Web Designer

TSX ETG 3000 Product Range

User Manual

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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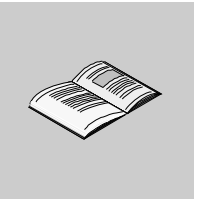

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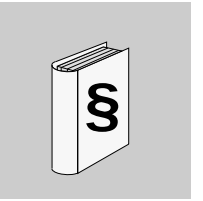
Safety Information



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 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 or serious injury.

⚠ CAUTION

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

NOTICE

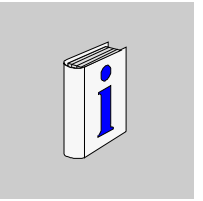
NOTICE is used to address practices not related to physical injury.

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.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book



At a Glance

Document Scope

This manual presents the Web Designer forTSX ETG 30•• software and describes the installation and operation.

NOTE: In this manual, the term 'Web Designer' will be used for 'Web Designer for TSX ETG 30••'.

Validity Note

This documentation applies to Web Designer software.

Related Documents

Title of Documentation	Reference Number
FactoryCast HMI Gateway TSX ETG 3000 Product Range User Manual	35014556 (Eng) 35014557 (Fre)
Communications Setup Manual	TLX DS COMPL7 V4
Ethernet Network - Reference Manual	TSX DR ETH
Modbus - User Guide	TSX DG MDB

You can download these technical publications and other technical information from our website at www.schneider-electric.com.

Product Related Information

All pertinent state, regional, and local regulations must be observed when installing and using this product. Only the manufacturer should perform repairs to this product to maintain system data.

When controllers are used for applications with technical requirements, please follow the relevant instructions.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Use only Schneider Electric software or approved software with our hardware products.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Anyone who has access to a configuration tool and 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.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Restrict access to the embedded server by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

User Comments

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

Introduction

1

Scope of this Chapter

This chapter introduces Web Designer for TSX ETG 30•• and its new features. It shows you how to install it and finally it also provides a description of the graphical interface.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Presentation	12
Preparing for Web Designer installation	15
Interface Presentation	16

Presentation

Introduction

Web Designer is a state-of-the-art software application with which you can create operator panels and configure Web based operating parameters for Web human machine interface (Web HMI) devices. It provides all the tools needed to design an HMI project, from the data acquisition to the creation and display of animated Web drawings.

Web Designer handles the following for the device website:
- editing,
- configuration,
- modification.

Web Designer offers two levels of personalization:
- the creation of a devices variable base that can be viewed and modified in Web pages,
- the addition of your own Web pages on the device site.

Web Designer provides an interface to configure services:

Name	Description
E-mail	It sends notification periodically or when a specific event occurs.
Calculation	It performs arithmetic and logical operations on a combination of variables.
Database	It archives internal or processed data into a database.
Active Pages	It enables you to create your own HTML pages that can be used to view variables in real time.
Datalogging	It enables you to save information such as configuration, variable values, log files into a file system.
Recipe	Used to change the values of a set of variables when a predefined event occurs.
Recipe Database	Used to update values of a set of variables with values contained in a database table when a predefined event occurs.

Devices

In the Schneider Electric product range, Web Designer unites website configuration with services carried out in the coupling unit or device. A Web Designer project can simultaneously manage several devices.

The following list indicates FactoryCast Gateway devices managed by Web Designer. This list includes:

- TSX ETG 3000 v1.11
- TSX ETG 3010 v1.11
- TSX ETG 3021 v1.11

- TSX ETG 3022 v1.11
- TSX ETG 3000 v1.50
- TSX ETG 3010 v1.50
- TSX ETG 3021 v1.50
- TSX ETG 3022 v1.50

Compatibility between Web Designer Target Version and TSX ETG 30•• Firmware

The version of the firmware available in the TSX ETG 30•• module is identical to the version of the target used in the Web Designer project.

An upgrade function is available in Web Designer via the menu:

Target →Upgrade Target version

This function upgrades only the Web Designer application to the latest version. If necessary, upgrade the firmware of the TSX ETG 30••.

TSX ETG 30•• configurable parameters with Web Designer

Web Designer also enables you to configure TSX ETG 30•• parameters for:

- IP *(Internet Protocol)*
- DNS *(Domain Name System)*
- modem
- NTP *(Network Time Protocol)*
- Modbus
- SNMP *(Simple Network Management Protocol)*
- NAT *(Network Address Translation)*
- VPN *(Virtual Private Network)*
- UnitID *(Modbus UnitID Routing)*
- StandBy *(Modem StandBy)*

Simulation

Web Designer lets you simulate devices to debug the application. This means you can verify the behavior of Web pages and services without being physically connected to the device or to the module.

Required configuration

To use Web Designer at an optimal level, we recommend that your PC has the following minimum configuration:

- CPU 1GHz
- 512 Mb RAM
- 80 Mb free hard disk space
- 800x600 screen
- Windows 2000 SP2 or Windows XP Professional
- Java Virtual Machine 1.4.2 minimum

Preparing for Web Designer installation

Foreword

If a previous version of Web Designer is already installed, it must be uninstalled first (Web Designer enables you to perform the uninstall for you if this is the case).

NOTE: Once installed, you can access Web Designer by clicking **Start →All programs →Schneider Electric →Vijeo Designer Suite →Web Designer**.

Installation

The installation procedure is as follows: insert the CD-ROM into the CD drive. The CD is Auto-run, therefore if your PC is set up for this feature you should see the Web Designer main window. If Auto-run is disabled or does not work:

Step	Action
1	Click **Start →Settings →Control panel**.
2	Click **Add/Remove Programs** in the Control Panel.
3	Click **Add New Programs** in the menu on the left, then **CD-ROM** and follow the instructions.
4	The Install Tool will automatically find the WebDesigner.exe program on the CD and will also display the path and file name then prompt you to perform the installation.

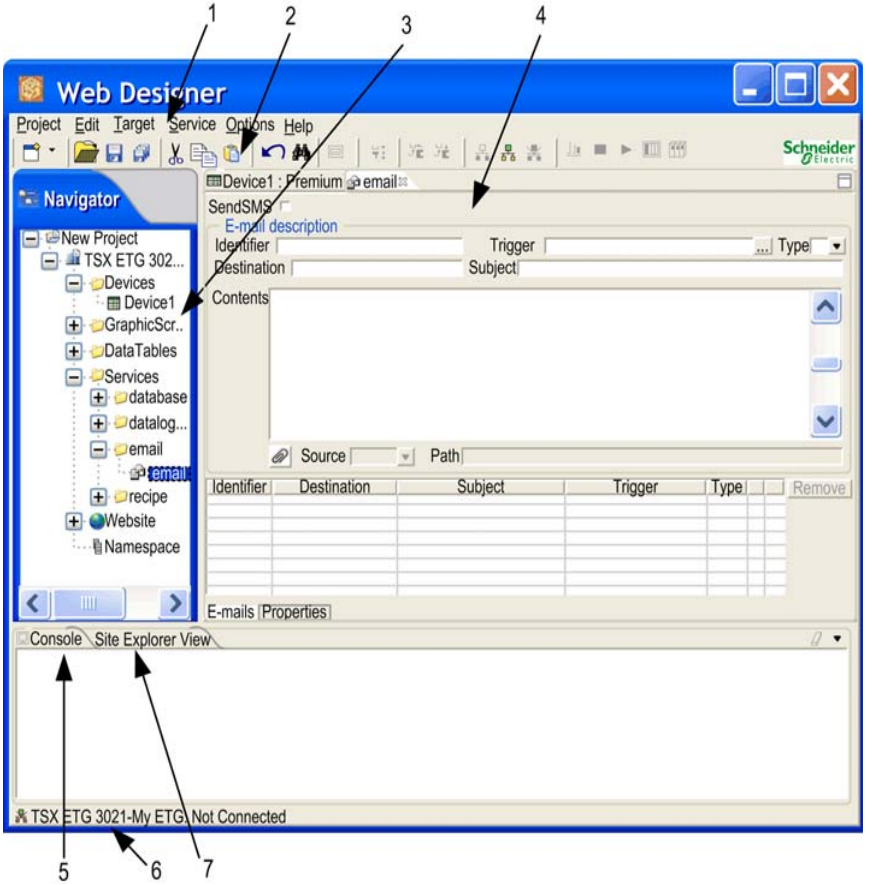
Importing Previous Projects

Previous projects are visible in the navigator once Web Designer is reinstalled.

Interface Presentation

Main Window Contents

The following illustration describes the elements of the Web Designer main window:



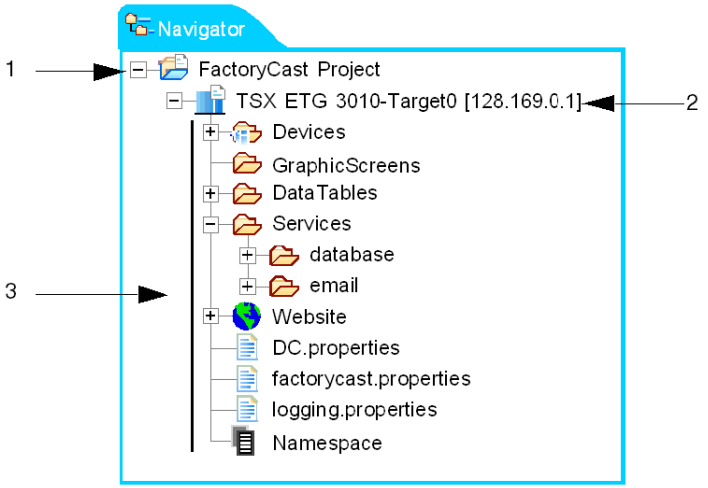
The main window is composed of six zones:

Zone	Description
1	Menus *(see page 292)*: Allows access to all available options.
2	*Toolbar*: shortcuts to frequently used functions.
3	Navigator *(see page 17)*: it displays all the files related to the projects.

Zone	Description
4	*Editing zone*: edit, create or configure services associated with the project in this zone.
5	*Console zone*: list of the last detected errors.
6	*Information zone*: it displays: ● the TSX ETG 30•• connection status, ● the media (USB, CF card, internal RAM) connection status, ● the available memory of the media.
7	*Site Explorer View*: it displays all the target files.

Navigator

This zone displays all the files and folders associated with an existing project. It provides an overall view of the application displayed as a file tree:



The navigator is composed of three zones:

Zone	Description
1	This zone displays the name of the project as the root directory. By clicking on the **+**, all the targets associated with the project appear.
2	This folder displays the name of the target associated with the project and its IP address. By clicking on the **+**, all the folders and files associated with the target appear.

Zone	Description
3	5 main directories are visible for each target associated with the project: ● **Device**: it displays the devices associated with the target. ● **GraphicScreens**: it contains pages created using the Graphic editor *(see page 203)*. ● **DataTables**: it contains tables created using the Data editor *(see page 192)*. ● **Service**: it displays the services created by the user (availability depending on the target). ● **Website**: it contains all the website files for the project. You can, therefore, customize the website *(see page 250)* by changing these files or by adding your own pages.

Toolbar

The toolbar enables you to access the main functions of the program directly by clicking its icons:

The following table describes the elements of the toolbar:

Icon	Function
	New: by clicking the down arrow, you can: ● create a new project ● add a target to the project ● add a device to the target ● create a new service ● create a folder ● create a file
	Open: opens an existing project.
	Save: saves the currently edited window.
	Save All: saves all items that have been modified.
	Cut: deletes the selected object and puts it on the clipboard.
	Copy: copies the selected object to the clipboard.

Icon	Function
	Paste: pastes the contents of the clipboard.
	Undo: cancels the last action.
	Find: opens the **Search** window to search for text located in a file of the project.
	Lookup: opens the **Lookup** window to search a variable.
	Global Transfer: downloads all project modules (and all files).
	Target -> PC: transfers a project from the target to the PC.
	PC -> Target: transfers a project from the PC to the target.
	Connection to the module: connects the Web Designer to the target.
	Connection to the local simulator: connects the Web Designer to the simulator.
	Disconnect: disconnects from the target or the simulator.
	Statistics: displays statistics for the selected service (incoming messages, outgoing messages, etc.).
	Stop: shut down the current service.
	Run: starts the current service.

Icon	Function
	Operator screens: displays the operator screens. **NOTE:** The menu is available with FactoryCast HMI modules only.
	PLC Program Viewer: displays the PLC program viewer. **NOTE:** The menu is available with FactoryCast HMI modules only.

Getting Started

2

Scope of this Chapter

The purpose of this chapter is to show you the procedure for creating a Web Designer application.

What's in this Chapter?

This chapter contains the following topics:

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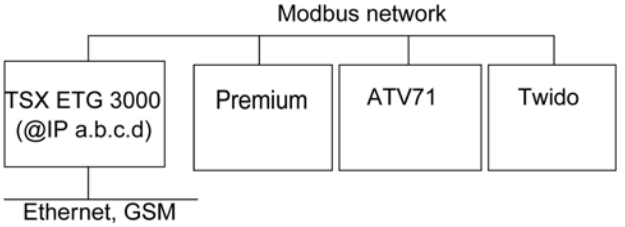
Presentation

Introduction

This section covers from project creation to visualizing it on a PC with a browser. The project contains a TSX ETG 3000 gateway and three modbus devices connected to the gateway as shown in the diagram below. The Web server will be hosted by a TSX ETG 3000 module, which will periodically scan the values of variables located in various devices. The IP address for the module will be a.b.c.d.

Architecture

The following diagram shows the architecture of the example:



The following table describes the elements of the example:

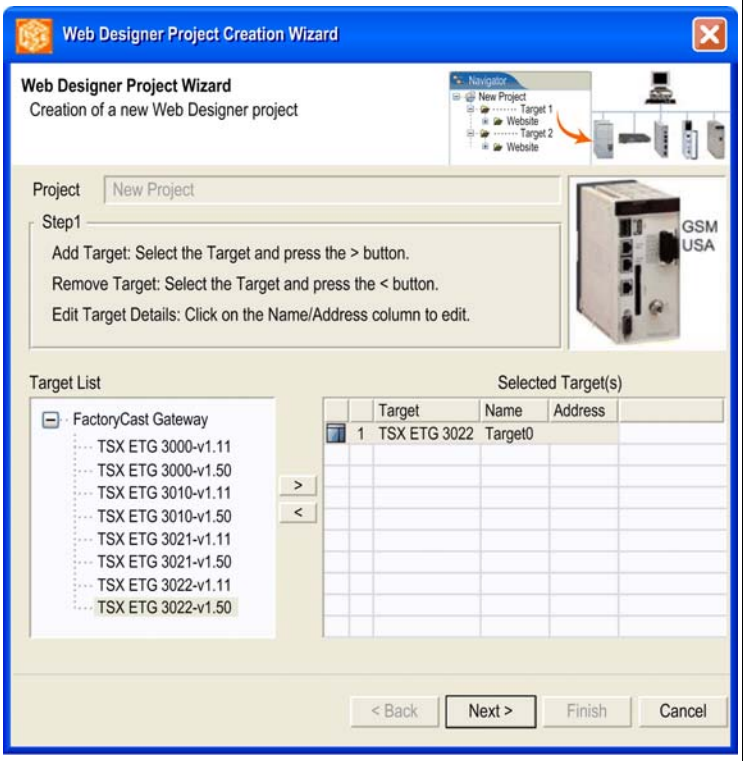
Reference	Type	Description
TSX ETG 3000	Target	Gateway
Premium	Device	PLC
ATV71	Device	Motor controller
Twido	Device	PLC

Creating a Project

Introduction

The following procedure shows you how to create a new project using a TSX ETG 3000 module.

Creating a Project

Step	Action
1	To create a new project, click **Project** →**New** →**Project**. **Result**: the Web Designer Project Creation Wizard window appears. 
2	Enter the project name (example) in the Project field.
3	In the target box, scroll over the drop down menu of the FactoryCast Gateway and select the Gateway you require (for example, TSX ETG 3000 v1.0) and click the > button. **Result**: the selected gateway appears in the Selected Target(s) table on the right.

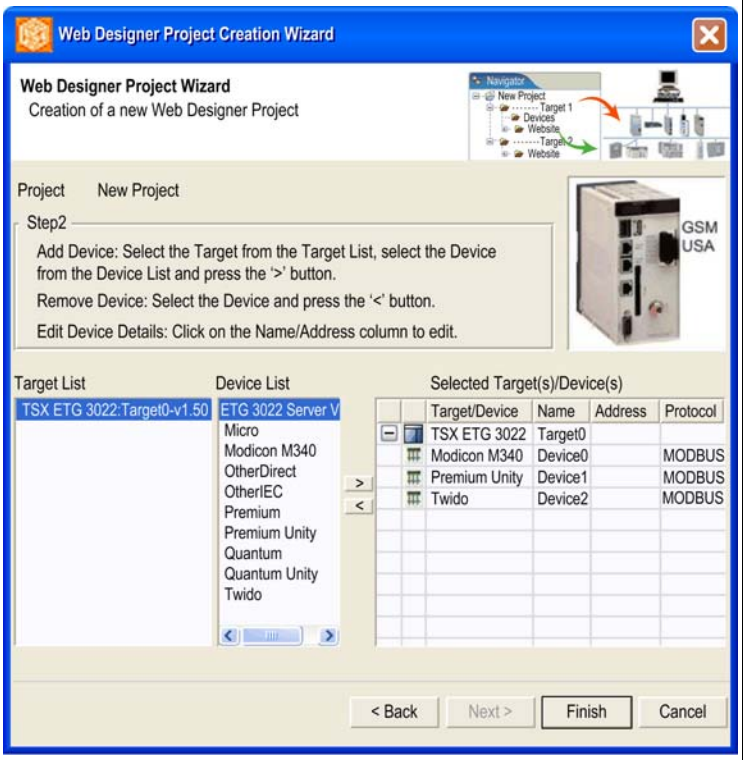
Step	Action
4	Enter the Name of the target (for example, ETG) in the Selected Target(s) box.
5	Enter the IP Address (for example, a.b.c.d) in the Selected Target(s) box. For more information about IP addressing, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.
6	Repeat steps 3 to 5 if you want to select more than one target.
7	Click **Next**. **Result**: The second window of the Web Designer Project Creation Wizard appears.

