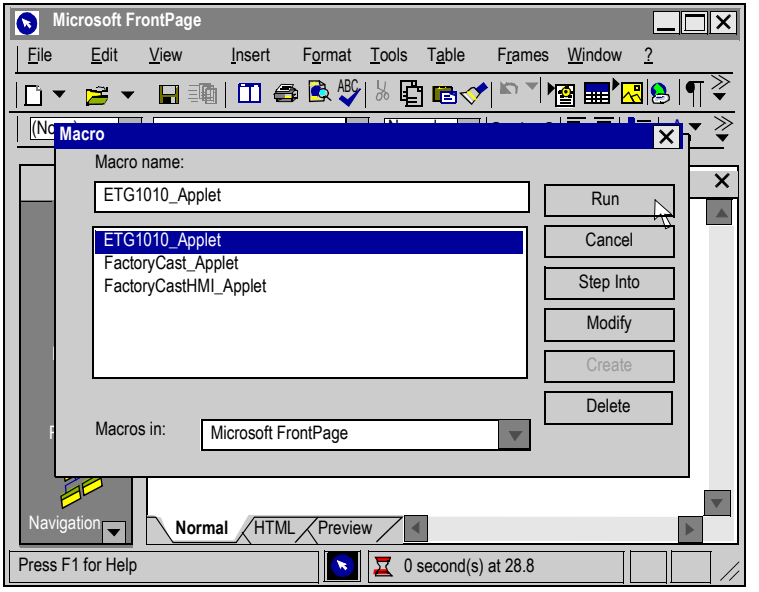
Overview

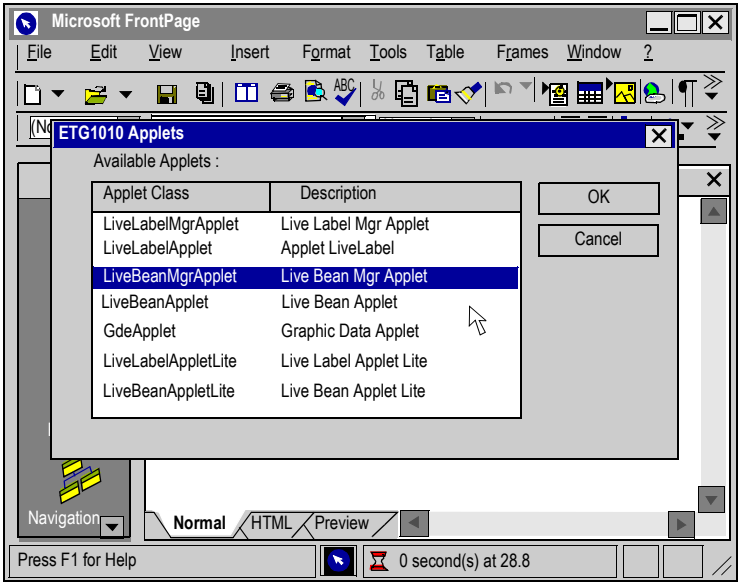
This section describes how to insert a `LiveBeanApplet` into a Web page. Before proceeding with the insertion, read the following note then carry out the sixteen operations described below.

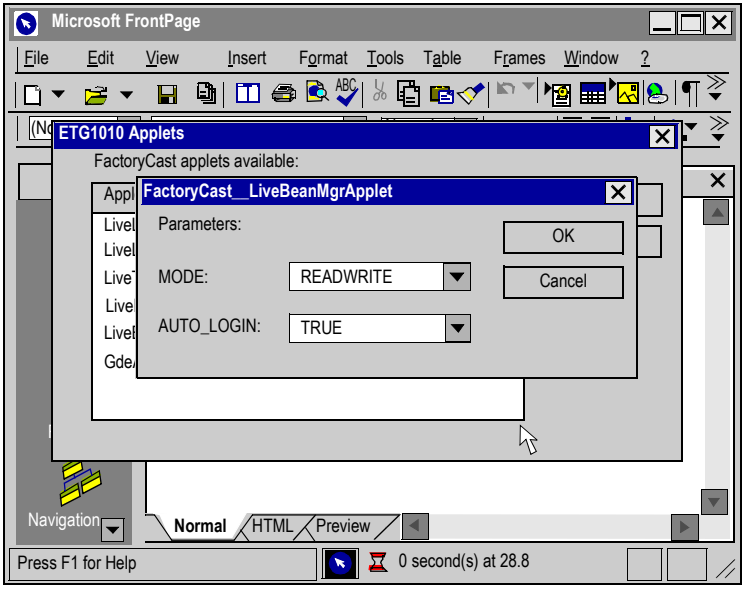
Inserting a LiveBeanApplet

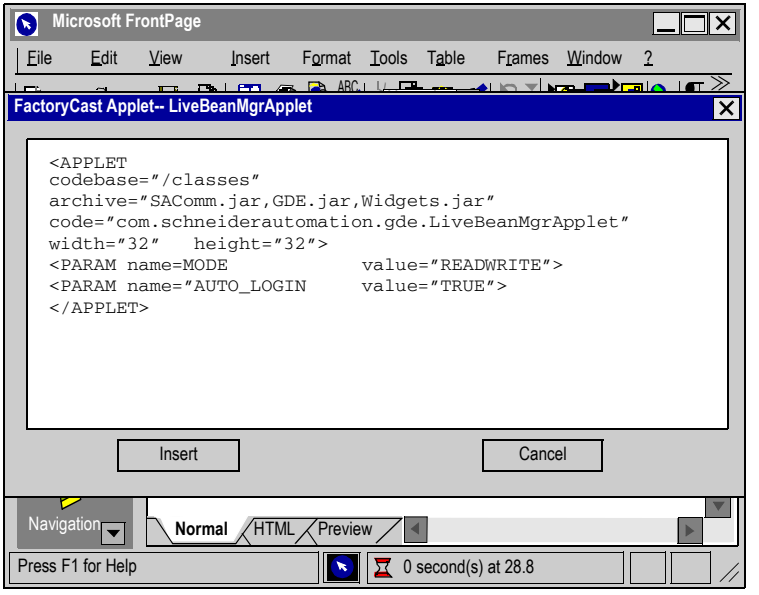
To insert a LiveBeanApplet, follow the steps below:

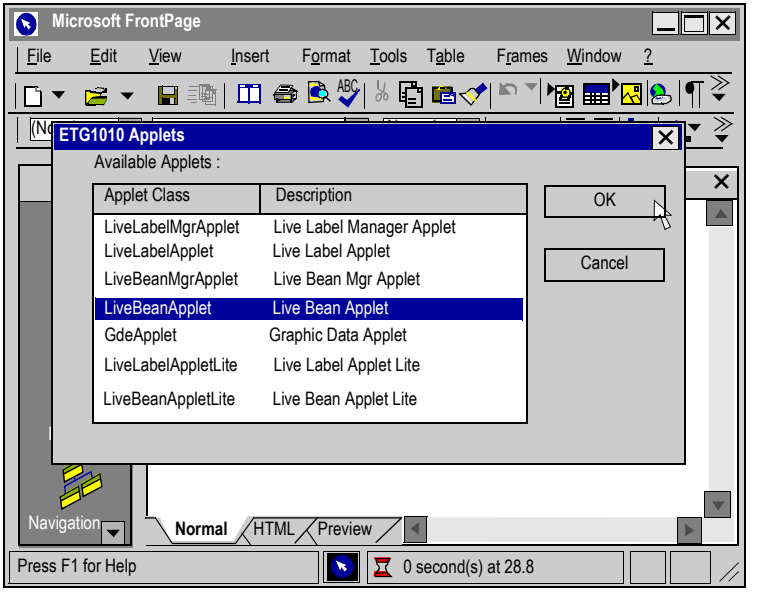
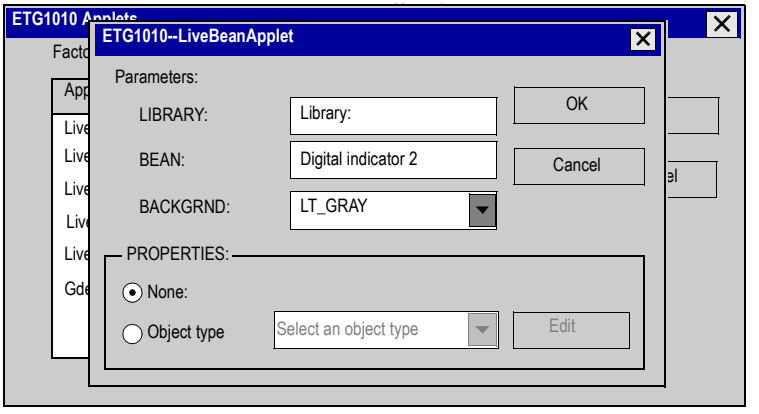
Step	Action
1	Select **Tools | Macro**, then to display the applet selection window click on **Macros**. 