Device Selection

Introduction

For each target you can configure the devices that are connected to it. For a gateway such as TSX ETG 3000, the devices are connected by modbus or Ethernet.

Selecting Devices

Step	Action
1	Select a device in the Device List box or select OtherDirect for devices not listed (e.g. ATV71) and click the > button. **Result**: the device appears in Selected Target(s) Device(s). 
2	In the selected Target(s)/Device(s) zone, enter the device name in the Name column and its address in the Address column. For more information about addressing refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

Step	Action
3	If the device supports several protocols, enter the desired protocol in the Protocol column.
4	If you want to attach more than one target, repeat steps 1 to 4 until you have selected all devices required.
5	Click **End**. **Result**: the ‘example’ project appears in the browser.
6	Save your project by clicking:

Target Properties

Introduction

Target properties allow you to:

- change the name of the target and its address,
- change the various passwords *(see page 284)* to access the device,
- configure TSX ETG 30•• modules with Web Designer. It is possible to configure the IP, modbus, modem, phone, DNS, NTP and SNMP parameters of the device (only the IP configuration is mandatory).

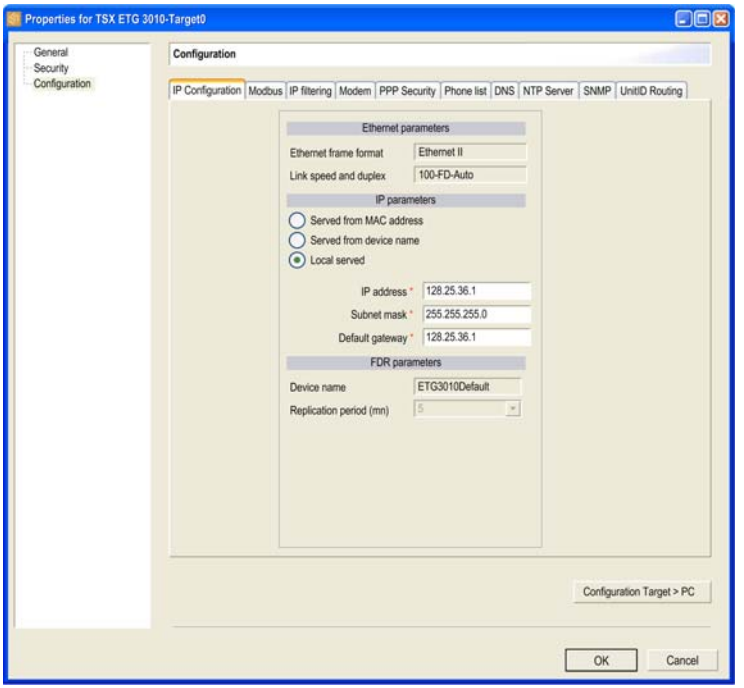
This example shows you how to manually configure the IP parameters for a TSX ETG 3000.

Accessing the Target Properties Page

You can access the Target Properties page in two ways:

- On the Web Designer browser, right-click the device name and then click **Properties**.
- On the **Target** menu, click **Properties**.

Result: The Target Properties window appears.



Setting Up the IP Parameters

⚠ WARNING

UNINTENDED OPERATION — DUPLICATE IP ADDRESS

- Make sure that this device receives a unique IP address.
- Always obtain your IP addresses from your system administrator to avoid the possibility of duplicate addresses.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: In this example, we manually assign the a.b.c.d address to the module and no subnet mask or default gateway is required. This address is given as an example. For details about managing IP addresses, see "*TCP/IP Messaging*" in the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

The following procedure manually configures the TSX ETG 3000 module, using the **IP parameters** area in the Target Properties window, to define its IP configuration:

Step	Action
1	Click the **Local Served** option to manually configure the IP address (this option is selected by default).
2	Enter the IP address for the TSX ETG 3000 in the **IP Address** field.
3	Click **OK** to validate.
4	Save the new configuration by clicking on:

Variable Selection

Introduction

The Select Symbol window lets you configure the variables for various devices that can be used in website pages.

All device variables used in a project are grouped in a file called **Namespace**. The Data Editors and Graphic Editors as well as the Services in a project use variables in this **Namespace**.

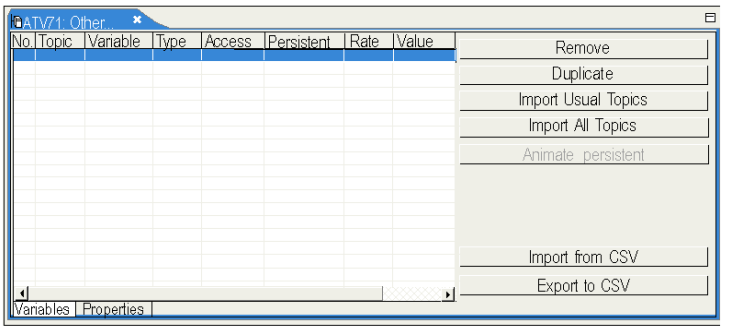
For devices that are not PLC type, the term **Topics** is used instead of symbol.

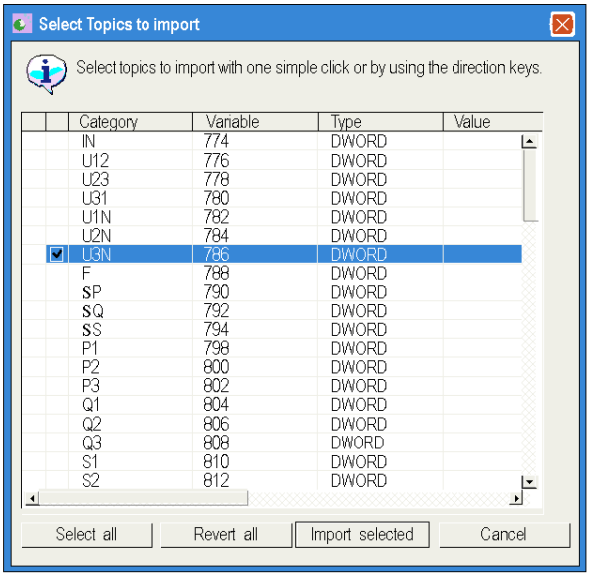
Types of Symbols

For PLC type devices, symbols that can be used come from the PLC application (file type: *.prj*, *.stu*, *.xef*, *.xvm*, etc).

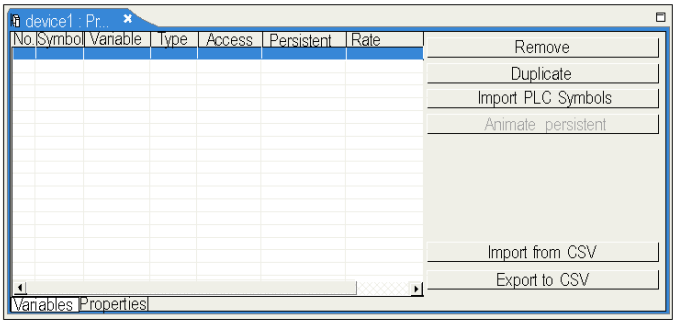
Predefined (usual) topics exist for all non-PLC devices.

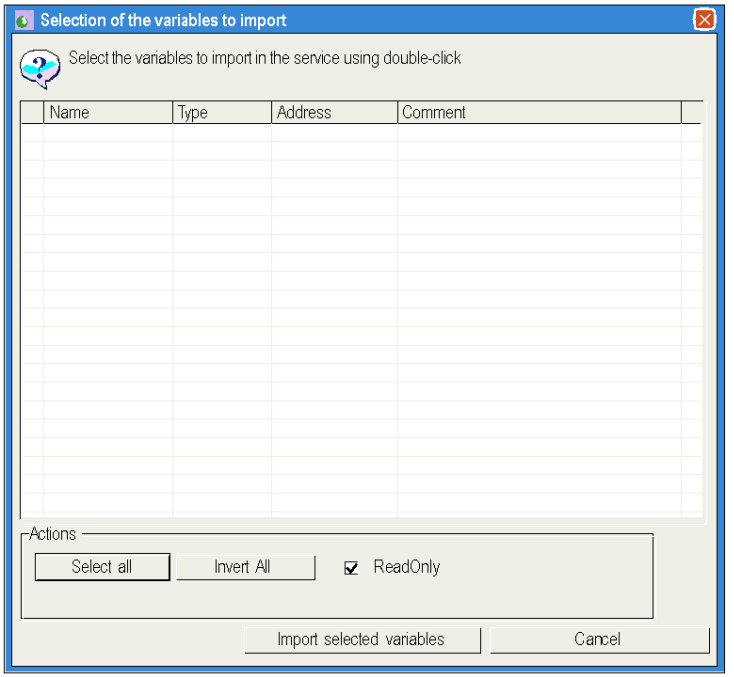
Importing Variables for non-PLC Device

Step	Action
1	In the browser, extend the menu tree in the example.
2	In the *Devices* directory, double-click the device name. **Result**: the panel for selecting categories appears. 

Step	Action
3	Click **Import Usual Topics**. **Result**: the Select Topics to import window appears. 
4	Select the topics you want to import by double clicking the 1st column.
5	Click **Import selected**.
6	Repeat steps 1 to 5 for each required device (except for Premium).
7	Save the project by using the menu **Project** →**Save all**.

Importing PLC Variables

Step	Action
1	In the browser, extend the menu tree in the example.
2	In the *Devices* directory, double-click a PLC type device (Premium Unity in our example). **Result**: the panel for selecting symbols appears. 
3	Click **Import PLC symbols**. **Result**: the Open window appears.
4	Select the (*.stu*) file where the application symbols are found.

Step	Action
5	Click **Open**. **Result**: the Selection of the Variables to Import window appears. 
6	Select the required symbols by double clicking the 1st column.
7	Click **Import selected variables**.
8	Save the project by using the menu **Project →Save all**.

Namespace

By clicking the Namespace file of the project in the browser, a table that groups all symbols previously selected for targets or devices appears.

Email Service

Introduction

The email service is used to send an email when an alarm is triggered, for example, when there is a change in the status of a variable or a threshold is overrun.

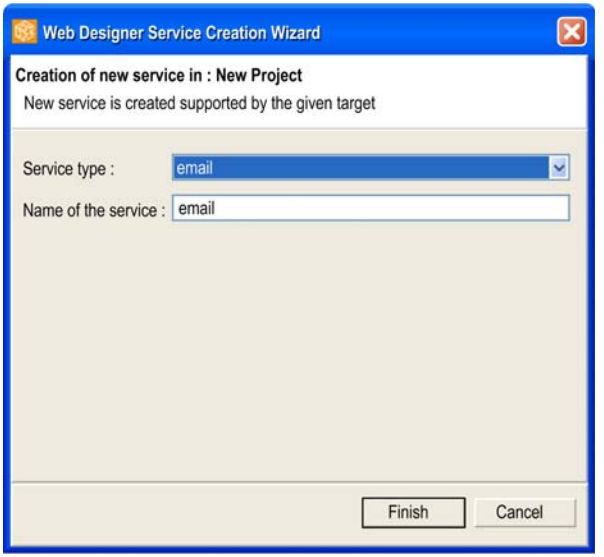
NOTE:

Web Designer for TSX ETG 30•• enables you to configure other Web HMI services such as:

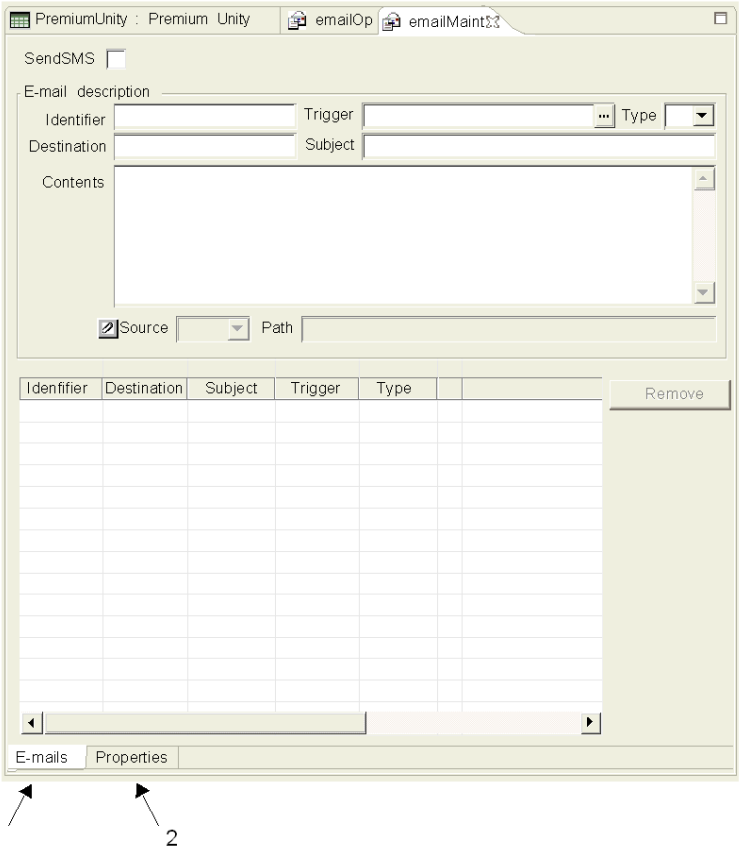
- Calculation
- Database
- Datalogging
- Active Pages
- Recipe
- Recipe Database

For more information on Services configuration refer to the Service chapter *(see page 133)*.

Creating an Email Service

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: • Click **Project →New →Service** or, • Right-click the **Services** directory in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **Email** in the **Service Type** list box.
4	Enter the service name, or click **Finish** to keep the name by default. **Result**: the Email Service configuration window appears.

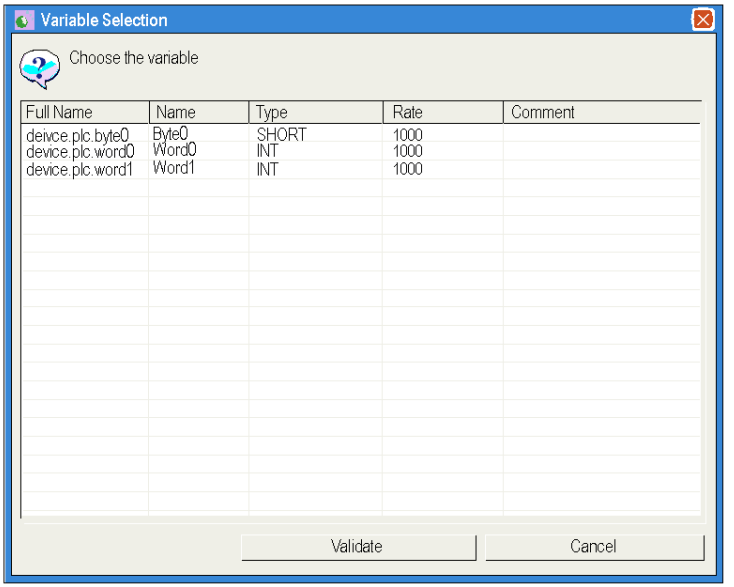
Email Configuration Window



1 This button is used to configure emails sent by the email service.
2 This button is used to configure email properties.

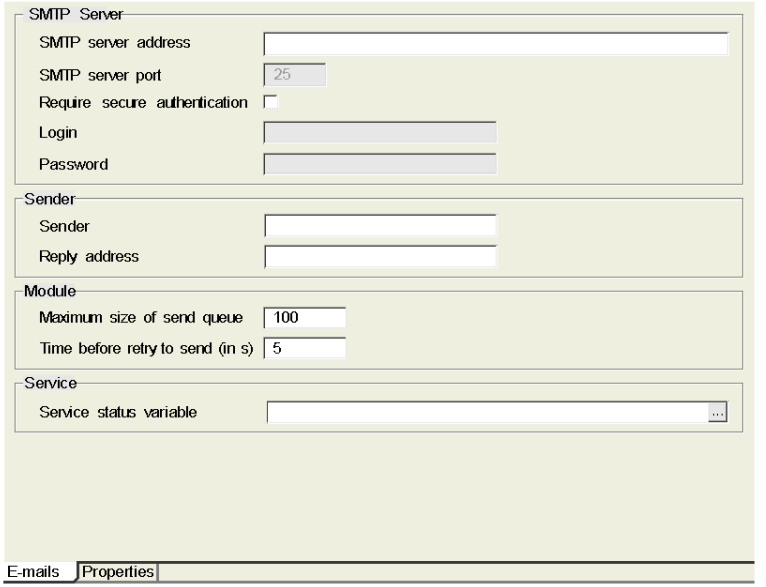
Sending an Email

First of all, you must create the email to be sent. It is almost the same procedure as writing a normal email except that you need to define a trigger event. The procedure below shows you the steps needed to create such an email:

Step	Action
1	Type a name for the email in the **Identifier** field.
2	Select the variable that will trigger the email by clicking: **Result**: the Variable Selection window appears. 
3	Select the variable that will trigger the email.
4	Click **Validate**.
5	Select the type of event that will trigger the email: • **NY (Notify)**: Triggered by bit status change or word value change. • **RE (Rising Edge)**: Triggered by a rising edge bit or by an increasing word value. • **FE (Falling Edge)**: Triggered by a falling edge bit or by a decreasing word value. • **BQ (Bad Quality)**: Triggered if the trigger status is Bad quality.
6	Type the email address of the recipient in the **Destination** field.
7	Type the subject of the email in the **Subject** field.