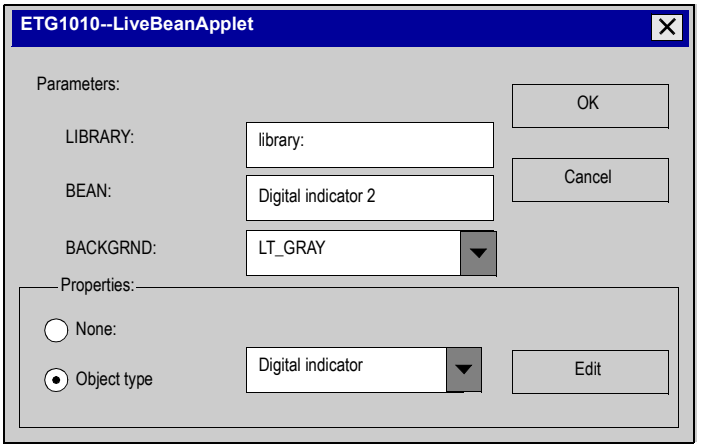
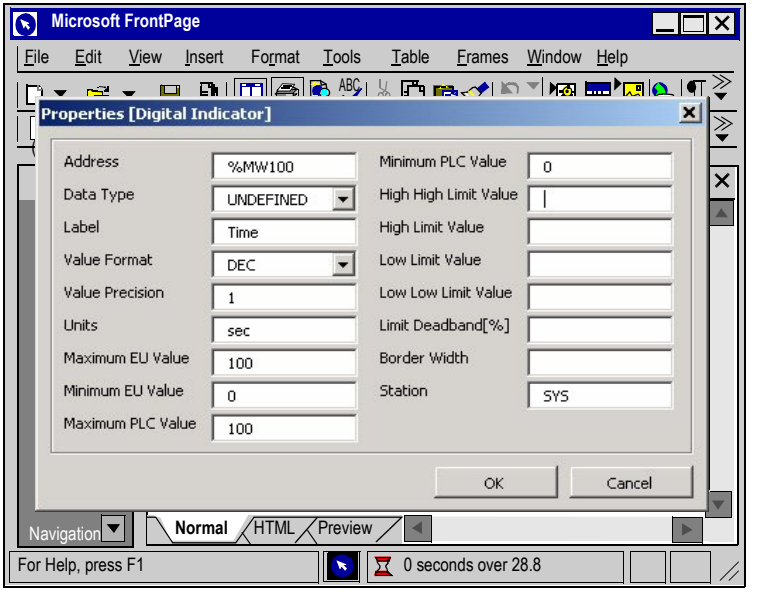
Step	Action
2	Select the **ETG1010_Applet** applet, then click on the **Run** button. 

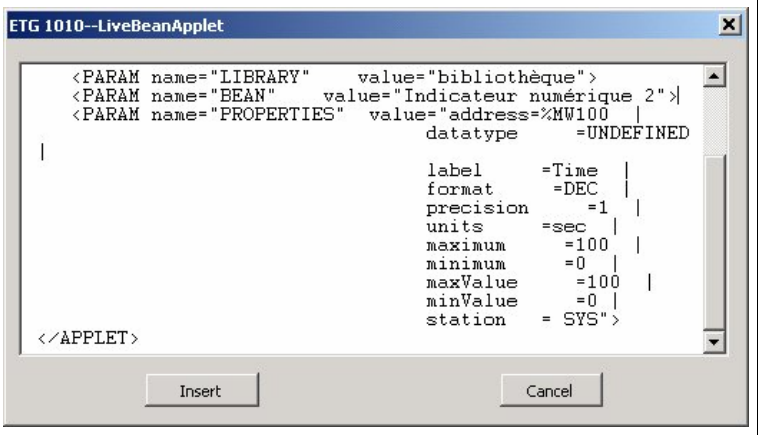
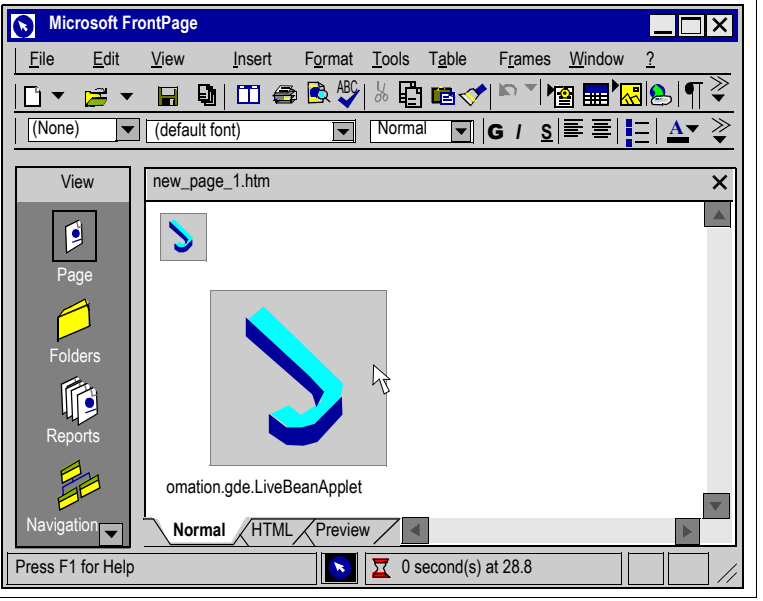
Step	Action
3	Select the **LiveBeanMgrApplet**applet , then click the OK button.  **Note:** The **LiveBeanMgrApplet** applet is a special applet, which should only be inserted into your Web page once.

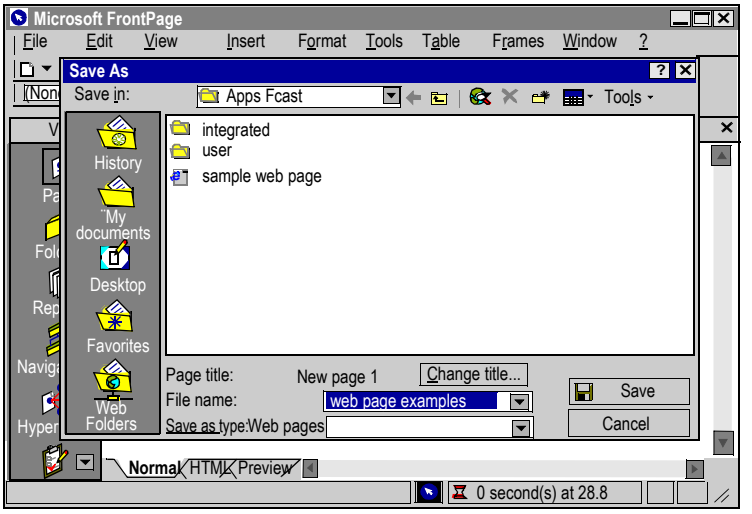
Step	Action
4	Configure the **Mode** and **Auto-Login** parameters, then click the **OK** button. 

Step	Action
5	A window opens, showing the Java code which will be inserted in your HTML document.  Click the Insert button to complete the insertion of the applet. **Note:** Although a grey box containing a blue letter "J" appears on your Web page while editing, the applet will only be displayed on your downloaded Web page if you have set the Mode parameter to **ReadWrite**. It will then appear in the form of a Key when you view it using your browser. On the other hand, if the **Mode** is set to **ReadOnly**, the width and height of the applet will be set to zero and will not be visible in your browser. To find out more about the operation of the **Mode** parameter, see *Using Java FactoryCast Applets With HTML Code , p. 212*.

Step	Action
6	Select the **LiveBeanApplet** in the FactoryCast applet selection window, then click the **OK** button. 
7	Enter the name of a library and the name of the "bean" you wish to display in it. If you do not need to customize the bean properties (the address, for example), click the **OK** button. 

Step	Action
8	In general, you will at least need to customize the Address property of your beans. Once you have entered the names of the library and bean, select the object type in the **Object Type** box.  Click the **Edit** button when you have finished.
9	In the edit window, only change parameters that are specific to this bean, such as the address. All other parameters will be set to the same values as for the bean saved in your library. Click the **OK** button when you have finished. 

Step	Action
10	Click the **OK** button. A window opens, showing the Java code which will be inserted in your HTML document. Click the **Insert** button to complete the insertion of the applet. 
11	Continue inserting instances of the `LiveBeanApplet` applet into your web page. Once you have inserted the last applet, click the **Cancel** button in the FactoryCast applet selection window to return to editing your Web page. 

Step	Action
12	Save your custom Web page. 
13	Transfer the custom Web page to the ETG Web server.
14	Test the application.

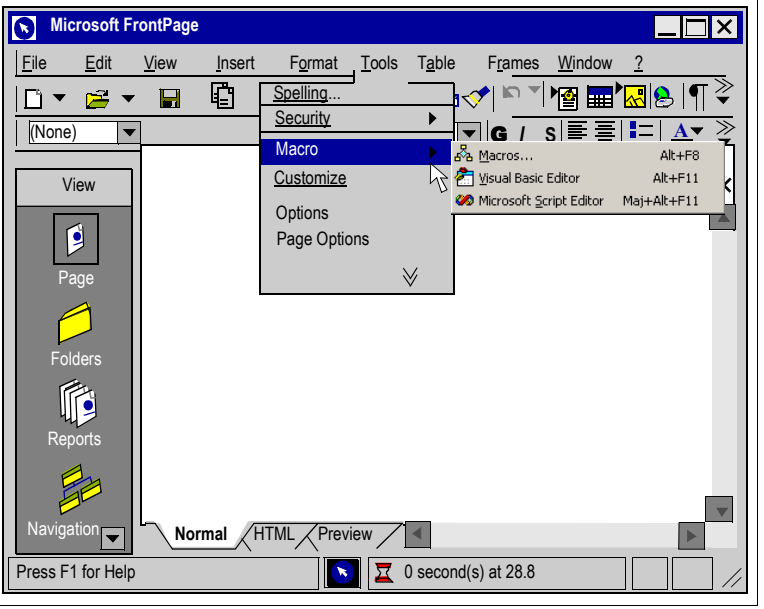
Inserting a LiveLabelApplet with FrontPage