Step	Action
8	Type the body of the email in the **Content** field. **Result**: the email appears in the email table in the bottom of the screen.
9	You can attach a file to the email by clicking: In this case, you must specify where the file is located: Select the media in the **Source** list box. Files come either from the Flash memory, the internal RAM of the module, the CF card or the USB storage. Specify the file path of the file in the **Path** field.

Access Parameters

Step	Action
1	Click the **Properties** tab. **Result**: the email properties window appears. 
2	Type the address of the email (SMTP) server in the **SMTP Server Address** field. **Note**: the **SMTP Server Port** field is unavailable and thus cannot be modified.
3	Select the **Require Secure Authentication** box if access to the server is protected. In this case, fill in the **Login** and **Password** fields.
4	Type a **Sender Address** which will identify the module when the user receives the email.

Step	Action
5	Type a **Reply Address** to which a reply will be sent if the user clicks the **Reply** button.
6	Define the maximum number of emails that can be stored in the buffer memory before being sent by filling in the **Maximum Size of Send Queue** field: • Default value = 100, • Minimum value = 30, • Maximum value= 200.
7	Specify the delay before emails stored in the buffer memory are re-sent after failure in the **Time Before Retry to Send** field.
8	Finally, select a variable to determine the status of the email service in the **Service status variable** field.
9	Save the new email service by clicking:

Data Editor

Introduction

The Data Editor enables you to create Web pages in which the values of variables are displayed in table format. In certain cases these values can be modified by the user.

Allowing write access can change system behavior.

⚠ WARNING

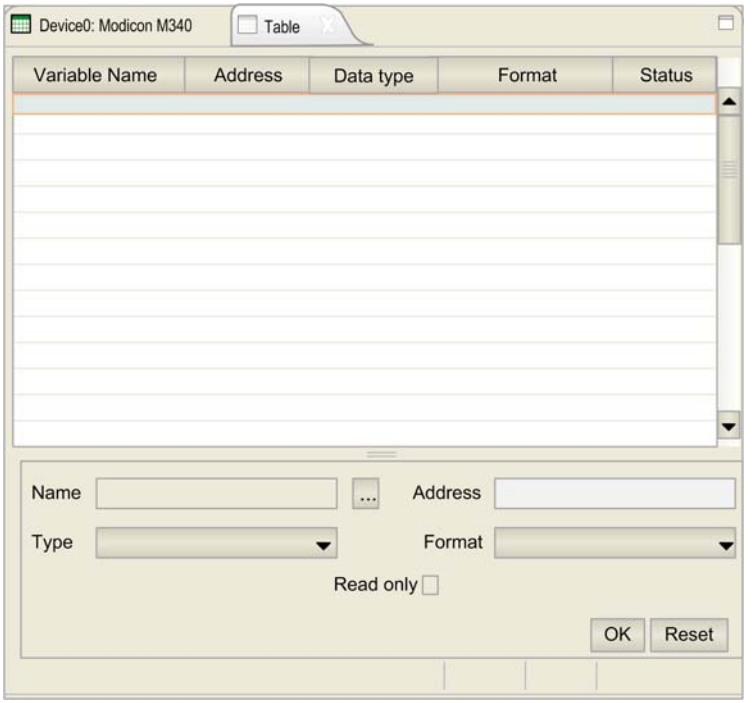
UNINTENDED OPERATION

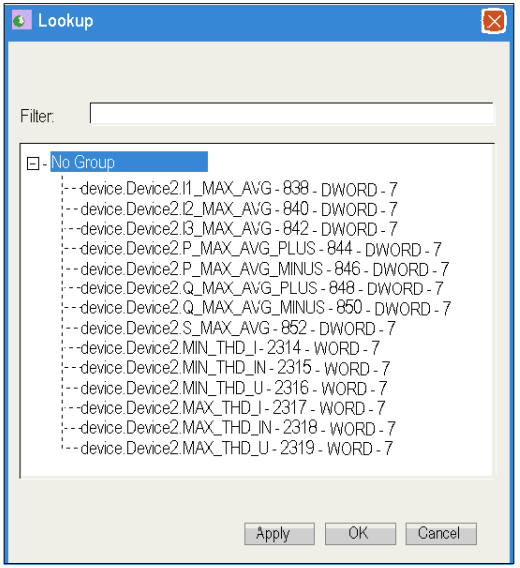
- Protect the access to writable variables by configuring passwords.
- Grant write access only to trained personnel.
- Do not grant write access to critical control variables.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Selecting Editor Symbols

Step	Action
1	In the browser, extend the menu tree in the example.
2	Right-click the *DataTables* directory to open the contextual menu and choose **New Table**.
3	In the Table Name field, enter a name for the data table.
4	Click **OK**. **Result**: An empty data table appears.

Step	Action
5	To access the configuration zone: • Double-click a line of the Table window, • Or right-click the Table window to open the contextual menu and choose **New**. **Result**: The configuration zone appears: 

Step	Action
6	Click , to obtain a list of available symbols. **Result**: The search panel for symbols appears.  **Note**: The list corresponds to the variables coming from the devices connected to the target.
7	Select the symbols that you wish to monitor.
8	Click **OK**.
9	Save your table by clicking:

Graphic Editor

Introduction

The Graphic Editor enables you to create Web pages in which the values of variables are displayed as graphic objects, such as VU meters, indicators, etc.

In the configuration phase, the Graphic Editor allows you to edit and view screens at the same time. In the operation phase, you can only visualize one screen at a time in order to optimize memory resources.

Some graphic objects allow values to be entered. In this case, the variable must be write authorized and, in order to be able to use it, the user must have entered the write authorization password.

Be aware, however, that if communication to the device linked to the graphic object is lost, the object becomes inoperative without the end device's knowledge.

⚠ WARNING

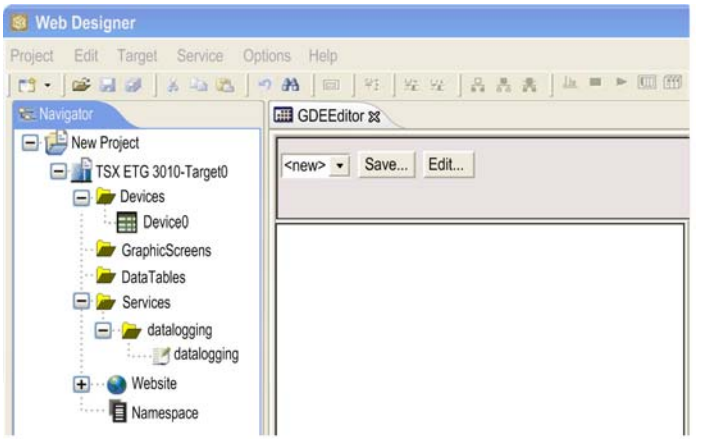
UNINTENDED EQUIPMENT OPERATION

Do not use graphic objects in situations where loss of communication to the module can affect human or material integrity. Graphic objects are not intended for use in critical machine functions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For example, say you have programmed a pushbutton object to jog a motor when the button is depressed and to stop jogging when the button is released. If communications are lost while the button is depressed, the motor will continue to jog even when the button is released. Graphic objects should not be used to control situations such as this unless other interlock precautions are installed in the system.

Selecting Graphic Objects

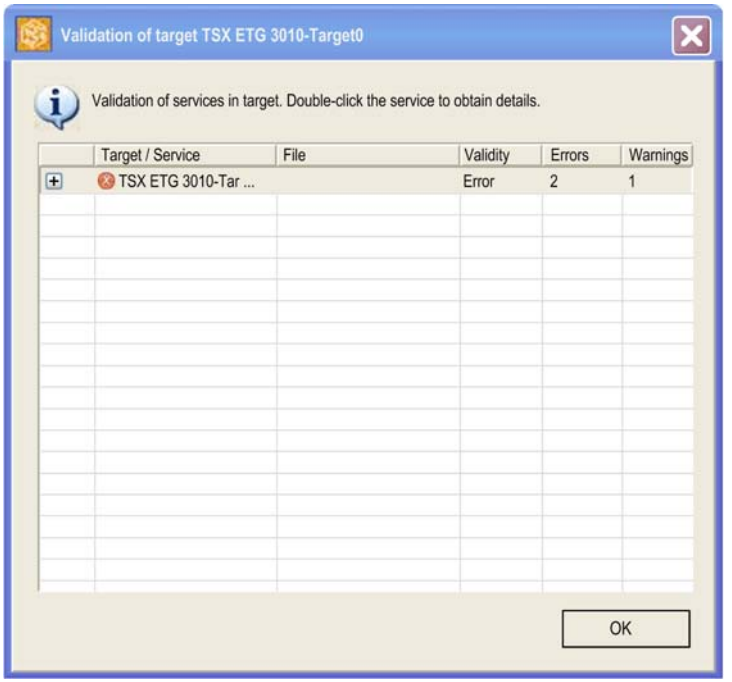
Step	Action
1	In the menu tree, select the target.
2	Right-click the *GraphicScreens* directory to open the contextual menu and choose **New Graphic Page**. **Result**: the Graphic Editor panel appears. 
3	Click **Edit**.
4	Select graphic objects from the band on top of the screen.
5	Click the sub-window under the main window to place them.
6	Open the Properties window by double-clicking on the graphic object.
7	You can specify a name, a label, the data type and many other parameters. Click on the right of the Address field to associate a variable with the object. **Result**: the Lookup Variables window appears.
8	Select the variable that you want to associate with the object.
9	Repeat steps 4 to 8 to add other objects.
10	Once you have finished, click **Done**.
11	Click **Save** and enter a name for the graphic (graph).

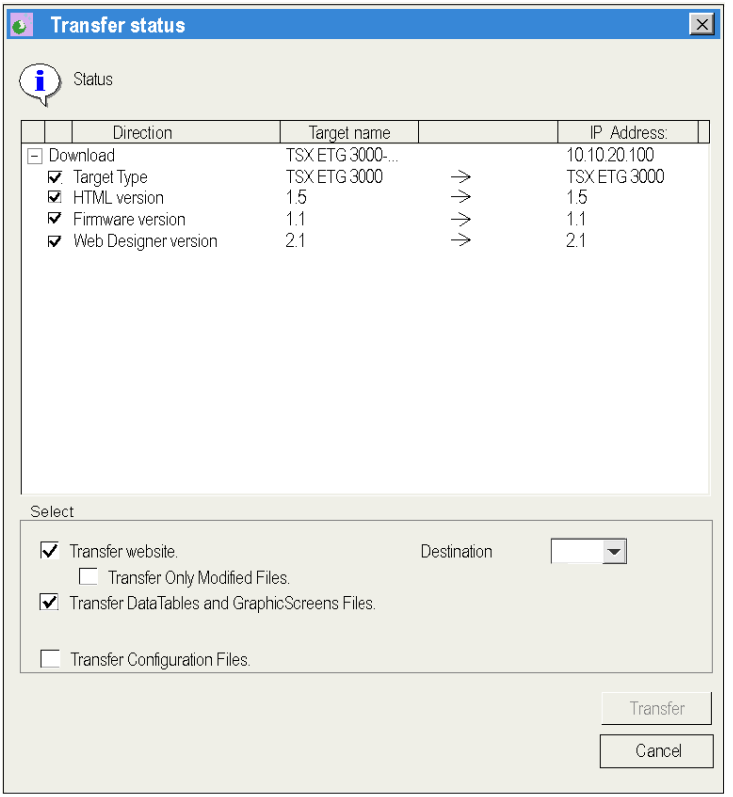
Transfer

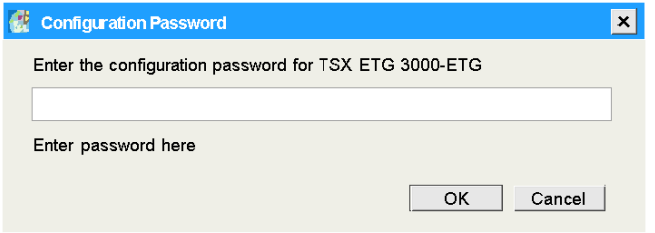
Introduction

Once you have completed the site construction on the configuration PC, you should transfer it to a target.

Transfer

Step	Action
1	Select TSX ETG 3000 in the menu tree.
2	Click **Target** →**Transfer** →**PC ->Target**. **Result**: the Target Validation window appears.  If there are anomalies in your project, the transfer cannot be performed *(see page 103)*.

Step	Action
3	Click **OK**. **Result**: the Transfer Status window appears.  **Note**: if there are differences between the firmware version of the project and the target, the transfer cannot be performed.

Step	Action
4	Click **Transfer**. **Result**: the Configuration Password window appears if a configuration password has already been set. Otherwise the project is transferred. 
5	Enter the configuration password and click **OK**. **Result**: the Progress Information window appears. The files are displayed one at a time in the Status Bar.

Accessing the Website

Introduction

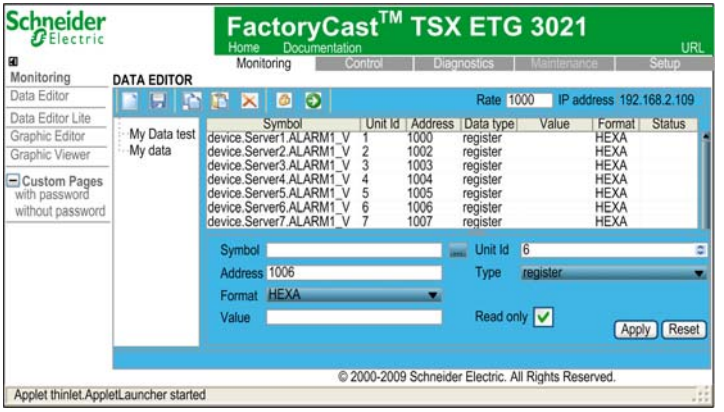
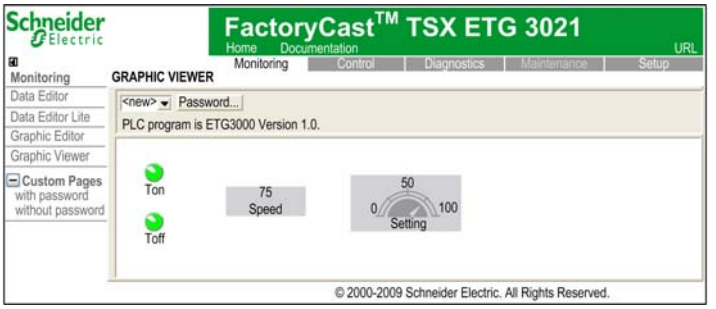
At this time, you have:

- created a project,
- selected the devices and the variables of your choice,
- created data and graphic table to monitor the installation,
- transferred your application from the PC to the target.

The last step consists of connecting to the website. The Data Editor and the Graphic Viewer are used to view graphic animation pages related to the device variables or internal module variables.

Accessing the Website

Step	Action
1	Open a Web browser.
2	Type the IP address of the module in the address bar. In this example, we set the IP address of the module to a.b.c.d *(see page 28)*. Therefore, type a.b.c.b in the address bar.
3	Click **Go**. **Result**: the module website appears.
4	Click **Monitoring** on the horizontal menu bar of the website. **Result**: the monitoring home page appears.

Step	Action
5	Click **Data Editor** on the vertical menu bar of the website to see the animation tables created with the **Data Editor**. Select the table created previously on the left side of the Data Editor applet and click to launch the animation. The following figure shows the Data Table: 
6	Click **Graphic Viewer** on the vertical menu bar of the website to see the animation pages created with the Graphic Editor. The following figure shows the graphics page: 

Project Management

3

Scope of this Chapter

This chapter explains how to manage a project. It concerns:

- Modifying a project,
- Opening and closing a project,
- Importing a project from a file.