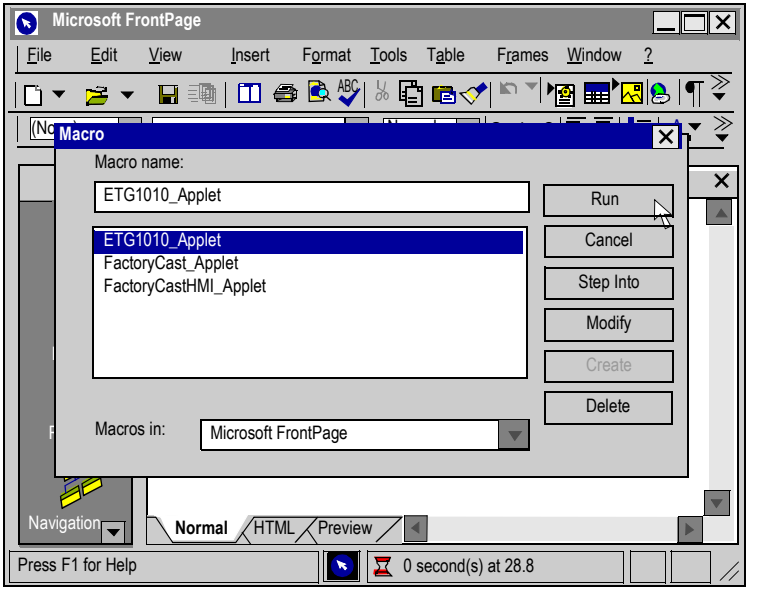
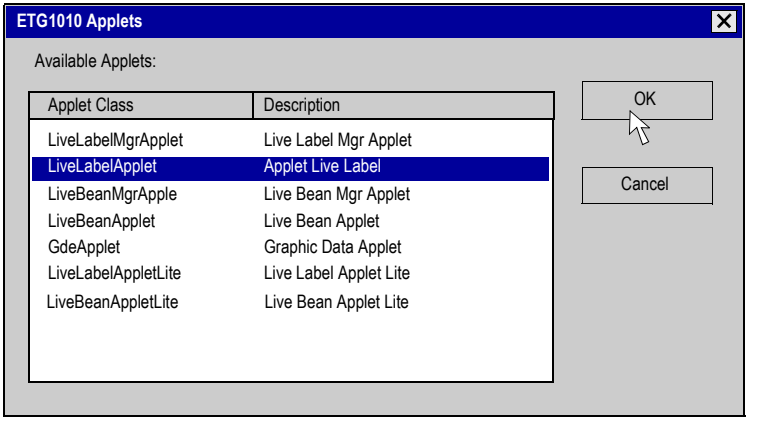
Overview

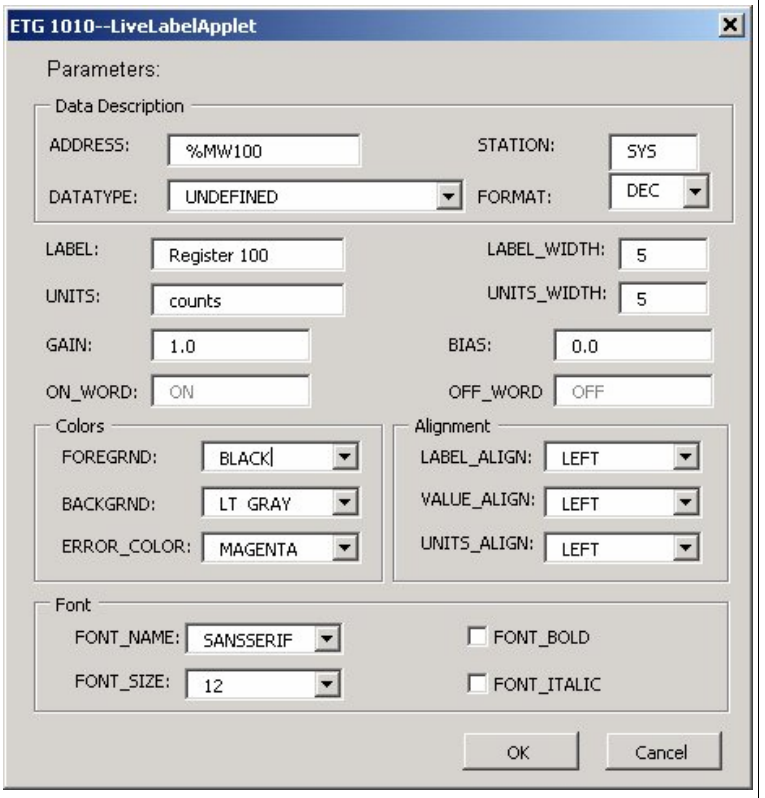
This section describes how to insert a LiveLabelApplet into a Web page.

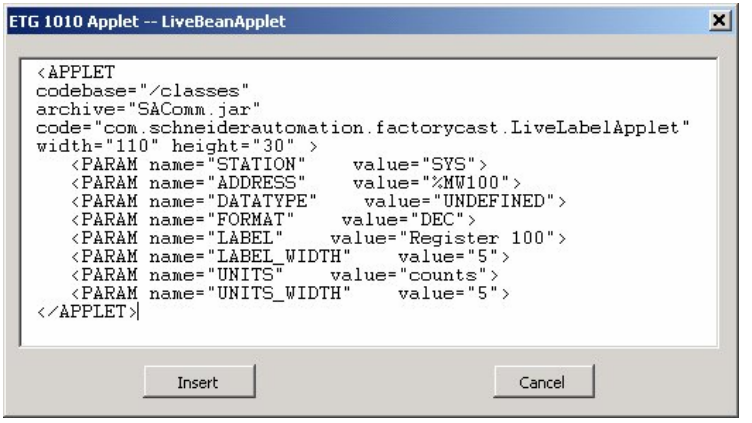
Inserting a LiveLabelApplet

To insert a LiveLabelApplet, follow the steps below.

Step	Action
1	Select **Tools | Macro**, then to display the applet selection window click on **Macros**. 

Step	Action
2	Select the **ETG1010_Applet** applet, then click on the **Run** button. 
3	Select the **LiveLabelMgrApplet** applet, then click the **OK** button.  **Note:** The **LiveLabelMgrApplet** applet is a special applet, which should only be inserted into your web page once. Although a grey box containing a blue letter "J" appears on your Web page while editing, the applet will not be displayed on the Web page from the built-in server module.
4	Select the **LiveLabelApplet** applet, then click the **OK** button. The Parameter editing window is displayed.

Step	Action
5	Enter the label parameters, then click the **OK** button.  **Note:**For a description of each parameter, see *Using Java FactoryCast Applets With HTML Code , p. 212.*

Step	Action
6	A window opens containing the HTML code that will be inserted into your HTML document. Click the **Insert** button to complete the insertion of the applet. 
7	Continue to add additional instances of `LiveLabelApplet` to your web page. Once the last applet has been inserted, click the **Cancel** button in the FactoryCast applet selection window to return to editing your Web page.

Uploading FrontPage Support Pages

Overview

If you add support web pages to the default website, you may choose to protect them with the same user name and the same password as those used for the default pages, or to authorize access to all users (no password required).

To add pages to the site, you must specify the folder in which the pages are stored before you can upload them to the server.

Indicating the File Location

Place the folders containing your web pages and any associated graphics in a common directory. Each subdirectory should normally contain a page called `index.htm`.

Make sure that all graphics file names are in DOS 8.3 format (a maximum of eight characters for the name and three characters for the extension).

Security pages (with a password) should be copied to the \wwwroot\secure\user directory of the embedded server.

Pages accessible to all should be copied to the \wwwroot\unsecure\user directory of the embedded server.

Note: Do not forget to create new hyperlinks to other web pages to enable these pages to be accessed via the browser.

Uploading to a Server

To upload the pages to the server, follow the steps below.

Step	Action
1	Save your project.
2	Select **File | Publish Web Site** in the menu. **Result:** the **Publish Web Site** dialog box opens with the FTP address to be incorporated. Use ftp://module_ip_address/wwwroot/unsecure/user for your free access pages. Use ftp://module_ip_address/wwwroot/secure/user for your password-secured pages.
3	Click on **Publish** to confirm the start of uploading. **Note:** A window will appear, asking for a name and password. The default value for both is '**wsupgrade**'.

5.4 Description of Graphic Objects

Graphic Objects Lite

Overview

This section describes the Lite version of the Graphics Object library. This library enables you to download the graphical interface faster, particularly if you use modem access.

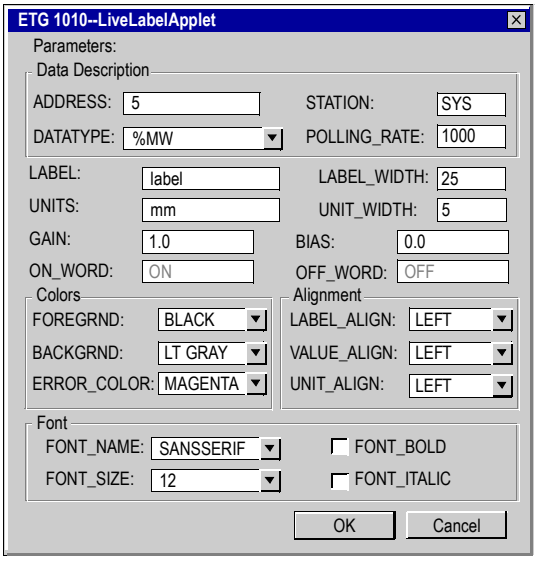
It is a smaller version of the standard graphics library.

The graphic objects available in ETG1010_Applet are designed to help you to create graphic displays imitating operator interface screens. All the data control and monitoring objects have integrated communication functions and are designed as standalone graphic objects.

This section describes the Lite graphic objects and their properties:

LiveLabelApplet This window gives the value of a direct address of a Uni-Telway device in a text field.

Setup



The properties of this window are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5 (See *Notes, p. 261*)
Label Width	Label_Width	Width of the label.	
Unit Width	Units_Width	Width of the unit.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	
Gain	Gain	The gain (multiplier) is used for the scale of the value retrieved in physical units.	1.0
Bias	bias	The bias (offset) is used for the scale of the value retrieved in physical units.	0.0
On_Word	On_Word	Text value to be displayed when the value is not zero (to be used if the data type format is binary).	ON

Property	HTML code	Description	Limits
Off_Word	Off_Word	Text value to be displayed when the value is not zero (to be used if the data type format is binary).	OFF
Foregrnd	Foregrnd	Foreground color of the applet.	BLACK
Backgrnd	Backgrnd	Background color of the applet.	LT_GRAY
Error_Color	Error_Color	Foreground color of the applet if the address value cannot be retrieved.	MAGENTA
Label_Align	Label_Align	Alignment of text in the Label field if the field is wider than the length of the text.	LEFT
Value_Align	Value_Align	Alignment of text in the Value field if the field is wider than the length of the text.	LEFT
Units_Align	Units_Align	Alignment of text in the Units field if the field is wider than the length of the text.	LEFT
Font_Name	Font_Name	Name of the font used for the applet text.	SANSSERIF
Font_Bold	Font_Bold	Applet text is bold if this is set to TRUE.	FALSE
Font_Italic	Font_Italic	Applet text is in italics if this is set to TRUE.	FALSE
Font_Size	Font_Size	Size of the applet text.	12

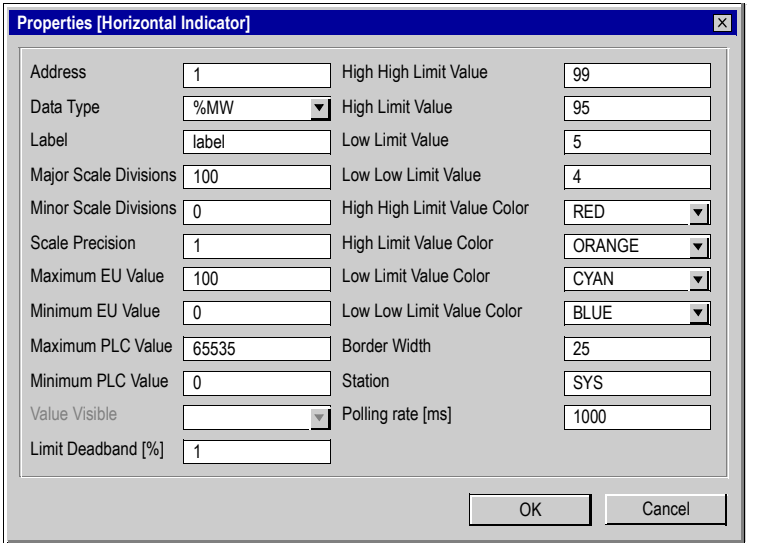
The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.widgetsl
ite.LiveLabelApplet"
width="130" height="30" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="ADDRESS"    value="1">
   <PARAM name="STATION"    value="SYS">
   <PARAM name="RATE"    value="1000">
   <PARAM name="DATATYPE"    value="%MW">
   <PARAM name="LABEL"    value="label">
   <PARAM name="LABEL_WIDTH"    value="25">
   <PARAM name="UNITS"    value="mm">
   <PARAM name="UNITS_WIDTH"    value="5">
</APPLET>
```

Horizontal or Vertical Indicator

The indicator gives an analog representation of the value of a direct address of a Uni-Telway device by drawing a horizontal or vertical bar whose length is proportional to the value and which represents a percentage of its range in physical units.

Setup



The properties of the indicator are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5 (See *Notes, p. 261*)
Major scale graduation	MajorTics	Number of major graduations marked on the scale.	0 to 100
Minor scale graduation	MinorTics	Number of minor graduations on the scale (not marked).	0 to 100
Scale precision	Precision	Number of decimal places to be shown for the scale graduations (set to -1 to use a general exponential format).	-1 to 6
Maximum EU Value	Maximum	Maximum value, in physical units, of the direct address for scaling.	

Property	HTML code	Description	Limits
Minimum EU Value	Minimum	Minimum value, in physical units, of the direct address for scaling.	
Maximum PLC Value	MaxValue	Gross maximum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Minimum PLC Value	MinValue	Gross minimum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Limit Deadband[%]	Deadband	Neutral range (as a percentage of the UP range) to apply to verification of the High/Low limit.	0 to 10
High High Limit Value	LimitHiHi	Value of the "High High" limit expressed in physical units.	
High Limit Value	LimitHi	Value of the "High" limit expressed in physical units.	
Low Limit Value	LimitLo	Value of the "Low" limit expressed in physical units.	
Low Low Limit Value	LimitLoLo	Value of the "Low Low" limit expressed in physical units.	
High High Limit Value Color	ColorHiHi	Color of the indicator bar if the scale value is greater than the "High High" limit.	
High Limit Value Color	ColorHi	Color of the indicator bar if the scale value is greater than the "High" limit.	
Low Limit Value Color	ColorLo	Color of the indicator bar if the scale value is less than the "Low" limit.	
Low Low Limit Value Color	ColorLoLo	Color of the indicator bar if the scale value is less than the "Low Low" limit.	
Border Width	BorderWidth	Width of border.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	

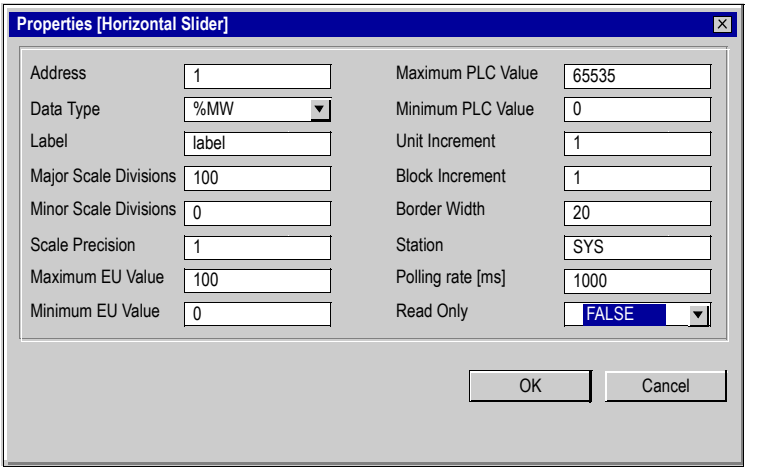
The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.
indicators.LiveHorizontalIndicatorApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="1">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="majorTics"    value="100">
   <PARAM name="minorTics"    value="0">
   <PARAM name="precision"    value="1">
   <PARAM name="maximum"    value="100">
   <PARAM name="minimum"    value="0">
   <PARAM name="maxValue"    value="65535">
   <PARAM name="minValue"    value="0">
   <PARAM name="borderWidth"    value="25">
   <PARAM name="limitHiHi"    value="99">
   <PARAM name="limitHi"    value="95">
   <PARAM name="limitLo"    value="5">
   <PARAM name="limitLoLo"    value="4">
   <PARAM name="deadband"    value="1">
   <PARAM name="rate"    value="1000">
   <PARAM name="station"    value="SYS">
   <PARAM name="colorHiHi"    value="RED">
   <PARAM name="colorHi"    value="ORANGE">
   <PARAM name="colorLoLo"    value="BLUE">
   <PARAM name="colorLo"    value="CYAN">
</APPLET>
```

Horizontal or Vertical Slider

A horizontal or vertical slider gives an analog representation of the value of a direct address of a Uni-Telway device by drawing a slider whose position is proportional to the value and which represents a percentage of its range in physical units. Using the mouse, the user can change the value of the slider, sending a new value to the Uni-Telway device.

Setup



The properties of the slider are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5 (See *Notes, p. 261*)
Major Scale Division	MajorTics	Number of major graduations marked on the scale.	0 to 100
Minor Scale Division	MinorTics	Number of minor graduations on the scale (not marked).	0 to 100
Scale Precision	Precision	Number of decimal places to be shown for the scale graduations (set to -1 to use a general exponential format).	-1 to 6
Maximum EU value	Maximum	Maximum value, in physical units, of the direct address for scaling.	
Minimum EU Value	Minimum	Minimum value, in physical units, of the direct address for scaling.	

Property	HTML code	Description	Limits
Maximum PLC Value	MaxValue	Gross maximum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Minimum PLC Value	MinValue	Gross minimum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Unit Increment	UnitIncrement	Amount by which the scale value is modified when the user clicks on the slider arrows.	
Block Increment	BlockIncrement	Amount by which the scale value is modified when the user clicks on the slide area of the bar.	
Border Width	BorderWidth	Width (in pixels) of the border of the graphic object.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	
Read Only	ReadOnly	TRUE = read value, FALSE = read/write value.	

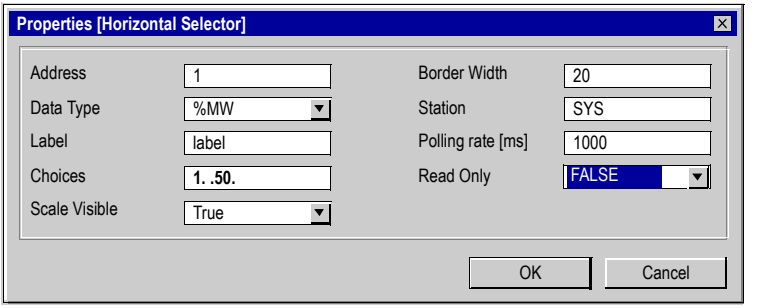
The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.sliders.
LiveHorizontalSliderApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="1">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="majorTics"    value="100">
   <PARAM name="minorTics"    value="0">
   <PARAM name="precision"    value="1">
   <PARAM name="maximum"    value="100">
   <PARAM name="minimum"    value="0">
   <PARAM name="maxValue"    value="65535">
   <PARAM name="minValue"    value="0">
   <PARAM name="unitIncrement"    value="1">
   <PARAM name="blockIncrement"    value="1">
   <PARAM name="rate"    value="1000">
   <PARAM name="station"    value="SYS">
   <PARAM name="borderWidth"    value="20">
   <PARAM name="readOnly"    value="False">
</APPLET>
```

Horizontal or Vertical Selector

A horizontal or vertical selector allows the user to choose from a number of options. Once the selection has been made, the value corresponding to the choice is sent to the PLC. The choices are represented by the marks on a "scale", the current selection being indicated by the position of the cursor on a slider.

Setup:



The properties of the slider are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5, (See *Notes, p. 261*)
Choices	Choices	Setpoints to apply to the address value.	
Border Width	BorderWidth	Width (in pixels) of the border of the graphic object.	
Station	Station	Address of the Uni-Telway device. (See *Graphic Objects Lite, p. 241*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	
Read Only	ReadOnly	True = read value, False = read/write value.	

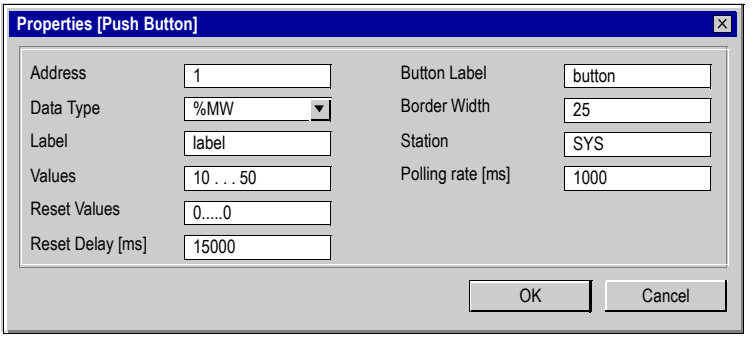
The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.selectors
.LiveHorizontalSelectorApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="1">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="scaleVisible"    value="True">
   <PARAM name="choices"    value="1=1000,9=9000,50=50000">
   <PARAM name="rate"    value="1000">
   <PARAM name="station"    value="SYS">
   <PARAM name="borderWidth"    value="20">
   <PARAM name="readOnly"    value="False">
</APPLET>
```

Push Button

When activated with the mouse, a push button allows the user to send a preset value to one or more Uni-Telway devices.