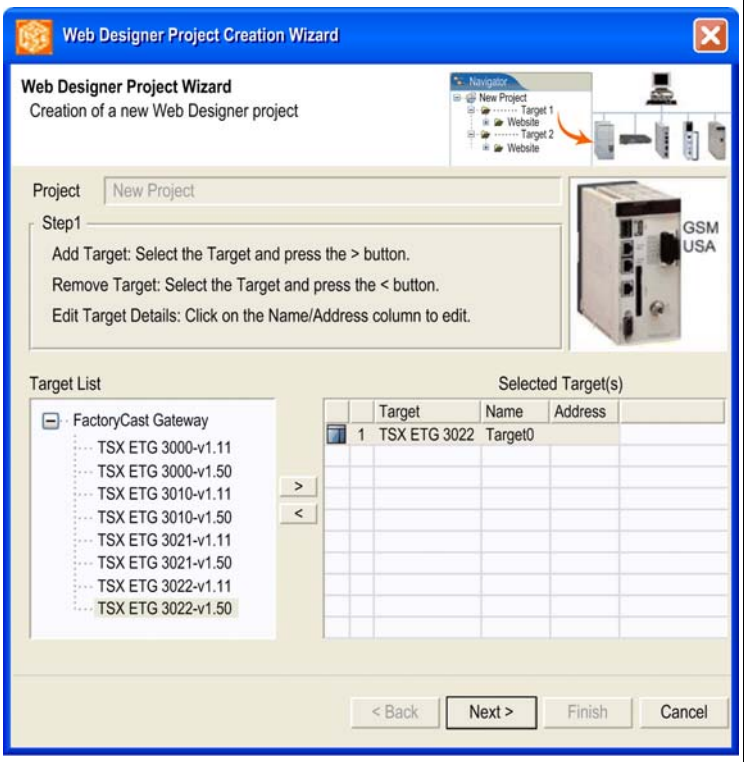
What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Adding/Removing Targets	50
Adding/Removing a Device	52
Adding/Removing Items	54
Opening/Closing a Project	56
Import	57
Upgrading the Target Version of a Project	59

Adding/Removing Targets

Adding a New Target

Step	Action
1	Select a project.
2	Click **Project** →**New** →**Target**. **Result**: the Web Designer Project Creation Wizard opens, initialized with targets that already exist in the project. 
3	In the **Target List**, select the targets to add.
4	Click [>]. **Result**: the new target appears in the Selected Target(s) list.
5	Type a name and an address for that target.
6	Click **Next**. **Result**: the device selection wizard *(see page 52)* appears.

Elements of the Wizard Page

Field	Function
Project	Project name.
Target List	List of available targets.
Target	Target types selected in the Module List.
Name	Target Name, to distinguish targets of the same type.
Address	IP address of the target.

The button **>** enables you to add one of the targets in the list. The button **<** enables you to remove a target in the list.

Deleting a Target

To remove a target from the project, right-click the target in the navigator to open the contextual menu and select **Delete**.

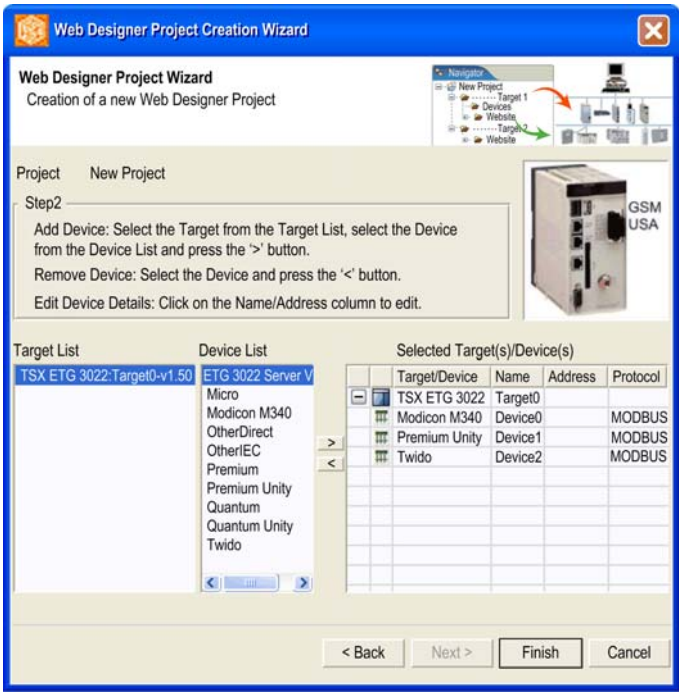
NOTE: If you delete a target of the project, all the files associated with that target (including devices) are also deleted.

Number of Targets

A project can contain up to 16 targets. It's possible to select the same type of target several times, on condition that you attribute a different name and IP Address for each target.

Adding/Removing a Device

Adding a Device

Step	Action
1	Select the *Devices* directory of your project.
2	Click **Project** →**New** →**Device**, or Right-click the *Devices* directory and then click **New Device**. **Result**: Web Designer Project Creation Wizard window appears, initialized with devices that already exist in the project. 
3	Select the devices to add in the Device List field and validate with the button **>**.
4	Type a name and an address for that device.
5	Click **Finish** to validate the project targets and devices.

NOTE: If you have more than one target in your project, select the target in the Target List to which you want to attach the device before achieving step 3.

Elements of the Wizard Page

Field	Function
Target List	List of targets created in the previous panel.
Device List	List of available devices.
Selected Target(s)/Device(s)	Device selected (from the Device List).
Name	Name given to the device to distinguish it from other devices of the same type.
Address	Address of the target.
Protocol	Protocol supported by the device (the Protocol List is determined by the type of device).

Deleting a Device

To remove a device from the project, right-click the device in the navigator to open the contextual menu and select **Delete**.

NOTE: When you delete a device, all variables relating to the Namespace of the device are also deleted.

Device selection

The maximum number of selectable devices for a target depends on the type of target. Each target must have at least one device.

The maximum number of devices over Serial line is 32.

The maximum number of devices over Ethernet is 5.

"Other"device type

In gateway modules, there is a device called Other at the end of the Device List. You must enter the symbols for that device manually or via a *.csv* file. The syntax for entering the address follows the IEC standard.

Module Device

For a target in a rack, or where the device is the target, you can indicate this by selecting the localhost address.

Protocol

You can associate one or several protocols with each device. When a device supports several protocols, the protocol column is active and the user can choose one from the list. The address in the previous column depends on the protocol selected.

Adding/Removing Items

Presentation

The following pages show how to add elements of the following type to the project:

- Data Tables,
- Graphic Pages,
- Services,
- Folders,
- Files.

Adding a Graphics Page

The following table shows how to add a graphics page:

Step	Action
1	Select the project.
2	Select the sub-directory *GraphicScreens* in the target directory.
3	Click **Project** →**New** →**Graphic**, or Right-click the *GraphicScreens* directory and click **New Graphic Page**. **Result**: The Graphic Editor opens with a blank page to edit.

Adding a Data Table

The following table shows how to add a Data table:

Step	Action
1	Select the project.
2	Select the sub-directory *DataTables* in the target directory.
3	Click **Project** →**New** →**Data**, or Right-click the *DataTables* directory and click **New Table**. **Result**: The Data Editor opens with a blank table.

Adding a Service

The following table shows how to add a service:

Step	
1	Select the target.
2	Click **Project** →**New** →**Service**, or Right-click the *Service* directory and click **New Service**. **Result**: A window opens with a list of services that can be created.
3	Select the desired service from the list.
4	Click **OK**. **Result**: The Service window opens.

Adding a Folder

The following table shows how to add a folder:

Step	Action
1	Select one of the *Website* folders or *Website* itself.
2	Click **Project** →**New** →**Folder**, or Right-click the *Website* directory and click **New** →**Folder**. **Result**: The Create a Folder window opens.

NOTE: you cannot create new folders outside of the *Website* menu tree.

Adding a File

The following table shows how to add a file:

Step	Action
1	Select one of the *Website* folders or *Website* itself.
2	Click **Project** →**New** →**File**, or Right-click the *Website* directory and click **New** →**File**. **Result**: The Create a File window opens.

NOTE: You cannot create new files outside the *Website* menu tree.

Removing Items

To remove an item from the project, right-click the item in the navigator to open the contextual menu and select **Delete**.

Opening/Closing a Project

Presentation

This section shows how to:

- open/close a project,
- save a project,
- close Web Designer.

Opening an Existing Project

Step	Action
1	Click **Project →Open Project**. **Result**: the Open Project window opens. This window displays the list of projects in the workspace.
2	Select a project.
3	Click **Open**. **Result**: the project appears in the menu tree.

Closing a Project

Step	Action
1	Select the project.
2	Click **Project →Close Project**. **Result**: the project disappears from the menu tree.

Saving all Modifications

To save all modifications made in Web Designer, select Save All in the project menu or click the save all icon in the Web Designer tool bar. This operation saves all modifications made in open windows. These modifications cover all open projects.

Closing Web Designer

When you close Web Designer, it memorizes the open or close state of projects. Projects that are open when you close Web Designer will automatically reopen the next time you launch it.

Import

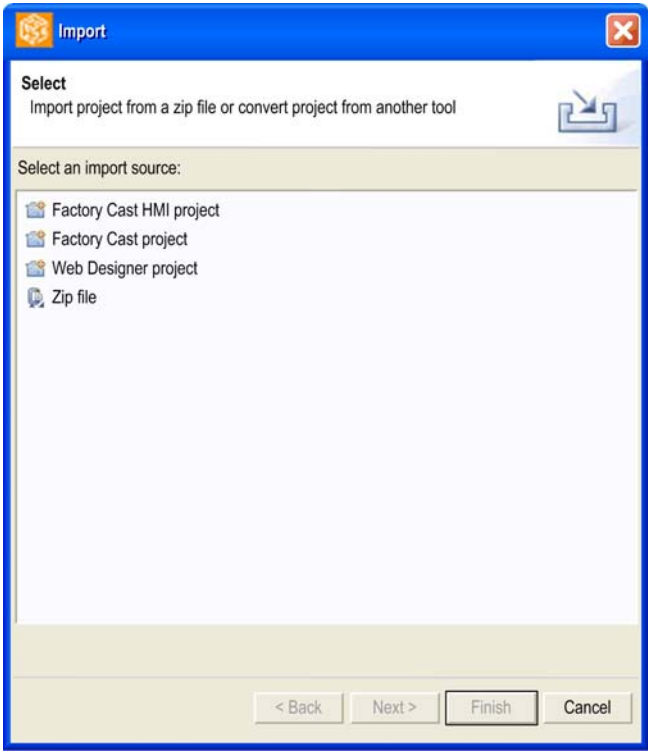
List of sources

Web Designer can import a project from the following sources:

- a *.zip* file exported by Web Designer,
- a Web Designer project outside the Workspace,
- a FactoryCast or FactoryCast HMI project.

Importing a Project

To import a project, click **Project** →**Import**.



Once imported, the project appears in the menu tree.

FactoryCast

The *.cfg* files used for importing a FactoryCast project do not describe the type of module used. Web Designer therefore gives you a list of available modules.

Exporting a Project

To export a project as a *.zip* file, click **Project** →**Export**. This function is useful for saving a complete project before modifying it. The project stays open after being exported.

Upgrading the Target Version of a Project

Presentation

The Upgrade Target Version function enables you to easily upgrade your target from its current version to the latest version available. It updates the website, services and monitoring features remain identical.

NOTE:

- The Upgrade Target Version is only available if a more recent version of your target exists.
- Once upgraded to the last version, the target cannot go back to a prior version

Upgrading Target Version

Step	Action
1	Select the target you want to upgrade in the navigator.
2	Click **Target →Upgrade Target Version**. **Result:** the Confirm Update dialog box appears.
3	Click **OK**. **Result:** the Progress Information window appears.
4	Once the upgrade is finished, the Progress Information window disappears and the Upgrading Successful dialog box appears. Click **OK**.

Target Properties

4

Scope of this Chapter

For the TSX ETG 30•• product range, Web Designer provides an interface allowing you to completely setup the modules.

This chapter describes the configuration of TSX ETG 30•• modules using Web Designer.

NOTE: For more information on configuring the module, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range User Manual*.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Configuring the Module	62
IP Configuration Tab	64
DNS Tab	67
IP Filtering Tab	68
Modem Tab	71
NTP Tab	76
Phone List Tab	78
Modbus Configuration Tab	80
SNMP Tab	82
PPP Security Tab: VPN and IP Control Configuration Page	84
NAT Configuration Tab	87
Modbus UnitID Routing Configuration Tab	89
Stand-by Configuration Tab	91

Configuring the Module

Introduction

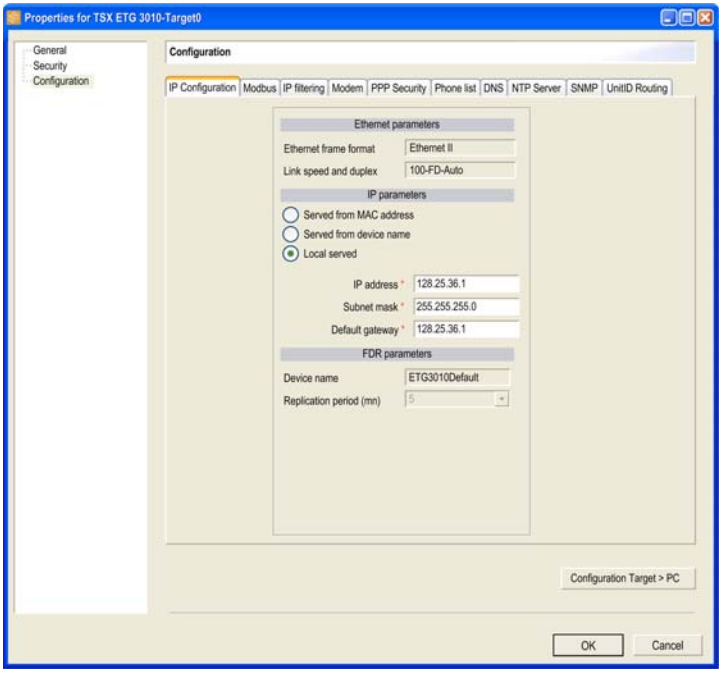
Although you can configure the TSX ETG 30•• product range using its own tool (the embedded web page), Web Designer also provides an interface to setup those modules.

The Target Properties interface enables you to set:

- IP parameters to set up the Ethernet connection *(see page 64)*,
- DNS parameters to translate domain names into IP addresses *(see page 67)*,
- IP Filtering tables to restrict access to the module *(see page 67)*,
- Modem connection parameters *(see page 71)*,
- NTP servers parameters to synchronize the clocks of the computer systems *(see page 76)*,
- Phone Lists to restrict devices access to the module *(see page 78)*,
- Modbus parameters to configure the serial link *(see page 80)*,
- SNMP parameters to supervise the data exchange *(see page 82)*,
- VPN parameters for secure communication *(see page 84)*,
- NAT parameters to set up NAT communication *(see page 84)*,
- UnitID Routing parameters to set up UnitID routing communication *(see page 89)*,
- Stand-by parameters to set up the remote connection *(see page 91)*.

Accessing the Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result**: The Target Properties window appears.

Step	Action
3	Click **Configuration** in the list on the left. **Result**: The configuration page appears. 

IP Configuration Tab

Introduction

This tab enables you to configure the parameters for the Ethernet connection.

Ethernet communication enables:
- coordination between PLCs,
- local or remote monitoring,
- communication with production management software,
- communication with remote I/O.

⚠ WARNING

UNINTENDED OPERATION — DUPLICATE IP ADDRESS

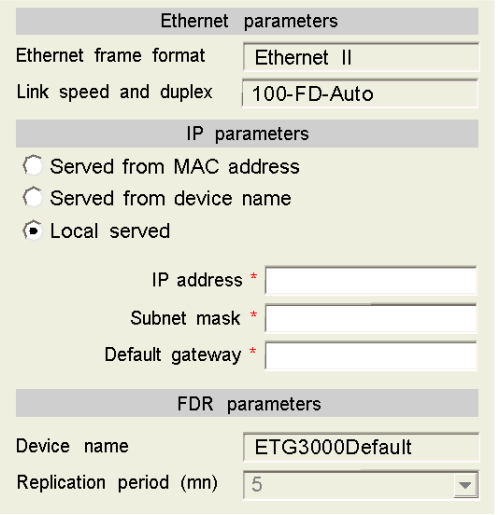
- Make sure that this device receives a unique IP address.
- Always obtain your IP addresses from your system administrator to avoid the possibility of duplicate addresses.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Accessing the IP Configuration Tab

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **IP Configuration** tab to access the configuration screen.

View of the Ethernet Configuration Screen



Ethernet Parameters

The Ethernet parameters area describes the characteristics of the Ethernet communication:

- **Ethernet frame format** corresponds to the standard used for the Ethernet connection. Ethernet II is the most commonly used and complies with RFC 894 standard (this parameter cannot be changed).
- **Link speed and duplex** displays the characteristics of the Ethernet connection. 100-FD-Auto means a connection speed up to 100Mbits/s, Full Duplex with Automatic negotiation (these parameters cannot be changed).

IP Parameters

The IP parameters area enables you to define the IP address of the module for the Ethernet connection in 3 different ways:

- the address is deduced from the MAC address of the module by clicking on **Served from MAC address**, in which case the **Local Served** address input area is grayed out.
- the address is provided by a DHCP server by clicking **Served from device name**, in which case the address input area is grayed out.
- the address is configured manually by clicking **Local served**.

If you choose **Local served**, you can specify:

- the IP address of the module in the **IP Address** field,
- the subnetwork mask, in the **Subnet mask** field,
- the IP address of a gateway, in the **Default Gateway** field.