Setup:



The properties of the push button are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5 (See *Notes, p. 261*)
Values	Values	Setpoints to apply to the address value when the button is pressed.	See Note 4 (See *Notes, p. 261*)
Reset Values	ResetValues	Value to apply when the Reset Delay ends.	
Reset Delay [ms]	ResetDelay	Time in ms counted down after the button is pressed.	
Button Label	ButtonLabel	Label to display on the button.	
Border Width	BorderWidth	Width (in pixels) of the border of the graphic object.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	

The HTML code with the parameters in the window above is as follows:

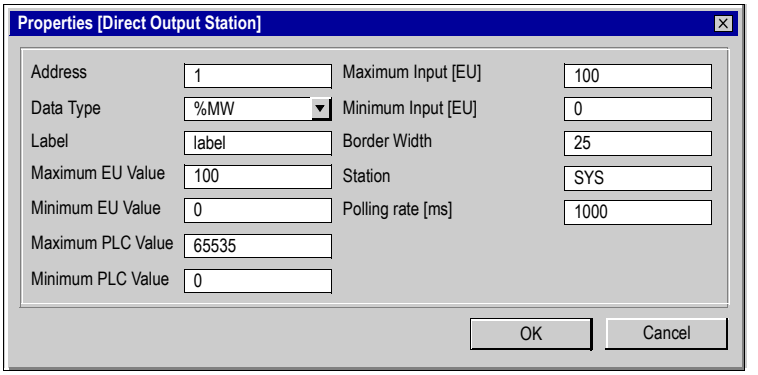
```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.pushButton
.LivePushButtonApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="1">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="values"    value="10,50">
   <PARAM name="resetValues"    value="0">
   <PARAM name="resetDelay"    value="15000">
   <PARAM name="borderWidth"    value="25">
   <PARAM name="buttonLabel"    value="button">
   <PARAM name="rate"    value="1000">
   <PARAM name="station"    value="SYS">
</APPLET>
```

Note: In this example, when the user presses the button the value 10 is applied to address 1 and the value 50 to address 2 for 15,000 ms. After 15,000 ms the two addresses are set to the value 0 (resetValue).

Direct Output Window

This applet allows a user to enter a value directly in a text input field using the keyboard. If the text entered is a numerical value between the upper and lower preset limits, an OK button is enabled. The value entered is sent to the Uni-Telway device each time the user clicks the OK button or presses the ENTER key (if the input field is active for keyboard input).

Setup:



The direct output properties are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	label	Label to be displayed as part of the graphic object.	See Note 5, (See *Notes, p. 261*)
Maximum EU Value	maximum	Maximum value, in physical units, of the direct address for scaling.	
Minimum EU Value	minimum	Minimum value, in physical units, of the direct address for scaling.	
Maximum PLC Value	maxValue	Gross maximum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Minimum PLC Value	minValue	Gross minimum value (without scale) of the direct address in the PLC.	See Note 3, (See *Notes, p. 261*)
Maximum Input [EU]	MaxInputValue	Maximum setpoint for the input.	
Minimum Input [EU]	MinInputValue	Minimum setpoint for the input.	
Border Width	BorderWidth	Width (in pixels) of the border of the graphic object.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	

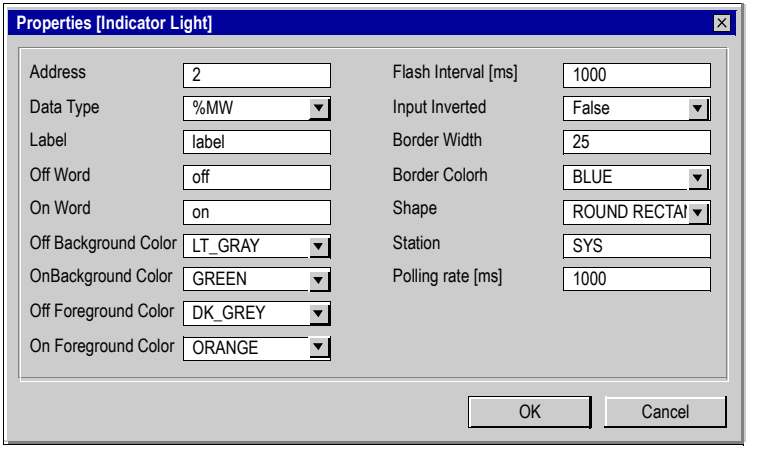
The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.direct
Output.LiveDirectOutputApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="1">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="maximum"    value="100">
   <PARAM name="minimum"    value="0">
   <PARAM name="maxValue"    value="65535">
   <PARAM name="minValue"    value="0">
   <PARAM name="maxInputValue"    value="100">
   <PARAM name="minInputValue"    value="0">
   <PARAM name="rate"    value="1000">
   <PARAM name="station"    value="SYS">
   <PARAM name="borderWidth"    value="25">
</APPLET>
```

Indicator Light

The indicator light provides a double indication of the value of a direct address in a PLC. If the Input inverted property is not set to TRUE, a zero input value is declared OFF and a non-zero value is declared ON. If the Flash Interval property is set to a positive value, the indicator light will flash when the input value is equal to ON.

Setup:



The properties of the indicator light are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5, (See *Notes, p. 261*)
Off Word	OffWord	Text to be displayed when the input value is OFF.	
On Word	OnWord	Text to be displayed when the input value is ON.	
Off Background Color	OffWordBackground	Background color of the indicator light when the Off Word is displayed	
ON Background Color	OnWordBackground	Background color of the indicator light when the ON Word is displayed	
Off Foreground Color	OffWordForeground	Color of the text of the Off Word.	
On Foreground Color	OnWordForeground	Color of the text of the On Word.	
Flash Interval	FlashInterval	The flashing time for the indicator light (expressed in milliseconds) when the input value is ON. Set to zero for no flashing.	200 to 2000

Property	HTML code	Description	Limits
Input inverted	InputInverted	On TRUE, inverts the input value (the indicator light displays the Off Word when the input value is ON).	
Border Width	BorderWidth	Width (in pixels) of the border of the graphic object.	
Border Color	BorderColor	Color of the border.	
Shape	Shape	Shape (circular, rectangular, etc.) of the indicator light.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	

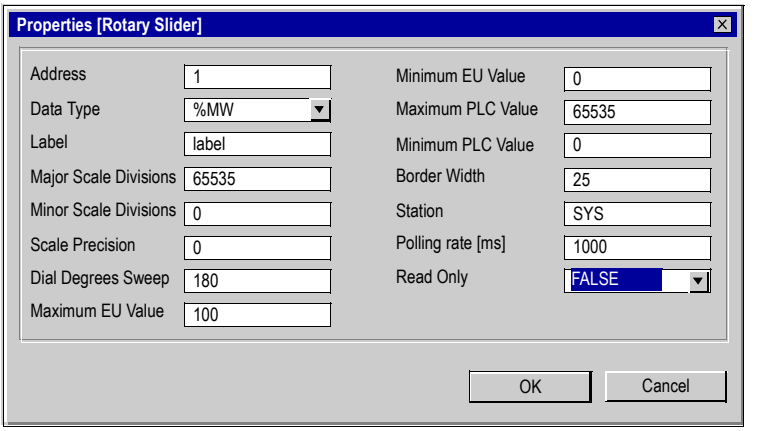
The HTML code with the parameters in the window above is as follows:

```
<p><APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.indica-
torLight.LiveIndicatorLightApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="2">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="offWord"    value="off">
   <PARAM name="onWord"    value="on">
   <PARAM name="offWordBackground"    value="LT_GRAY">
   <PARAM name="onWordBackground"    value="GREEN">
   <PARAM name="offWordForeground"    value="DK_GRAY">
   <PARAM name="onWordForeground"    value="ORANGE">
   <PARAM name="flashInterval"    value="1000">
   <PARAM name="inputInverted"    value="False">
   <PARAM name="borderWidth"    value="25">
   <PARAM name="borderColor"    value="BLUE">
   <PARAM name="shape"    value="ROUND RECTANGLE">
   <PARAM name="rate"    value="1000">
   <PARAM name="station"    value="SYS">
</APPLET>
```

Rotary Slider

A rotary slider gives an analog representation of the value of a direct address of a Uni-Telway device. On a circular dial, it draws a position proportional to the value of the address and represents a percentage of its range in physical units. The size of the circular dial (cycle in degrees of a circle) and the color of the button can be configured. Using the mouse, the user can change the value of the rotary slider, sending a new value to the PLC.

Setup:



The properties of the slider are as follows:

Property	HTML code	Description	Limits
Address	Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Data type	Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label	Label to be displayed as part of the graphic object.	See Note 5 (See *Notes, p. 261*)
Major scale graduation	MajorTics	Number of major graduations marked on the scale.	0 to 100
Minor scale graduation	MinorTics	Number of minor graduations on the scale (not marked).	0 to 100
Scale precision	Precision	Number of decimal places to be shown for the scale graduations (set to -1 to use a general exponential format).	-1 to 6
Dial Degrees Sweep	DegSweep	Portion of a circular arc to be used to draw the scale.	60 to 300
Maximum EU Value	Maximum	Maximum value, in physical units, of the direct address for scaling.	

Property	HTML code	Description	Limits
Minimum EU Value	Minimum	Minimum value, in physical units, of the direct address for scaling.	
Maximum PLC Value	MaxValue	Gross maximum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Minimum PLC Value	MinValue	Gross minimum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
Border Width	BorderWidth	Width (in pixels) of the border of the graphic object.	
Station	Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Polling rate [ms]	Rate	Scanning value.	
Read Only	ReadOnly	True = read value, False = read/write value.	

The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
archive="widgetslite.jar"
code="com.schneiderautomation.factorycast.gateway.sliders.
LiveRotosliderApplet"
width="180" height="160" >
   <PARAM name="progressbar"    value="true">
   <PARAM name="progresscolor"    value="#000000">
   <PARAM name="debug"    value="0">
   <PARAM name="BACKGRND"    value="LT_GRAY">
   <PARAM name="address"    value="1">
   <PARAM name="datatype"    value="%MW">
   <PARAM name="label"    value="label">
   <PARAM name="majorTics"    value="65535">
   <PARAM name="minorTics"    value="0">
   <PARAM name="precision"    value="0">
   <PARAM name="degSweep"    value="180">
   <PARAM name="maximum"    value="100">
   <PARAM name="minimum"    value="0">
   <PARAM name="maxValue"    value="65535">
   <PARAM name="minValue"    value="0">
   <PARAM name="borderWidth"    value="25">
   <PARAM name="rate"    value="1000">
   <PARAM name="readOnly"    value="False">
   <PARAM name="station"    value="SYS">
```

Trend Curves

The trend curve can be used to represent the value of a direct address of a Uni-Telway device or of an internal register of the module graphically on a curve according to a time interval. This graphic object has no configuration window, therefore the HTML code must be written out.

The properties of the slider are as follows:

HTML code	Description	Limits
Address	Uni-Telway address of the data type (1 to 65535).	See Note 1, (See *Notes, p. 261*)
Datatype	Data type of the Uni-Telway address.	See Note 2, (See *Notes, p. 261*)
Label	Label to be displayed as part of the graphic object.	See Note 5, (See *Notes, p. 261*)
Pens	Color of the curve (black by default).	
Griddivisions	Number of intervals on the grid.	
Chartbackground	Curve background color.	
Gridcolor	Color of the interval grid.	
Scalecolor	Color of the text for the X-axis and Y-axis information.	
Updateinterval	Time in seconds between intervals.	
Timedivisions	Number of time intervals.	
Maximum	Maximum value, in physical units, of the direct address for scaling.	
Minimum	Minimum value, in physical units, of the direct address for scaling.	
MaxValue	Gross maximum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
MinValue	Gross minimum value (without scale) of the direct address in the PLC.	See Note 3 (See *Notes, p. 261*)
BorderWidth	Width (in pixels) of the border of the graphic object.	
Station	Address of the Uni-Telway device. (See *Uni-Telway Device Addressing, p. 126*)	See Note 6, (See *Notes, p. 261*)
Rate	Scanning value.	

The HTML code with the parameters in the window above is as follows:

```
<APPLET
codebase="/classes"
code="com.schneiderautomation.factorycast.gateway.chart.Li
veChartApplet"
archive="widgetslite.jar "width="685" height="363">
<param name="progressbar" value="true">
<param name="progresscolor" value="#000000">
<param name="pens" value="p1=black,p2=blue,p3=green">
<param name="address" value="5,6,7">
<param name="datatype" value="%MW">
<param name="minimum" value="0">
<param name="maximum" value="100">
<param name="minValue" value="0">
<param name="maxValue" value="100">
<param name="griddivisions" value="5">
<param name="gridcolor" value="blue">
<param name="updateinterval" value="10">
<param name="timedivisions" value="10">
<param name="station"    value="SYS">
<param name="chartbackgrnd" value="white">
</applet>
```

Notes

The notes relating to this chapter are as follows:

<table>
<tr><td>1.</td><td colspan="2">The Data Type property must correspond exactly to the actual data type of the variable.
If the Address property is the direct address of a binary PLC reference (reference %M or %S for example), the Data Type property must be set to %M for internal bits or %S for system bits.</td></tr>
<tr><td>2.</td><td colspan="2">The various values of the Data Type property have the following meanings:</td></tr>
<tr><td></td><td>Data type</td><td>Meaning</td></tr>
<tr><td></td><td>%M</td><td>internal bit (boolean)</td></tr>
<tr><td></td><td>%MW</td><td>internal word</td></tr>
<tr><td></td><td>%MD</td><td>internal double word</td></tr>
<tr><td></td><td>%MF</td><td>floating-point word</td></tr>
<tr><td></td><td>%S</td><td>system bit (Boolean)</td></tr>
<tr><td></td><td>%SW</td><td>system word</td></tr>
<tr><td></td><td>%KW</td><td>constant word</td></tr>
<tr><td></td><td>%KD</td><td>constant double word</td></tr>
<tr><td>3.</td><td colspan="2">The limits of the Maximum PLC Value and Minimum PLC Value properties are the natural limits of the configured Data Type property.</td></tr>
<tr><td>4.</td><td colspan="2">For a push button you must specify at least one value. If several values are entered, they will be assigned to an address table starting with the direct address indicated.</td></tr>
<tr><td>5.</td><td colspan="2">For the applet to display a numerical data value instead of a label, specify parameters in the HTML code as follows: name = "label" value = "$data$".</td></tr>
<tr><td>6.</td><td colspan="2">The FrontPage macro does not verify the Station address entered.</td></tr>
</table>

Hardware Characteristics

6

Presentation

Scope of this Chapter

This chapter covers the hardware characteristics of the TSX ETG 1010 module.

What's in this Chapter?

This chapter contains the following sections:

6.1 Description

Presentation

Scope of this Section

This section covers the physical description of the TSX ETG 1010 module.

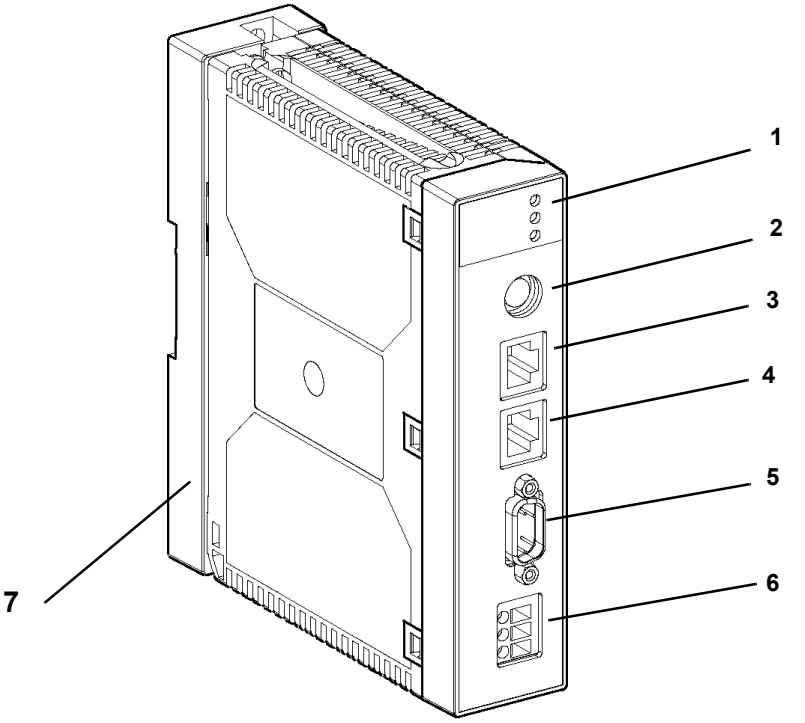
What's in this Section?

This section contains the following topics:

Physical Description

At a Glance

View of the TSX ETG 1010 module:



Description

Description of the front of the module:

Reference	Description
1	3 LED indicators (See *LED Indicators, p. 282*): • RUN/UTW LED (green) • An ERR LED (red) • ETHERNET LED (orange)
2	A Mini-Din connector for terminal port (See *Mini Din Connector, p. 277*).
3	A type RJ45connector for Uni-Telway RS 485 link (See *RJ45 Uni-Telway link connector, p. 276*).
4	A type RJ45 connector for Ethernet link (See *RJ45 Ethernet Connector, p. 274*).
5	A SUB D 9 points connector for modem link (See *Series RS 232 modem link connector, p. 275*).
6	Screw terminal for 24 VDC power supply connection (See *Supply Terminal Block, p. 273*).
7	Support plate allowing for the attachment of the module directly on AM1-DE200/DP200 type DIN profile or Telequick AM1-PA perforated mounting plate.

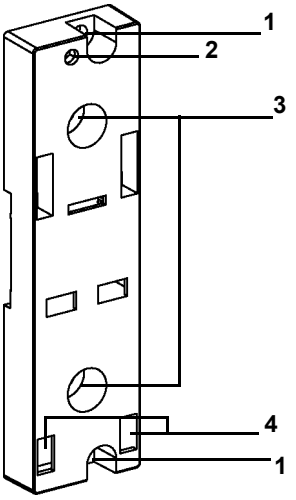
Description of the Support Plate

At a Glance

Each TSX ETG module is supplied fixed to a support plate which can be mounted on either an AM1-DE200 or AM1-DP200 DIN rail, or on a Telequick AM1-PA pre-slotted plate.