If you choose **Served from device name**, the IP address of the module is configured via a remote device acting as a DHCP (FDR) server. In this case, **FDR parameters** have to be specified.

If you choose **Served from MAC address**, the module uses its default IP address which is deduced from its MAC address (for more information see *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*).

FDR Parameters

The **FDR parameters** area enables you to configure an automatic connection:

- Enter the name of the module in the **Device Name** field.
- Enter the time (in seconds) for automatic comparison between your configuration of the TSX ETG 30•• and the configuration stored on the DHCP server. If a difference is found, the TSX ETG 30•• automatically saves the configuration to the server.

DNS Tab

Introduction

This tab enables you to configure the parameters of the DNS.

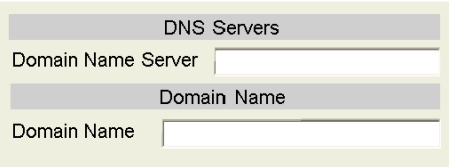
DNS is an Internet service that translates domain names into IP addresses. Because domain names are alphabetic, they are easier to remember.

Click the **DNS** tab in the **Target Properties** window to open the DNS configuration page.

Accessing the DNS Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **DNS** tab to access the configuration screen.

View of the DNS Configuration Screen



Parameters

Parameters	Values
Input fields	
Domain Name Server	Set the IP address of the DNS server.
Domain Name	Specify the domain name of your network.
Edit buttons	
OK	Confirm the input.
Cancel	Cancel the current changes.

IP Filtering Tab

Introduction

This tab enables you to create a list of Ethernet devices authorized to connect to the module.

Use this zone to:

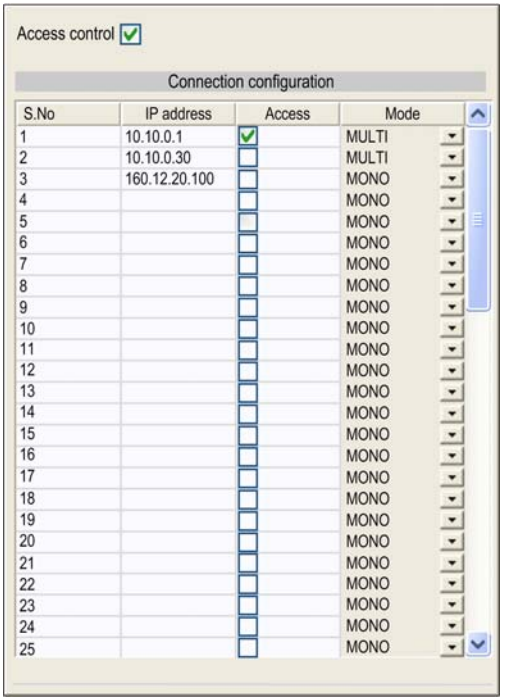
- configure the number of connections that can be opened by the module,
- activate the access control service,
- enter the remote devices that can connect to the module, depending on whether a mono or multi-connection communication protocol is used.

Click the **IP Filtering** tab in the **Target Properties** window to open the IP filtering configuration page.

Accessing the IP Filtering Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **IP Filtering** tab to access the configuration screen.

View of the IP Filtering Page



Parameters

Parameters	Value to be entered
Access Control	Use this check box to enable or disable the remote devices that can open a TCP connection to the module: ● if the box is checked, access control management is activated and the Access column in the table is de-grayed (active). If the module operates in server mode, only remote devices that appears in the list are authorized to connect as clients. ● if the box is unchecked, control management is disabled and the Access column in the table is grayed out (not active). If the module is operating in server mode, third party remote devices can connect as clients and then communicate with the module without being declared in the table.
Input fields	
IP Address	Enter the device IP address.
Access	If this box is selected, it indicates that the remote device is authorized to open a TCP connection.

Parameters	Value to be entered
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.
Edit buttons	
OK	Confirm the input.
Cancel	Cancel the current changes.

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).

The module does not manage the password associated with the modem connection in server mode. All telephone connections are accepted. The Access control check box takes effect with an IP address for a remote device, as for the PAP (Password Authentication Protocol). The password must be managed at modem level.

Modem Tab

Introduction

This tab enables you to configure the modem connection parameters.

The internal modem is a feature of the TSX ETG 3010 and TSX ETG 302• products. However, if your system requires a specific modem, you can disable the internal modem and use an RS232 serial link to connect an external modem.

You can open a serial link connection via a modem using one of the following methods:

- a request from a remote device (server mode),
- an e-mail request from a module (client mode),
- an internal register command from a module (client mode).

NOTE: Refer to the FactoryCast HMI Gateway TSX ETG 30•• Product Range User Manual for more information on the modems.

Click the **Modem** tab in the **Target Properties** window to open the modem configuration page.

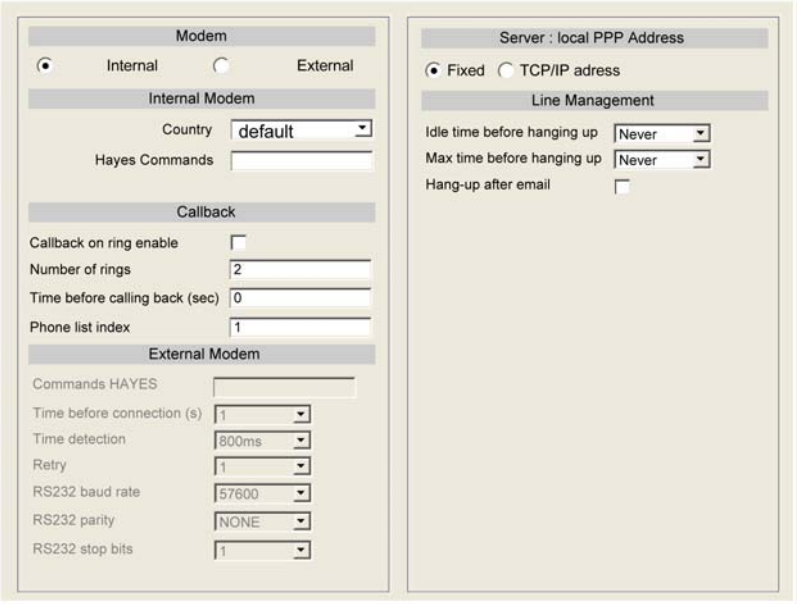
Accessing the Modem Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **Modem** tab to access the configuration screen.

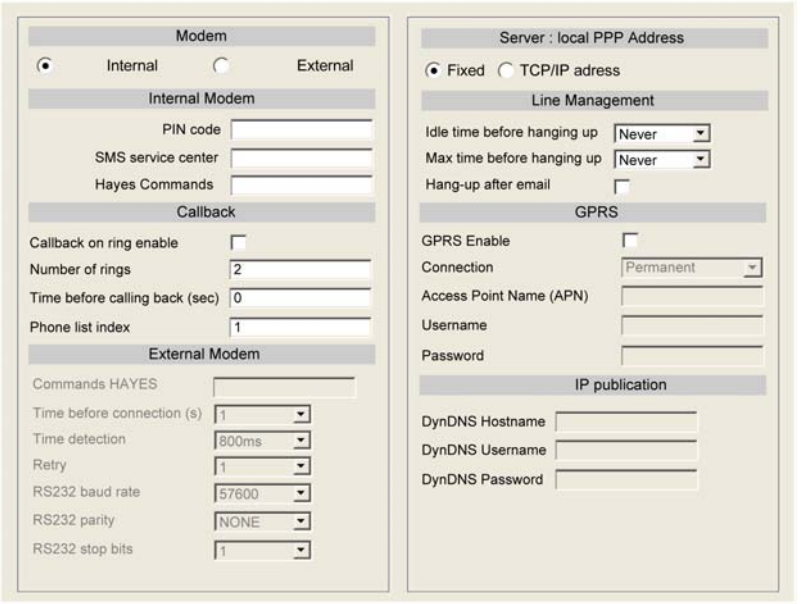
View of the Modem Configuration Screen

The modem configuration screen is different depending on the TSX ETG 30•• model and the configuration you are using. The following figures show you the configuration screen for each model and configuration.

Modem configuration screen for a TSX ETG 3010:



Modem configuration screen for a TSX ETG 302•:



General Parameters

Parameters	Action
Modem	
Internal	The embedded modem is used for the modem connection.
External	An external modem is used for the modem connection.
Server: local PPP Address	
Fixed	The default address is used (10.10.0.4).
TCP/IP address	The IP address of the modem interface is the same than the one of the Ethernet interface.
Line Management	
Idle time before hanging up	If the time between two frames exceeds the value entered (in seconds) in this field, the connection is broken. If the time entered is Never, no control is performed.
Max time before hanging up	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 Never, no control is performed.
Hang-up after e-mail	Select this box to close the PPP connection once an e-mail has been sent. Use this feature in case the e-mail service opens the connection.

External Modem Parameters

Parameters	Values
Command Hayes	Configuration by Hayes character string. You can use it to send commands to the modem in Hayes format*.
Time before connection (s)	Specify the time before a connection is opened.
Time detection	Time before the modem sends an AT command.
Retry	Number of time the modem tries to open a connection.
RS232 baud rate	Speed of the RS232 link; the choice depends on the modem you are using: 2400, 4800, 9600, 19200, 38400 and 57400.
RS232 parity	Even, odd or no parity.
RS232 stop bits	Number of stop bits.

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

Example: AT&FS0=2

Internal Modem Parameters

Parameters	Action
Country	Select the country in which the module is used (only for PSTN modem).
PIN code	Enter the PIN code for the SIM card (only for GSM).
SMS service center	Enter the number of the SMS service center (only for GSM).
Hayes Commands	Configuration by Hayes character string. You can use it to send commands to the internal modem.

NOTE: Type the PIN code of the SIM card carefully: if you supply an incorrect PIN code 3 times, the SIM card is locked. If it happens, call your GSM service provider to unlock it.

Callback Parameters

Parameters	Values
Callback on ring enable	Select this box to use the callback on ring service.
Number of rings	Specify the number of rings the module waits before launching the connection. Default: 2; minimum: 2; maximum: 20.
Time before calling back (sec)	Specify the time to wait between the ring and the call back. Default: 0; minimum: 0; maximum: 240.
Phone list index	Phone list index of the number to call back (not used for GPRS). Default: 1; minimum: 1; maximum: 64.

GPRS Parameters

Parameters	Values
GPRS Enable	Select this box to use the GPRS service.
Connection	Select the operating mode of the connection: • **Permanent**: the module is always connected. Automatic connection at boot and after the loss of a connection. • **On demand**: the module is connected only on a user action (call back on ring, Modbus register command or e-mail).

Parameters	Values
Access Point Name (APN)	Name of the access point given by the service provider for GPRS. The APN is mandatory when using GPRS. **Note:** Depending of your service provider, you might have to add an AT command. Add it in the APN field after the APN and using ';;' as separator (i.e. Internet-entreprise;;AT=CGQREQ=1,3,4,3,0,0) The module sends this command and checks the response before launching the connection.
Username	Username of the APN given by the service provider (can be empty).
Password	Password of the APN given by the service provider (can be empty).

IP Publication

Parameters	Values
DynDNS Hostname	Hostname (URL) corresponding to the IP address of the module. The module informs the DynDNS server of its IP address at connection start. The server translates the hostname into the corresponding IP address. If you do not use DynDNS, keep this field empty.
DynDNS Username	Username to access the DynDNS service.
DynDNS Password	Password to access the DynDNS service.

NTP Tab

Introduction

This tab enables you to configure the NTP parameters.

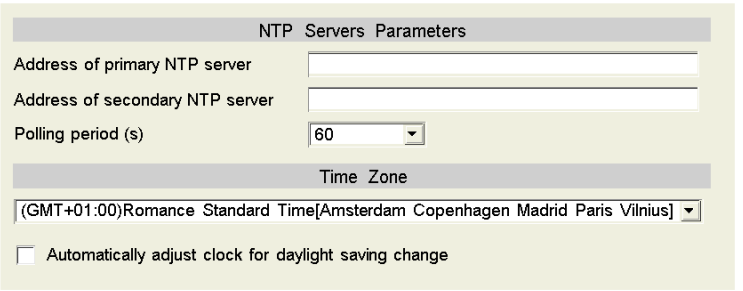
NTP is a protocol used for synchronizing the clocks of computer systems.

Click the **NTP** tab in the **Target Properties** window to open the NTP configuration.

Accessing the NTP Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **NTP** tab to access the configuration screen.

View of the NTP Configuration Screen



Parameters

Parameters	Action
Address of primary NTP server	Set the IP address of the primary NTP server.
Address of secondary NTP server	Set the IP address of the secondary NTP server.
Polling period	Specify the polling period for updating time.
Time zone	Specify the local time zone (GMT, GMT+1,...).
Automatic adjust clock for daylight saving change	Define if daylight saving time is managed.

Phone List Tab

Introduction

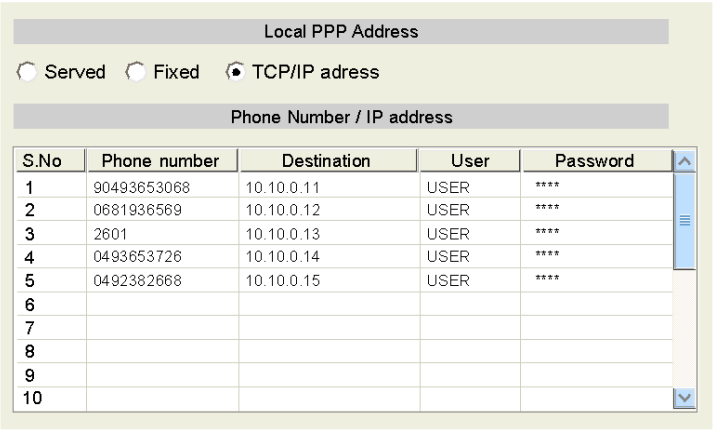
This tab enables you to create a list of authorized devices that can access the module using a modem connection.

Click the **Phone List** tab in the **Target Properties** window to open the phone list configuration.

Accessing the Phone List Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **Phone List** tab to access the configuration screen.

View of the Phone Configuration Page



Parameters

Parameters	Action
Served	The PPP address is configured while creating the connection on the remote device.
Fixed	The default address (10.10.0.2) is used.
Use TCP/IP address	The PPP address of the modem interface is the same as that of the Ethernet interface.

Entering data for remote devices connecting to the module:

Parameters	Values
Phone number	Specify the phone number of the remote device.
Destination	Specify the IP address of the remote device.
User	Specify the Username of the remote device.
Password	Specify the Password of the remote device.

Modbus Configuration Tab

Introduction

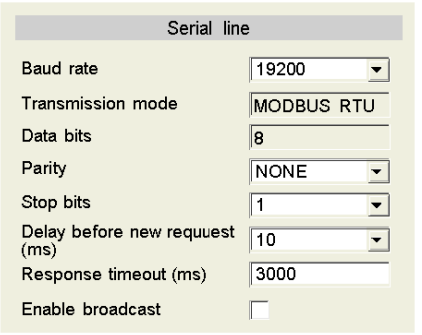
This tab enables you to configure the Modbus parameters.

The Modbus link (speed, parity, address, etc.) must be configured so that it is compatible with the slave link. As a Modbus master, the TSX ETG 30•• module manages exchanges with slave devices on the bus in a request/response manner. It sends a request to a slave device and awaits the response from that device.

Accessing the Modbus Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **Modbus** tab to access the configuration screen.

View of the Modbus Configuration Screen



Modbus Configuration Screen Parameters

Parameters	Value
Baud rate	Speed: 115 200, 57 600, 38 400, 19 200, 9 600, 4 800, 2 400, 1 200 bauds (default is 19 200).
Transmission mode	Modbus RTU (cannot be changed).
Data bits	8 data bits (cannot be changed).
Parity	Even, odd, or no parity (default is NONE).
Stop bits	1 or 2 stop bits (default is 1).
Delay before new request	4 to 1000 characters (default is 10).
Response time-out	In milliseconds, from 1 to 10 seconds (default is 3 seconds).
Enable broadcast	Select this box to enable broadcast on the serial line.

NOTE: If broadcast is enabled and a broadcast request is sent, all devices on the serial line read the request. However, none of the devices send a Modbus response.

SNMP Tab

Introduction

This tab enables you to configure the parameters for SNMP.

SNMP has become the standard protocol for network management. It comprises:

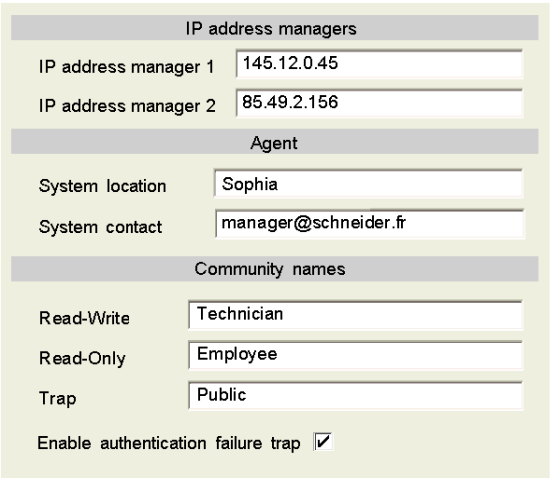
- an agent, the software module for network management that resides in a device.
- a manager that can query and get responses from agents and set variables in them.
- a managed device with a management information base (MIB).

Click the **SNMP** tab in the **Target Properties** window to access the configuration.

Accessing the SNMP Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **SNMP** tab to access the configuration screen.

View of the SNMP Configuration Screen



General Parameters

Parameters	Values
Enable authentication failure trap	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).

IP Address Parameters

Enter the IP addresses of the SNMP administrators here. You can enter a maximum of two administrators. The IP addresses are used for transmitting events.

Agent Parameters

Use this area to locate and identify an agent, from the SNMP administrator. It consists of two fields:

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

Community Names Parameters

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

- The Read-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".

PPP Security Tab: VPN and IP Control Configuration Page

Introduction

TSX ETG 302• modules enable access to the module over the Internet with an improved level of data exchange security.

TSX ETG 302• modules provide 2 security solutions:

- IP control provides a basic level of security by not allowing devices with unknown IP addresses to connect to the module.
- VPN (*Virtual Private Network*) *(see page 84)* provides a higher level of security by encrypting the data transfer between two hosts.

NOTE: Refer to the *FactoryCast HMI Gateway TSX ETG 3000 Product Range User Manual* for more information on these functions.

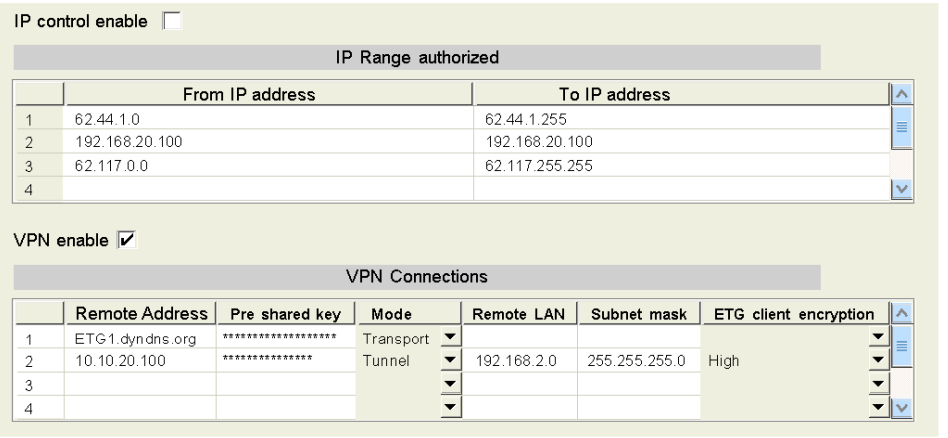
IP Control

This control enables you to specify IP addresses authorized to connect to the module. Unknown IP addresses are rejected on connection attempt. IP control only protects PPP connections

Accessing the PPP Security Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click **PPP** to access the configuration screen.

View of the PPP Security Configuration Screen



NOTE: Only one type of security can be selected at a time. The table not selected is grayed out.

IP Control Parameters

Parameters	Action
IP control enable	Check this box to activate the IP control service. It enables you to authorize only one IP address or a range of IP addresses to communicate with the module. **Note:** if only one IP address must be allowed, enter the same IP address in both the From/To IP address columns.
From IP address	Start of the IP address range.
To IP address	End of the IP address range.

VPN Parameters

Parameters	Action
VPN enable	Check this box to activate the VPN service. The module or network you want to communicate with must be listed in the VPN Connections table.
Remote address	Remote IP address of the remote host (module, PC or remote network). You can use a dot notation (x.x.x.x) or a symbolic address name.

Parameters	Action
Pre shared key	Shared secret key used between the module and the remote for authentication. The sending and receiving devices must share the same key (max length is 128 characters).
Mode	• Transport mode encrypts the data portion of each IP packet but leaves the header unencrypted. Only the TSX ETG 302• module is accessible. • Tunnel mode encrypts both the header and the data of the IP packet providing more communication privacy. The complete TSX ETG 302• local network is accessible.
Remote LAN	In the Tunnel mode, this is the virtual IP address of the client or IP network. If the field is empty, there is no virtual IP address and only the host with the address in the Remote address field can access the module.
Subnet mask	Mask for the network if you communicate with an IP network. If the field is empty, the subnet mask is 255.255.255.255 and only the host with the address in the Remote LAN field can access the module
ETG client encryption	If the TSX ETG 30•• module acts as a client (case ETG -> ETG), you can specify the encryption protocol used for the connection: • None: AH[MD5] • Medium: DES[MD5] • High: 3DES[SHA] **Note:** If you keep this parameter empty, the device acting as a server adapts to the encryption protocol of the client.

NOTE: If VPN is checked and the table is empty, the module does not allow GPRS connections.

NAT Configuration Tab

Introduction

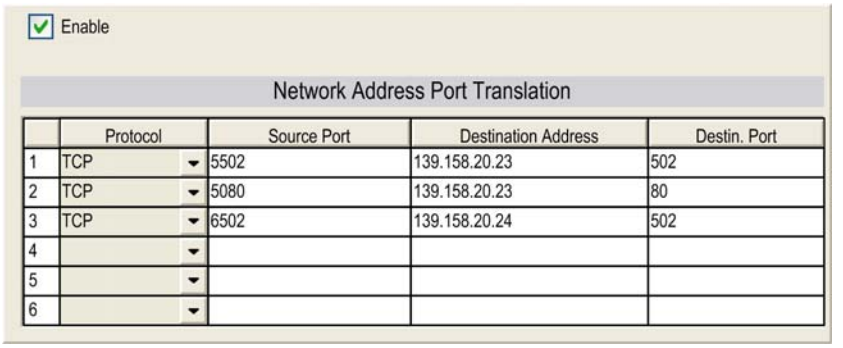
The TSX ETG 302• modules enable access to remote equipment over the Internet using the NAT On Port communication feature. You can use Web Designer to configure this function.

NOTE: For more information, refer to *FactoryCast HMI Gateway TSX ETG 3000 Product Range User Manual*.

Accessing the NAT Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **NAT** tab to access the configuration screen.

View of the NAT Configuration Screen



NAT Parameters

Parameters	Action
Enable	Click the check box to select the NAT On Port service.
Protocol	Specify the protocol to use: TCP or UDP.
Source Port	Enter the translated input port. The value must be between 0 and 65535. It is recommended to use private port higher to 1024.
Destination Address	Enter the IP address (using dot notation only) that is the result of the translation.
Destin. Port	Enter the port that is the result of the translation. The value must be between 0 and 65535.

NOTE:

- Up to 32 lines can be entered when configuring the NAT routing service.
- The module must be initialized (rebooted) for the new configuration parameters to take effect. Click **Target** →**Reboot Target** to initialize the module using Web Designer.

Modbus UnitID Routing Configuration Tab

Introduction

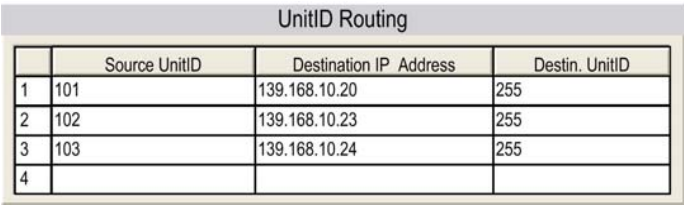
The Modbus UnitID function allows routing between WAN to LAN through the GPRS modem connection (TSX ETG 302•). TSX ETG 30•• module can route a Modbus TCP request to the port 502 (Modbus) of a remote device using its UnitID information. You can use Web Designer to configure this function.

NOTE: For more information, refer to *FactoryCast HMI Gateway TSX ETG 3000 Product Range User Manual*.

Accessing the UnitID Routing Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **UnitID Routing** tab to access the configuration screen.

View of the UnitID Routing Configuration Screen



UnitID Routing

	Source UnitID	Destination IP Address	Destin. UnitID
1	101	139.168.10.20	255
2	102	139.168.10.23	255
3	103	139.168.10.24	255
4			

UnitID Routing Parameters

Parameters	Action
Source UnitID	Enter the UnitID value to route over the Ethernet. The UnitID must be an integer value set between 0 and 255.
Destination IP Address	Enter the IP address destination (using dot notation only) of the TCP request.
Destin. UnitID	Enter the UnitID of the destination request. The UnitID must be an integer value set between 0 and 255.

- Up to 32 lines can be entered when configuring the Modbus UnitID routing function.
- The module must be initialized (rebooted) in order for the new configuration parameters to take effect. Click **Target** →**Reboot Target** to initialize the module using Web Designer.

Stand-by Configuration Tab

Introduction

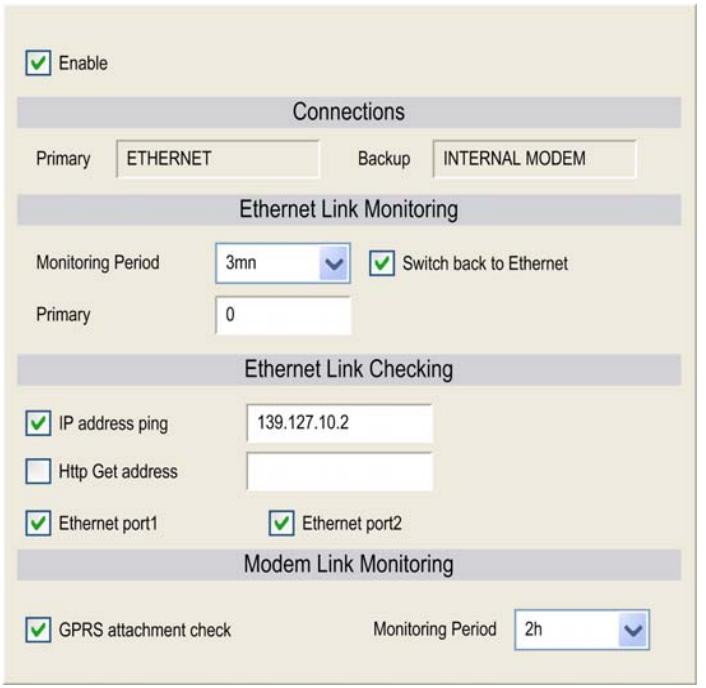
This function (available with the TSX ETG 302• module range) increases remote connection availability by providing a Standby GPRS connection path when the primary DSL link communication is interrupted. An automatic changeover is performed between the primary DSL link (Ethernet port) and the backup GPRS modem port. You can use Web Designer to configure this function.

NOTE: Fore more information, refer to the *FactoryCast HMI Gateway TSX ETG 3000 Product Range User Manual*.

Accessing the Stand-by Configuration Screen

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result:** The Target Properties window appears.
3	Click **Configuration** in the list on the left. **Result:** The configuration page appears. **NOTE:** A screenshot of the Configuration page is available at Accessing the Configuration Page *(see page 62)*.
4	Click the **stand-by** tab to access the configuration screen.

View of the Stand-by Configuration Screen



Stand-by Parameters

General parameters:

Parameters	Action
Enable	Click this check box to activate the remote connection availability service.

Connections parameters:

Parameters	Function
Primary	Name of the primary Ethernet link.
Backup	Name of the secondary GPRS connection link.

Ethernet link monitoring parameters:

Parameters	Action
Monitoring Period	Choose a time period to control the availability of the primary Ethernet link.
Nb of Retry	Define the number of consecutive loss of connection from the primary ethernet link before switching to the secondary GPRS link.
Switch Back to Ethernet	Click the check box to allow the primary ethernet link to take over the secondary GPRS link as soon as the primary connection is restored. **NOTE:** The check box is unchecked by default. In this case, the secondary link is activated until a manual action is performed to return to the primary ethernet link.

Ethernet link checking parameters:

Parameters	Action
IP address ping	Click the check box to ping the IP address entered in the associated field (dot or symbolic notation possible).
Http get address	Click this check box to test an IP address by HTTP.
Ethernet port x	Click this check box to test the cable connection on the ethernet port.

NOTE: All check boxes from the Ethernet link checking parameters can be combined together. In this case, the Ethernet link is considered as connected only if all checked conditions are working correctly.

Modem link monitoring parameters:

Parameters	Action
GPRS attachment check	Click this check box to enable a periodic check of the secondary link connection. This is for diagnostic purposes only.
Monitoring period	Choose a time period to check the secondary link connection.

NOTE: The module must be initialized (rebooted) in order for the new configuration parameters to take effect. Click **Target** →**Reboot Target** to initialize the module using Web Designer.

Transfer

5

Scope of this Chapter

This chapter describes how to transfer a website. You can transfer it from the configuration PC to the module or vice-versa. The transfer concerns the Web pages generated by Web Designer as well as those created by the user. The transfer can be more general and it can include files describing services.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Transfer	96
Project Validation	103
Connecting/Disconnecting to/from the Module	106

Transfer

Introduction

This function enables you to transfer:
- Data Editor tables,
- Graphic Editor pages,
- embedded HMI services,
- the website and its associated files.

You can select the direction of the transfer:
- from the configuration PC to the target, or
- from the target to the PC.

⚠ WARNING

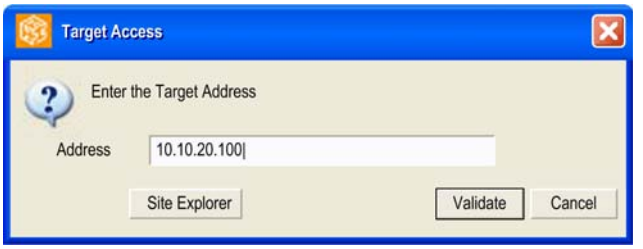
UNINTENDED OPERATION — DUPLICATE IP ADDRESS

- Make sure that this device receives a unique IP address.
- Always obtain your IP addresses from your system administrator to avoid the possibility of duplicate addresses.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Setting Up the IP Address

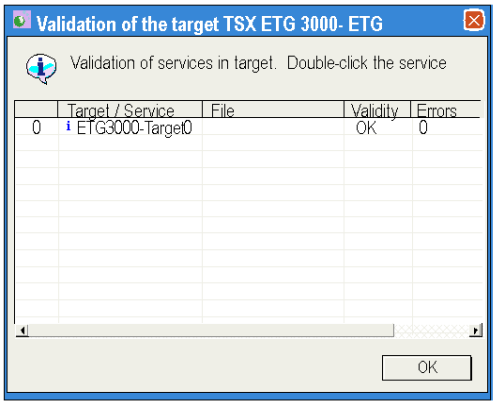
You must set the IP address of the target to perform a transfer. Use the following procedure to configure the physical address of the target:

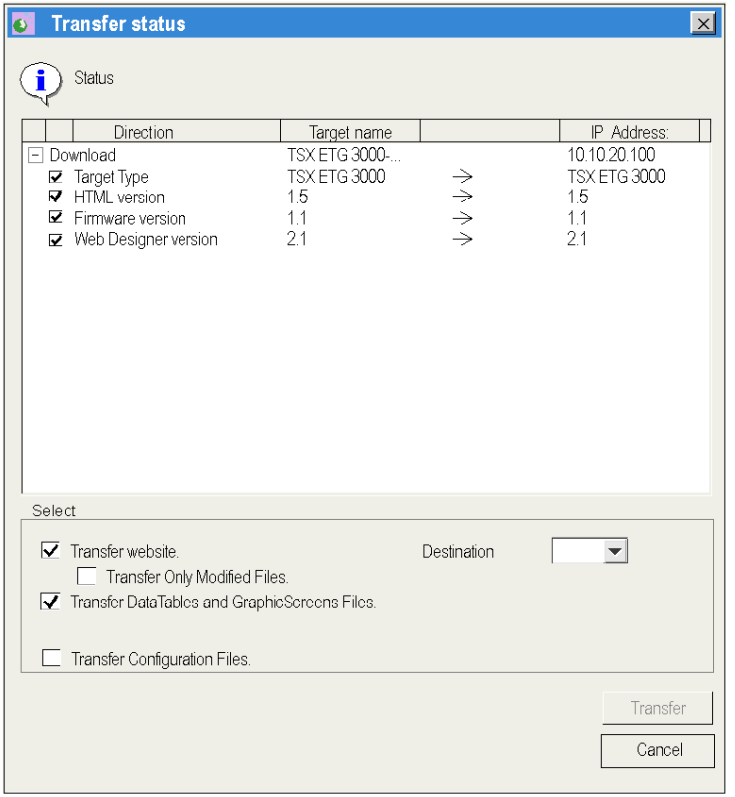
Step	Action
1	Select the target in the browser.
2	Click **Target →Set Target Address**. **Result:** The following window appears: 

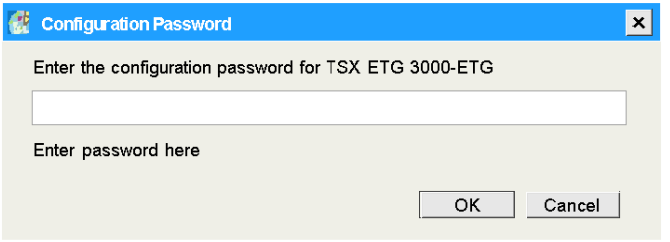
Step	Action
3	Enter an IP Address for the target. **Note:** ● Obtain your IP addresses from your system administrator to avoid the possibility of duplicate addresses. ● If there is no system administrator, use an orderly IP address assignment methodology so that duplicate address assignments do not occur.
4	Click **Validate**.