Illustration

View of the plate:



Description

Description of the plate:

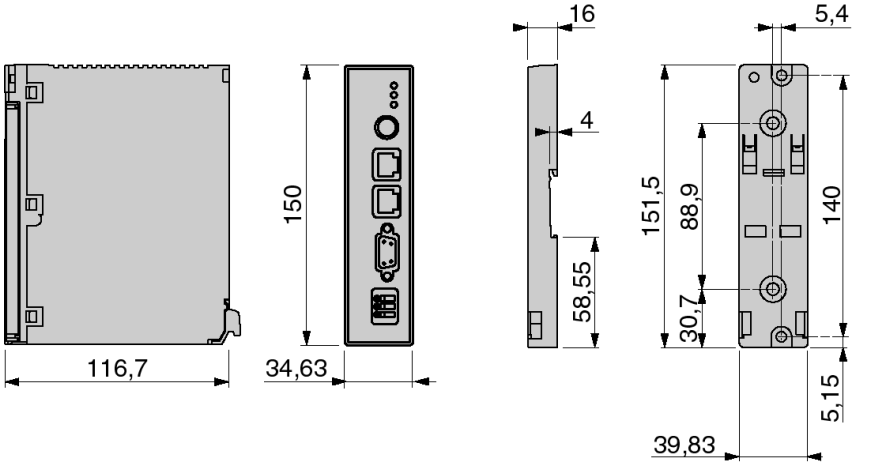
Reference	Description
1	Two 5.5 mm holes for securing the plate to a panel or to an AM1-PA pre-slotted plate, with fixing centers of 140 mm (Micro fixing centers).
2	M4 fixing hole for securing the TSX ETG module.
3	Two 6.5 mm holes for securing the plate to a panel or to an AM1-PA pre-slotted plate, with fixing centers of 88.9 mm (TSX Premium fixing centers).
4	Windows for marking the pins located on the base and rear of the module.

6.2 Installation of TSX ETG 1010 module

Dimensions and Mounting of TSX ETG 1010 module

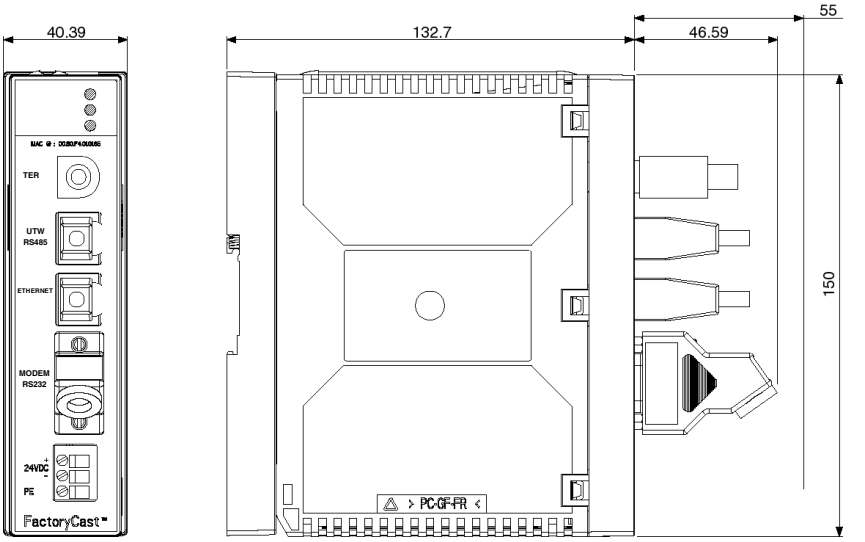
Dimensions

Illustration:



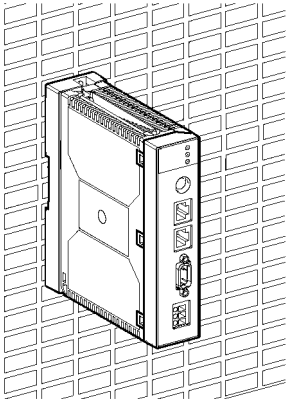
Dimensions of Fitted Module

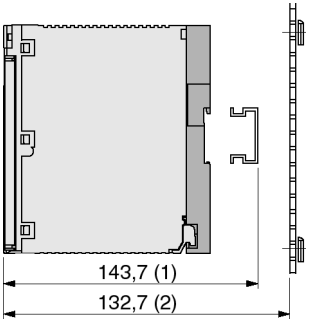
Dimensions of module with cables on front face

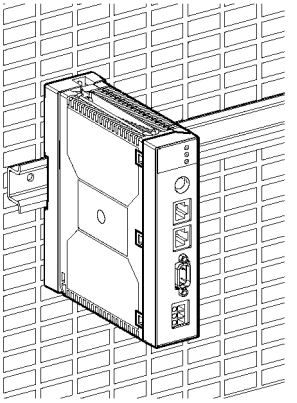


Mounting on profile or plate

Illustration of the module mounted on an **AM1-DE200** or **AM1-DP200** rail or on an **AM1-PA** plate:





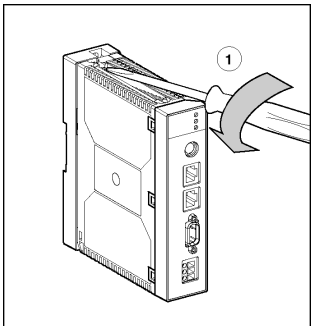
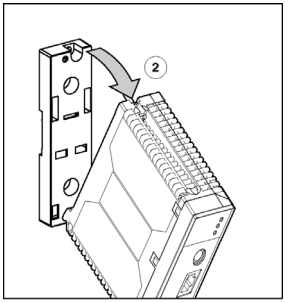


(1) 143.7mm (AM1-DE200)
136.2mm (AM1-DP200)

(2) 132.7mm (AM1-PA)

Dismounting Module from the Plate

To remove the module from its plate proceed as follows:

Step	Action	Illustration
1	Unscrew the screw at the top part of the module in order to remove it from its support	
2	Swing the module forwards and disengage the module's pins from the holes situated in the bottom part of the support.	

6.3 Connections

Presentation

Scope of this Section

This section covers the electrical connections for the TSX ETG 1010 module.

What's in this Section?

This section contains the following topics:

Module Connectors

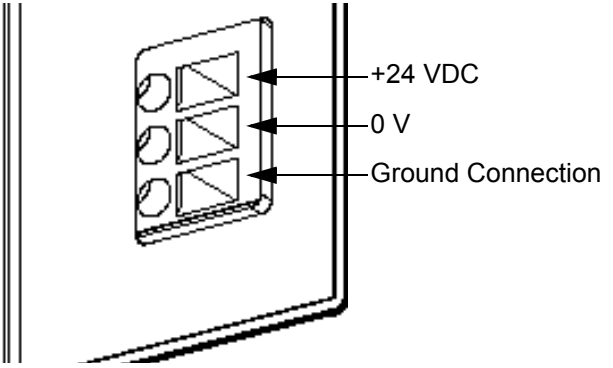
At a Glance

The different linking connectors of the TSX ETG 1010 module are described below.

Supply Terminal Block

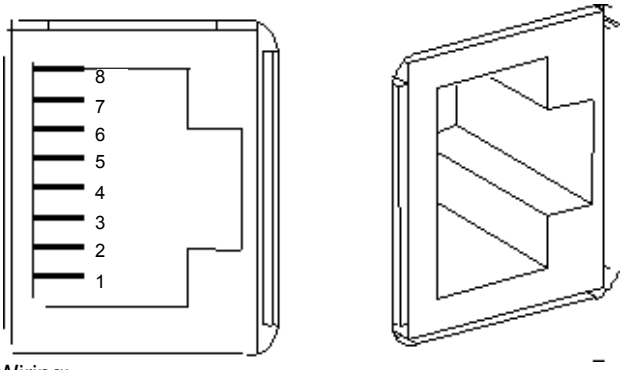
The supply terminal block consists of 3 limits with frontal threaded joints. It cannot be disconnected. Each limit accepts 2.5 mm of cable ^{2} maximum.

Illustration:



RJ45 Ethernet Connector

Illustration of the RJ 45 connector shielded for Ethernet link:

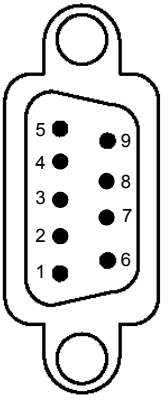


Wiring:

No.	Signal
1	Tx+
2	Tx-
3	Rx+
4	Not connected
5	Not connected
6	Rx-
7	Not connected
8	Not connected

Series RS 232 modem link connector

Illustration of the 9-pin SUB-D connector for series RS 232 modem link:



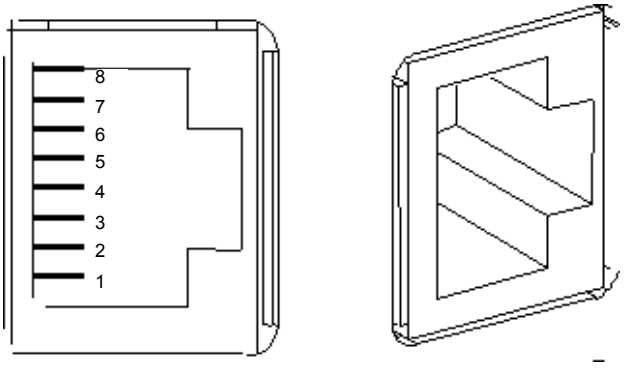
Wiring:

No.	Signal
1	Data Carrier Detect
2	Received Data
3	Transmitted Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to send
8	Clear to Send
9	Ring Indicator

Note: This connector conforms with PC standards

RJ45 Uni-Telway link connector

Illustration of the RJ 45 connector shielded for Uni-Telway RS 485 link:



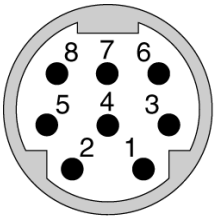
Note: The pin connection conforms to the Schneider standard.

The cable used between the Uni-Telway connector and the PLC has the reference number:

TSX ETZ CDN 003

Mini Din Connector

Illustration of the Mini Din connector for the Terminal port:



Wiring:

No.	Signal
1	D(B)
2	D(A)
3	Reserved
4	Not connected
5	Not connected
6	Not connected
7	0 V
8	5 V

Ground Connection

The ground connection situated at the end of the Ethernet cable can be of a different voltage than that of the module.