NOTE: You can also specify the address during the creation of the project with the Creation Wizard.

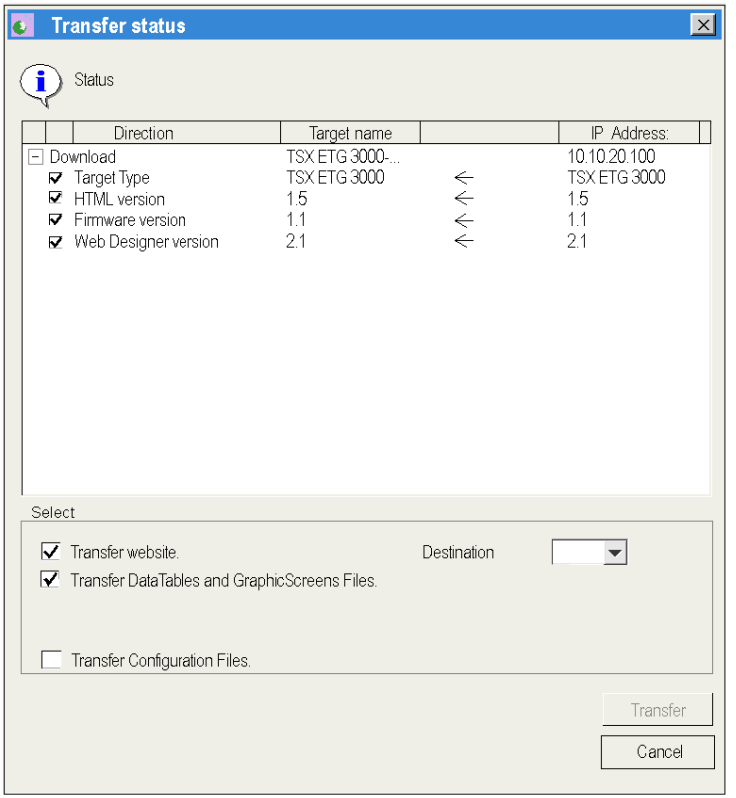
Transferring from the PC to the Target

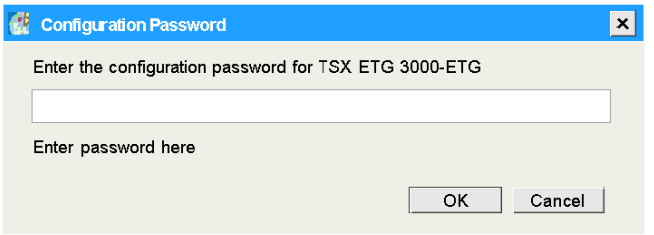
Step	Action
1	In the browser, select the target.
2	Click **Target** →**Transfer** →**PC ->Target**. **Result**: the Target Validation window appears.  If there are anomalies in your project, the transfer cannot be performed *(see page 103)*.
3	Click **OK**. **Note**: if there are differences between the version of firmware for the project and the target, the transfer cannot be performed. Use **Target** →**Upgrade Target version** to update the Web Designer application.

Step	Action
4	The Transfer Status window appears: 
5	Select the files you want to transfer and the media in which the files will be transferred *(see page 104)*.

Step	Action
6	Click **Transfer**. **Result**: the Configuration Password window appears if a configuration password has already been set. Otherwise the project is transferred. 
7	Enter the configuration password and click **OK**. **Result**: the Progress Information window appears. The files are displayed one at a time in the Status Bar.

Transferring from the Target to the PC

Step	Action
1	In the browser, select the target.
2	Click **Target** →**Transfer** →**Target ->PC**. The Transfer Status window appears: 
3	Select the files you want to transfer *(see page 104)*.

Step	Action
4	Click **Transfer**. **Result**: the Configuration Password window appears if a configuration password has already been set. Otherwise the project is transferred. 
5	Enter the configuration password and click **OK**. **Result**: the Progress Information window appears. The files are displayed one at a time in the Status Bar.

Total Transfer of the Project

This function enables you to transfer the entire project to all the targets associated with it. The transfer is done target by target. The global transfer is only one-way, you can transfer from the PC to the targets but not from the targets to the PC. In the latter case, you have to manually transfer the files target by target

To activate the transfer, click **Project →Global transfer**. The procedure is exactly the same than a transfer from the PC to the target *(see page 97)*.

Partial Transfer

To save time, it is possible to do a partial transfer. In the **Website**, **GraphicScreens**, **DataTables** and **Service** directories, the contextual menu authorizes a partial transfer limited to files located in these directories. In this way, you do not have to transfer the entire project if you just modified a small part.

You can specify the media (USB, CF card, Flash) in which the files will be transferred. This function is available for files coming from the *GraphicScreens*, *DataTables* and *Website* directories.

Documentation

To manage online documentation, you can add MS Word (*.doc*) or Acrobat (*.pdf*) files to the website in the site directory. The Transfer function lets you copy these files to the target.

Site Explorer

The **Site Explorer** button displays all the target files in the lower window. This is useful, before or after a data transfer, to analyze the contents of the target.

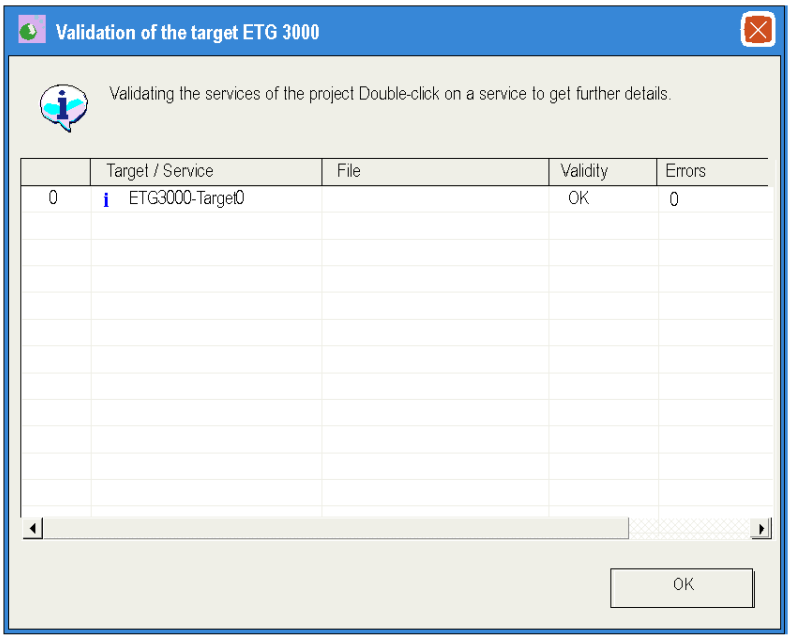
Project Validation

Introduction

Web Designer for TSX ETG 30•• carries out a validation on the structure of the project before transferring files to the target. If the verification fails, the transfer is cancelled. Web Designer for TSX ETG 30•• also performs a comparison between the PC configuration and the target configuration.

Validating a Project

When you start a transfer, Web Designer for TSX ETG 30•• performs a project validation. You can also validate a project at any time by selecting **Project Validation** in the Project menu.

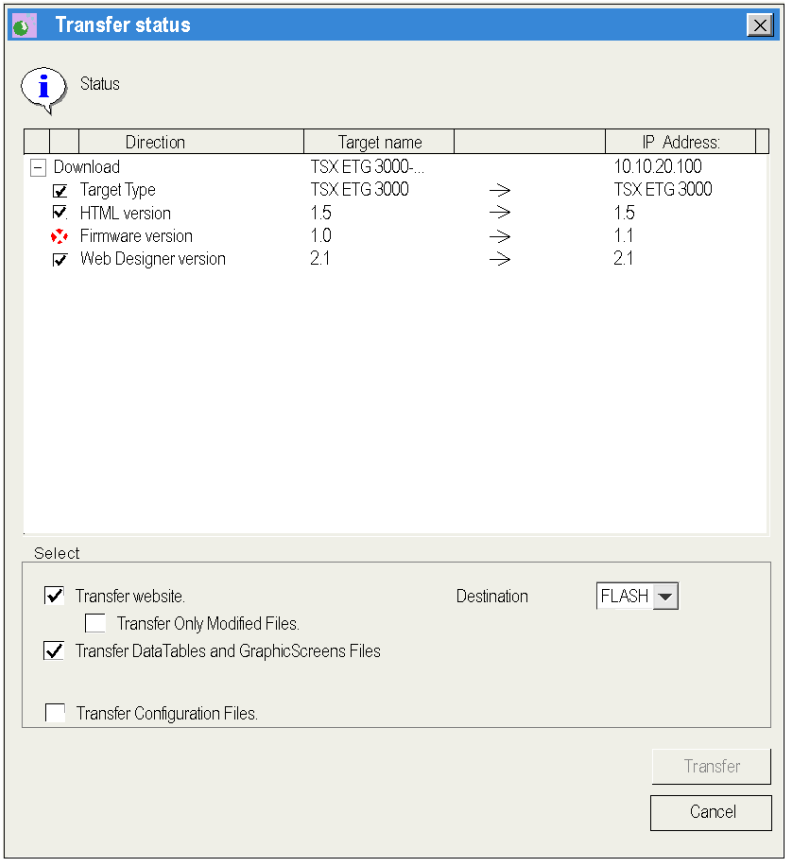


The validation process monitors the following points:

- The available space on the target is bigger than the size of the website.
- The use of a user page or a service, with variables that will not be in the Namespace (file *Namespace.dat*).
- The number of variables is less that the maximum number authorized for the target (1000 variables).
- The anomalies related to services.

Click a line with a message to display the details.

Transfer Status



? The information has not been found on the remote target.

Inconsistent, non-blocking information between the target and the PC.

Inconsistent, blocking information between the target and the PC.

Consistent information between the target and the PC.

Use the Select area to specify the files you want to transfer:

Parameter	Action
Transfer Website	Select this box to transfer files located in the *Website* directory.
Transfer only Modified Files	Select this box to transfer only files of the website that have been modified since the last transfer.
Transfer DataTables and GraphicScreens Files	Select this box to transfer data tables (*DataTables* directory) and graphic pages (*GraphicScreens* directory).
Transfer Configuration Files	Select this box to transfer configuration files.
Destination	Specify the media on which the files will be transferred. 3 possibilities: ● CF card, ● Flash memory of the module, ● USB memory key.

Connecting/Disconnecting to/from the Module

Introduction

The information below explains the procedure for executing an application once the services have been created.

Transferring a project to the module permanently erases the existing project. When a project is transferred, the old project is overwritten.

Web Designer enables you to remotely write variables of your system.

Anyone who has access to a configuration tool and to the embedded server of the target 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.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

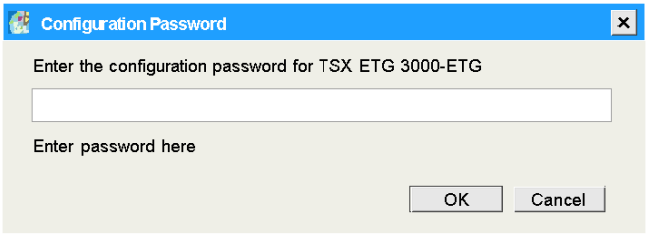
- Restrict access to the embedded server of the target by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE:

- If an application is in RUN mode, the new project will be taken into account after a module reboot.
- Backup important information before transferring a new application.

Connecting to the Module and Recovering a Project from the Module

Step	Procedure
1	Select the target in the browser.
2	Click **Target** →**Connect** →**Target**. Web Designer analyses the changes between your project and the module content. If you have modified the project, Web Designer will ask you to transfer the project. Otherwise the application moves automatically to online mode. **Result**: the Configuration Password window appears if a configuration password has already been set. Otherwise Web Designer connects to the module. 
3	Enter the configuration password and click **OK**. **Result**: Web Designer connects to the module.

Disconnecting from the Module

Step	Function	Procedure
1	Disconnecting from the module	Click **Target** →**Disconnect**. **Result**: Web Designer has just switched back to offline mode.

Simulation Mode

6

Scope of this Chapter

This chapter describes the simulation mode. This mode can be used for debugging data tables, graphic pages and services without being connected to the target.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Connecting/Disconnecting to/from the Simulator	110
Simulation	111

Connecting/Disconnecting to/from the Simulator

Introduction

The following information describes the operating mode for launching an application through the simulator.

The simulator enables you to execute an application without having to connect to a target. It is therefore possible to test the application from a PC before transferring it to the target.

NOTE: The graphic and data editors *(see page 191)* are both active in simulation mode. You can therefore modify these pages in simulation mode.

Once the changes are made, carry out a partial transfer in order to reduce transfer time.

Connecting to the Simulator

Step	Procedure
1	Select a target in a project.
2	Click **Target →Connect →Simulation**. You are now connected to the simulator, the application is in simulation mode.

NOTE: Simulation does not work if a FTP server is running on the system.

Disconnecting from the Simulator

Step	Procedure
1	Click **Target →Disconnect →Simulation**. You have just switched back to configuration mode.

Animations

In simulation mode, the variables are animated as follows (value update frequency depends on the update frequency setting):

- bit: value change, 0 or 1,
- word: increment step 1.

Simulation

Introduction

You can simulate your website or your application without using actual devices. This allows you to verify your configuration and test the behavior of your application even if devices are not yet available.

Simulation Mode

Simulation Mode is available with protocols:

- UMAS,
- UNITE,
- Modbus.

Simulation Mode enables you to test the behavior of your application without running it in the module. In this case, the application runs in the configuration PC.

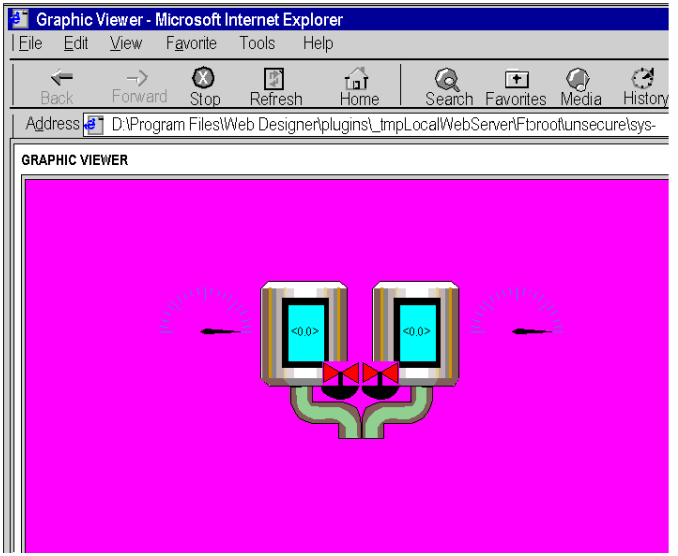
The user can enter pertinent values for variables (symbols). The default values are set to zero. The values are entered manually in the window associated with the device (double-click the device in the menu tree) or they can be automatically incremented.

Using the Simulator Icon

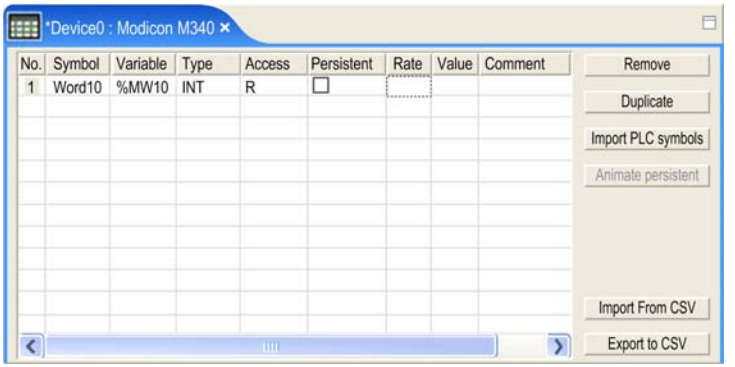
Step	Action
1	In the task bar, right-click on the simulation icon .
2	If you check **AutoIncrement** the variables will be automatically incremented. If you uncheck **AutoIncrement**, the variables will no longer be incremented and you can modify the value of R/W variables. If you check **StopServer**, the simulation stops.

Using the Simulator for Data Tables and Graphic Pages

Step	Action
1	Select a target in a project.
2	Extend the target directory.
3	Select a table in the *DataTables* directory or a graphic in the *GraphicScreens* directory.
4	Right-click and select **Open**. **Result**: an Internet Explorer window appears in which the selected table appears or the drop-down menu to select the graphic.

Step	Action
5	For graphics, select a graphic in the drop-down menu. **Result**: the following figure shows an example of a graphic being simulated. 
6	Apply the values to simulate to the variables or the graphic objects.

Using the Simulator for Device windows

Step	Action
1	Double-click the desired device in the *Devices* directory. **Result**: the following window appears. 
2	Click **Animate persistent**. If the **AutoIncrement** function is checked, the variables are automatically incremented. In the **Value** column, the simulated values are displayed. Else, the variables are no longer incremented. For R/W variables, double-click the **Value** column to modify the values.

Managing Variables

7

Scope of this Chapter

This chapter explains how the Web Designer handles variables. This concerns importing variables. It is feasible from a file describing a piece of equipment, or a file exported by software, listing variables from the automated program.