Due to the length of the Ethernet cable, the difference in voltage can be significant. The ground connection package is linked locally to the module socket.

For more information refer to the TSX DGKBLF ground wiring Guidance Manual.

⚠ WARNING

It is essential to ground the module through the supply terminal block.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

Connection Cables

At a Glance

It is possible to use different cables to link TSX ETG 1010 modules. These cables are either available in the Schneider Automation catalog, or can be produced by the user. For the Application Setup of a Uni-Telway bus, refer to the **TSX DG UTW** manual.

RJ45 Lead to Mini Din

The lead which is delivered with the TSX ETG 1010 module and which has the following reference **TSX ETZ CDN 003** is designed to link a PLC to the module's RJ45 Uni-Telway port, directly or via a TSX P ACC 01 linking box. Its length is 35cm.

If it is not the correct length, it is possible to make a new lead from a reference **TSX CX 100** lead with a Mini Din port at one end and nothing at the other end. Its length is 10m.

Cut the cable to the desired length and at the free end, fasten a connector of type **RJ45 cat 5 with 8 contacts**.

Wiring:

RJ45	**TSX CX 100**
1	White
2	Orange
3	Yellow
4	Black
5	Brown
6	Red
7	Green
8	Blue

Mini Din Lead to TSX SCA 50

This lead has the reference number **TSX CX 100**. On one end it has a Mini Din connector and it has nothing at the other end. It allows a link between the Mini Din port of the TSX ETZ and the linking terminal block of a Uni-Telway Bus **TSX SCA 50**. Its length is 10m.

Wiring:

Free end of the cable	**TSX SCA 50**	
Color	**Terminal number**	**Signal**
Black	5	D(B)
Brown	4	D(A)
Red	-	-
Orange	-	-
Yellow	-	-
Green	-	-
Blue	2 and 3	0 V
White	-	-
Shield covering	1	Earth

RJ45 Lead to TSX SCA 50

This lead has the reference number **VW3A8306D30**.

It is also possible to make one using an **uncrossed Ethernet cat 5 (TIA 568A/ TIA568A) lead with 4 twisted shield pairs**.

You should cut one end and expose the conductors for wiring on the TSX SCA 50.

Wiring:

RJ45		**TSX SCA 50**	
No.	**Color**	**Terminal number**	**Signal**
1	White/Green	-	-
2	Green	-	-
3	White/Orange	-	-
4	Blue	5	D(B)
5	White/Blue	4	D(A)
6	Orange	-	-
7	White/Brown	-	-
8	Brown	2 and 3	0 V
Shield	Shield covering	-	-

RJ45 Lead to TSX SCA 62

This lead has the reference number **VW3A8306**.

It is also possible to make one using an **uncrossed Ethernet cat 5 (TIA 568A/ TIA568A) lead with 4 twisted shield pairs**.

You should cut one end and link it to a Sub D 15 pin female connector.

Wiring:

RJ45		**Sub D 15 pin**	
No.	**Color**	**No.**	**Signal**
1	White/Green	-	-
2	Green	-	-
3	White/Orange	-	-
4	Blue	14	D(B)
5	White/Blue	7	D(A)
6	Orange	-	-
7	White/Brown	-	-
8	Brown	8	0 V
Shield	Shield covering	Shield	-

Ethernet Connection Leads

For connection to the Ethernet network, the use of cables with the following connectors **RJ 45 (interface 10/100baseT) with pairs of 100 Ω, STP type (shield twisted pair) twisted shields** or category 5 Ethernet cables which conform to the TIA/EIA-568A standard is recommended.

RS232 Lead to PC

This lead is a standard lead available on the market. It is a DTE/DTE type crossed lead. It is also called "Nullmodem" by some suppliers.

Example of possible supply: EYN257H-0006-FF reference from Black Box.

Connectors: 9-way SUB-D female with a UNC-4-40-2B screw.

Shielded cable.

Wiring:

9-pin SUB-D female			**9-pin SUB-D female**		
2	RD		3	TD	
3	TD		2	RD	
4	DTR		6 and 1	DSR + CD	
5	GND		5	GND	
6 and 1	DSR + CD		4	DTR	
7	RTS		8	CTS	
8	CTS		7	RTS	
9	NC		9	NC	
Body	-	Shield covering	Body	-	Shield covering

Note: the DSR and CD signals are linked to simulate an on-line situation for the application (see the following site for more information: http://www.shadownet.com/hwb/ca_nullmodem9to9.htm).

6.4 Diagnostics

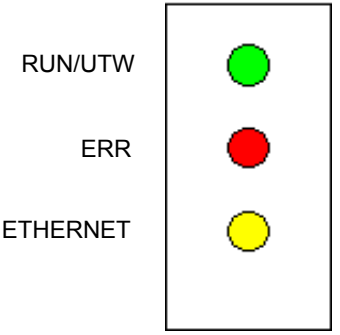
LED Indicators

At a Glance

On the front panel of the module there are three LED indicators used for performing diagnostics on the TSX ETG 1010 module.

Diagnostics

Illustration of the LEDs:



Meaning of the LEDs:

Module status	RUN	ERR	Comments
Power on	ON	ON	Transient state
Self-test in progress	Flashing	Flashing	-
Module hardware fault	OFF	ON	Replace the module
Configuration error Invalid IP address or connection to Master PLC lost or difference in Uni-Telway speed between the Master and the TSX ETG 1010	OFF	Flashing	HTTP server can still be accessed.
RJ45 Ethernet not connected to the module	OFF	3 LEDs	-
TSX ETG 1010 BOOTP or DHCP(FDR) client: The module is configured in auto-configuration mode and is awaiting a response from the server.	OFF	Flashes 5 times	Waiting time: approx. 5 minutes
TSX ETG 1010 BOOTP or DHCP(FDR) client: No response from server	ON	Flashes 6 times	Downgraded mode: the module uses its default configuration
Operating	ON	OFF	-

The ETHERNET LED flashes according to the Ethernet communication speed and the RUN/UTW LED flashes according to the Uni-Telway communication speed.

6.5 Electrical Characteristics

Electrical Characteristics

General

The TSX ETG is a standalone module requiring a 24 VDC power supply.

Characteristics

Table of electrical characteristics:

Parameter	Minimum	Nominal	Maximum
Supply voltage	19.2 VCC	24 VCC	30 VCC
Ripple factor	-	-	5%
Permissible overvoltage (for 1 hour and per 24 hours)	-	-	34 VCC
Current consumption	50 mA	100 mA	200 mA
Power loss (without consumption via terminal port)	-	2.4 W	4 W
Length of invisible power outage	-	-	1 ms

Note: The power supply input is protected against accidental polarity inversions.

6.6 Performance

Module Performance

Data

The two tables below show the speed performance of the TSX ETG 1010. The first table shows the request response time results for the master and slave based on the Uni-Telway speed setting and the request length. In the second table, eight alarms continuously scanned at 1 s intervals are added to the configuration.

Performance (with no alarms)

Table showing performance with 12 addresses on the Uni-Telway network (including ETG module) without messaging:

Average response time in ms	**Master addressing**		**Slave addressing**	
Length of (mirror) request in words	**9600 bds**	**19200 bds**	**9600 bds**	**19200 bds**
2	140 ms	65 ms	275 ms	140 ms
4	150 ms	70 ms	295 ms	160 ms
8	165 ms	80 ms	335 ms	175 ms
16	205 ms	95 ms	400 ms	210 ms
32	275 ms	135 ms	555 ms	285 ms
64	415 ms	210 ms	830 ms	435 ms

Performance (with 8 alarms)

Table showing performance with 12 addresses on the Uni-Telway network (including ETG module) without messaging and with 8 alarms scanned every second:

Average response time in ms	Master addressing		Slave addressing	
Length of (mirror) request in words	**9600 bds**	**19200 bds**	**9600 bds**	**19200 bds**
2	215 ms	85 ms	385 ms	190 ms
4	225 ms	90 ms	415 ms	200 ms
8	250 ms	105 ms	455 ms	215 ms
16	300 ms	130 ms	525 ms	255 ms
32	385 ms	170 ms	665 ms	345 ms
64	555 ms	250 ms	1000 ms	500 ms

With a specific address for the alarms:

Average response time in ms	Master addressing		Slave addressing	
Length of (mirror) request in words	**9600 bds**	**19200 bds**	**9600 bds**	**19200 bds**
2	160 ms	75 ms	320 ms	160 ms
4	175 ms	80 ms	345 ms	175 ms
8	190 ms	90 ms	385 ms	195 ms
16	245 ms	110 ms	455 ms	230 ms
32	320 ms	145 ms	590 ms	310 ms
64	475 ms	240 ms	910 ms	455 ms

6.7 Standards

Standards

Compliance with Standards

The TSX ETG module complies with the following standards:

- ISO/IEC 8802-3,
- ANSI/IEEE Std 802.3-2002,
- UL 508,
- IEC/EN 61131-2,
- CSA C22.2 No. 142,
- compliance with EN55011 Class A for radiated emissions,
- CE marking
- marine classification by the principal European bodies: BV, DNV, GL, LROS, RINA.

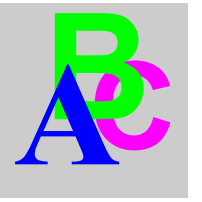
6.8 Conditions of Use

Conditions of Use

Applicable Conditions

- **Conditions of use:**
  - temperature: 0 to +60°C,
  - relative humidity: 10 to 95% (without condensation),
  - altitude: 0 to 2000m,
  - vibration resistance: compliant with IEC 68-2-6 test Fc,
  - impact resistance: compliant with IEC 68-2-27 test Ea,
  - resistance to dropping, in packaging: compliant with IEC/EN 61131-2.
- **Storage conditions:**
  - temperature: -25 to +70°C,
  - relative humidity: 5 to 95% (without condensation).

Index



H

J

M

P

S

T

U

V