This chapter also presents the file called *Namespace* which groups all these variables. The data and graphics publishers as well as services use these variables.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Namespace	116
Importing Symbols From a PLC Device	117
Importing Symbols from a Non-PLC Device	122
Manual Edit	125
Supported Variables	126

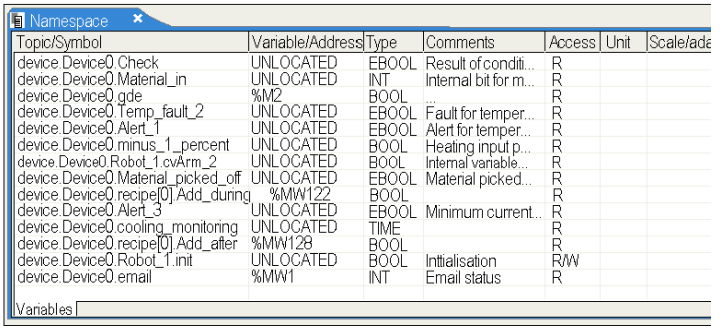
Namespace

Introduction

Namespace groups together variables (symbols) that were previously selected for targets or devices. Data Editors, Graphic Editors, and services get symbols from *Namespace*.

Variables come from either connected devices or from PLC applications. If you connect a device type to the same target several times, compose the name as follows in order to have a unique name: *device.name, variable name*. If the device is a PLC, compose the names of variables declared in the PLC like this: *PLC device.name, PLC variable name.*

Accessing the Namespace

Step	Action
1	Select the project.
2	Extend the target directory.
3	Double-click the Namespace icon. **Result**: the Namespace window appears. 

Importing Symbols From a PLC Device

Introduction

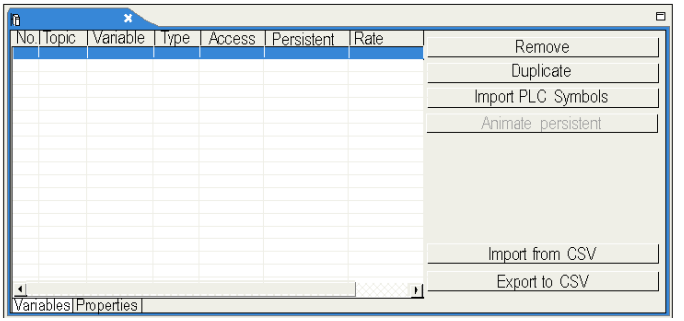
It is possible to access PLC symbols files from the following software applications with the **Import PLC Symbols** function:

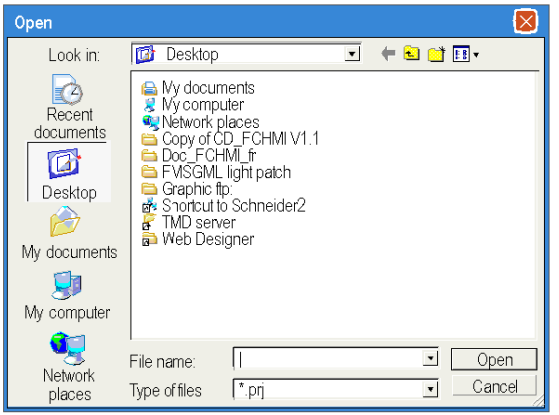
- PL7,
- Concept,
- Unity Pro,
- Twido Soft,
- Twido Suite.

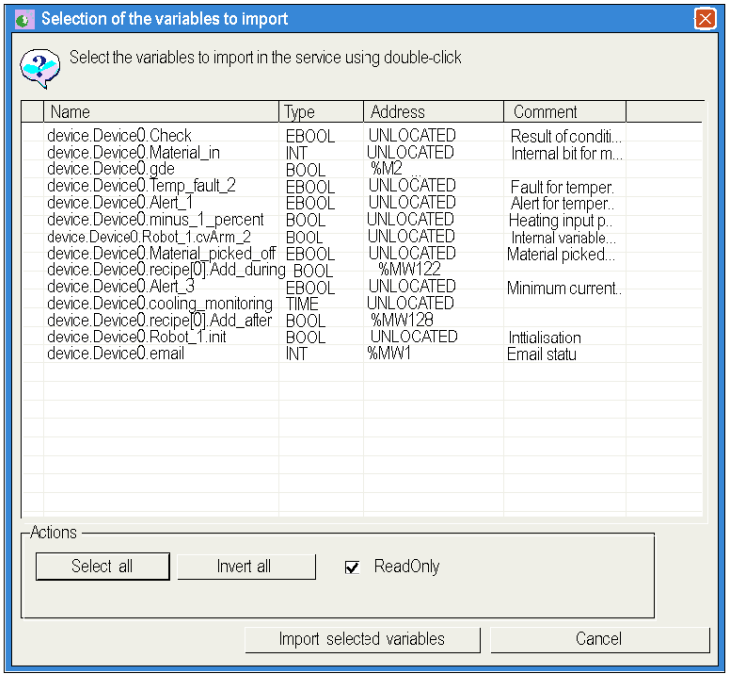
NOTE:

- If you want to associate variables with Services, you must select the persistent mode for these variables.
- Depending on the devices that you connect to the target, the type of variables you can access *(see page 126)* through the target might be different.

Accessing the Software Database

Step	Action
1	Double-click the desired device in the *Devices* directory. **Result**: the following window appears.  **Topic** : Name of the variable. **Variable** : Address of the variable. **Type** : Type of variable. **Access** : Access right to the variable. **Persistent** : Access mode to the variable. It cannot be changed. **Rate** : Frequency at which the variable value will be refreshed.

Step	Action
2	Click **Import PLC symbols**. **Result**: a file explorer window opens. 
3	Select the file to import.

Step	Action
4	Click **Open**. **Result**: a window displaying variables opens. 
5	Select desired symbols. Refer to the next paragraph for information on the types of file supported.
6	• Select desired groups of symbols. The name is preceded by **+**. All symbols in the group are selected. • To select symbols in a group of symbols, click **+**, then click on each of the desired symbols.
7	Click **Import selected variables**. **Result**: the variables appear in the Device window.

Namespace Window

Button	Function
Remove	Delete the variable.
Duplicate	Duplicate the variable.
Import PLC Symbols	Open a selection window of variables.
Animate persistent	This button is used to switch to animation mode.

Button	Function
Import from CSV	Import all the variables from a CSV file.
Export to CSV	Export the variables to a CSV file.

Accessing the Concept Base

In order to access a Concept project database, you must install the Concept software on your computer. Concept project database files have a *.prj* extension.

NOTE: You must set the ExportVariables parameter to 1 in order to be able to import Concept variables. This parameter is located in the *concept.ini* file. It has to be done before saving the project in Concept.

Accessing the PL7 Base

A PL7 project database is accessible from any allocated drive. PL7 project database files have a *.fef* extension.

Accessing the Unity Pro Base

In order to access a Unity Pro project database, you must install the Unity Pro software on your computer. Unity Pro project database files have *.stu* extension. It's also possible to use an Unity Pro export file (extension *.xvm*).

Accessing the Twido Soft Base

In order to access a Twido Soft project database, you must install the Twido Soft software on your computer. Twido Soft project database files have *.twd* extension.

Accessing the Twido Suite Base

In order to access a Twido Suite database, you must install the Twido Suite software on your computer. Twido Suite database files have *.twd* extension.

Synchronization with the PLC Program

Over the course of time, it is possible that you will modify the Concept, PL7, Unity Pro, Twido Soft or Twido Suite databases from which you created your Namespace. The Web Designer Configuration Program will automatically alert you about the differences between the database and your Namespace when you open a configuration associated with the PLC database file.

Synchronization with the PLC Database

Step	Action
1	Click **Target →Synchronize with PLC database**. **Result**: Inconsistencies will be shown in a window.
2	Click **OK** to start default resynchronization operations.
3	Transfer the project to the module.

Importing Symbols from a Non-PLC Device

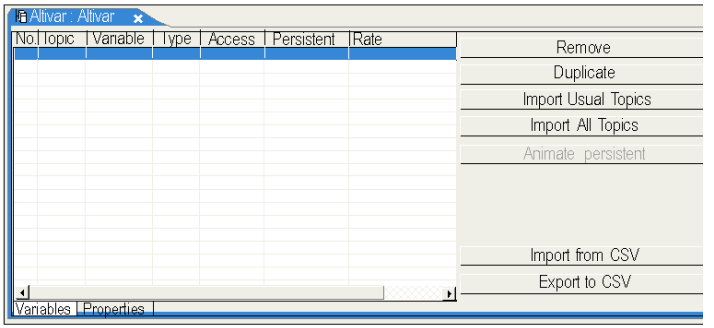
Introduction

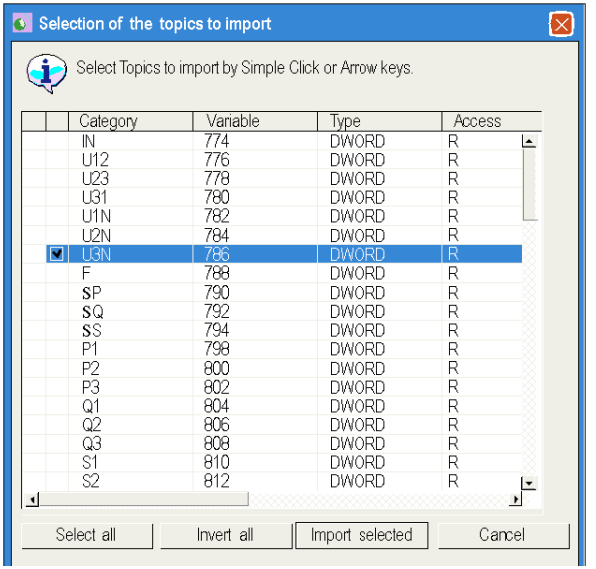
You can import symbols (variables) from devices other than programmable PLCs. Each device gives a predetermined list of symbols.

NOTE:

- If you want to associate variables with Services, you must select the persistent mode for these variables.
- Depending on the devices that you connect to the target, the type of variables you can access *(see page 126)* through the target might be different.

Selecting Variables

Step	Action
1	Double-click the desired device in the *Devices* directory. **Result**: the following window appears.  **Topic** : Name of the variable. **Variable** : Address of the variable. **Type** : Type of variable. **Access** : Access right to the variable. **Persistent** : Access mode to the variable. **Rate** : Frequency at which the variable value will be refreshed.

Step	Action
2	Click **Import Usual Topics**. **Result**: the following window appears. 
3	Select desired variables with **CTRL+click**.
4	Click **Import selected**. **Result**: the variables appear in the Device window.

Namespace Window

Button	Function
Remove	Delete the variable.
Duplicate	Duplicate the variable.
Import Usual Topics	Open a selection window of variables.
Import all Topics	Import all the variables of the device.
Animate	This button is used to switch to animation mode.
Import from CSV	Import all the variables from a CSV file.
Export to CSV	Export the variables to a CSV file.

Origin of Variables

Internal variables come from a description file of the device.

If the device is unknown (type Other), you can import variables extracted from a *CSV* file.

For cards with an Altivar variator extension, the list of symbols comes from an export file *XML* Codesys.

Manual Edit

Presentation

You can manually add variables by directly entering a symbol, an address, its type and define the access right in the Variables window of each device.

When all the variables are created by the user, it's not possible to synchronize with a database for PLC type devices.

NOTE: Depending on the devices that you connect to the target, the type of variables you can access *(see page 126)* through the target might be different.

Automatic Input

Automatic Input is an option that makes easier the manual creation of variables by incrementing the value of the last record.

If you select this option, the value of the fields is automatically filled when you add a new variable. The values correspond to those of the previous line incremented by 1.

Activating / Deactivating Automatic Input:

Options →Automatic Input

Supported Variables

Introduction

Depending on the devices that you connect to the target, the type of variables you can access through the target might be different.

This part lists the types of variables supported for each devices.

NOTE: Strings and Bits of Word are treated separately at the end of this part.

Premium Unity

Address	Types
%MWn	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL
%Mn	EBOOL

NOTE: ‘n’ is comprised between 0 and 65535.

Quantum Unity

Address	Types
%MWn	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL
%Mn	EBOOL

Address	Types
%IWn	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL
%In	EBOOL

NOTE: ‘n’ is comprised between 1 and 65535.

Premium / Micro

Address	Types
%MWn	INT
	UINT
	WORD
%MDn	DINT
	UDINT
	DWORD
%MFn	REAL
%Mn	BOOL

NOTE: ‘n’ is comprised between 0 and 65535.

Quantum

Address	Types
00000n	BOOL
10000n	BOOL

Address	Types
30000n	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL
40000n	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL

NOTE: ‘n’ is comprised between 1 and 65535.

Twido

Address	Types
%MWn	WORD
%MDn	DWORD
%MFn	REAL
%Mn	BOOL

NOTE: ‘n’ is comprised between 0 and 65535.

Other IEC

Address	Types
%MWn	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL
%MDn	DINT
	UDINT
	DWORD
%MFn	REAL
%Mn	BOOL
%In	BOOL
%IWn	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL

NOTE: ‘n’ is comprised between 0 and 65535.

Other Direct

Address	Types
n	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL

NOTE: ‘n’ is comprised between 0 and 65535.

TSX ETG 30•• Server

Address	Types
%MWn $0 \le n \le 3000$	INT
	UINT
	WORD
	DINT
	UDINT
	DWORD
	REAL
%MDn $0 \le n \le 3000$	DINT
	UDINT
	DWORD
%MFn $0 \le n \le 3000$	REAL
%Mn $0 \le n \le 2$	BOOL
%In $0 \le n \le 6$	BOOL

Strings

The following table shows you the syntax for strings:

	PLC	Import from the PLC Application	Manual Input
Premium/Micro (PL7)	%MB10:5 INT	Not supported	%MW10:5 STR
Quantum (Concept)	x	x	400010:5 STR
Premium Unity / Quantum Unity	%MW10 STR(10)	%MW10 STR	%MW10:5 STR

NOTE: Strings are not supported by other devices.

Bits of Words

The following table shows you the syntax for bits of words:

	PLC	Import from the PLC Application	Manual Input
Premium/Micro (PL7)	%MW100:X1 BOOL	%MW100:X1 BOOL	%MW100:X1 BOOL
Quantum (Concept)	x	x	400100.1 BOOL
Premium Unity / Quantum Unity	%MW100.1 BOOL	%MW100.1 BOOL	%MW100.1 BOOL
OtherIEC	x	x	%MW100.1 BOOL
OtherDirect	x	x	100.1 BOOL
TSX ETG 30•• Server	x	x	%MW100.1 BOOL

Embedded Advanced Services

8

Scope of this Chapter

This chapter describes the embedded advanced services.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Device and HMI Services	134
Email and SMS Services	136
Calculation Service	143
Database Service	150
Datalogging Service	157
Active Pages Service	168
Recipe Service	174
Recipe Database Service	181

Device and HMI Services

Presentation

The TSX ETG 30•• modules can perform internal standalone processing such as HMI functions. HMI functions also called "services" are executed inside the module itself independently of any other processing done at SCADA level.

The following HMI functions are available:

- **Device Services:** for configuring devices data acquisition (device variables polling).
- **Calculation:** perform calculations scripts for custom data processing.
- **Email:** for alarm or report notification via email or SMS.
- **Datalogging:** automatic archiving of application information such as measures, events, alarms, device status, etc, to CSV log files into TSX ETG 30•• module memory (Flash memory, CF card, USB memory key).
- **Database connection:** automatic archiving of application information into an external relational database (SQL Server, Oracle, MySql).
- **Active pages:** creation of custom dynamic HTML reports.
- **Recipe:** automatic management of recipe data files to initialize a group of variables set at predetermined values when a specified event occurs.

Web Designer for TSX ETG 30•• software is used to configure the HMI services. You only need to configure the parameters for each service; no programming is required.

The software provides a simulation mode to simplify test and debug of the application without being connected to an TSX ETG 30•• module.

Flexible Web HMI Solution

These embedded HMI services provide a robust and reliable solution that can be useful for the following use cases:

- Data concentrator front-end with Web and HMI portal features.
- A standalone Web based HMI running inside the TSX ETG 30•• module when a conventional HMI or SCADA solution is not required. In this case, it provides a flexible cost effective multi user HMI solution using a simple Web browser interface for remote monitoring.
- In combination with a conventional HMI or SCADA solution, they make easier remote monitoring and control.
- A backup solution for SCADA applications. It enables backup of some critical SCADA functions such as data acquisition, datalogging, alarming, reporting, email, etc.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Restrict access to the embedded server by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

HMI Services Limitations

Device and HMI services have the following limitations:

- Device service: 31 devices over serial line, 5 devices over Ethernet, 1 for the TSX ETG 30•• server itself.
- Other HMI services: 6 services in total.
- Variables:
  - a maximum of 1000 variables per application.
  - a maximum of 100 internal variables per application.

Email and SMS Services

Presentation

The TSX ETG 3021 module can automatically and dynamically send email or SMS to alert specified users on:

- production reports
- maintenance reminders
- plant status updates
- other plant information.

The email service enables you to create various email notifications (including names of the recipients, email addresses, message subject, email body and attached files).

Email bodies can include fixed text messages, hyperlinks, file attachments and real-time application values dynamically integrated in the email body at the moment the email is sent by the module. File can be attached to the email (for example Data logging file generated by the Data logging service).

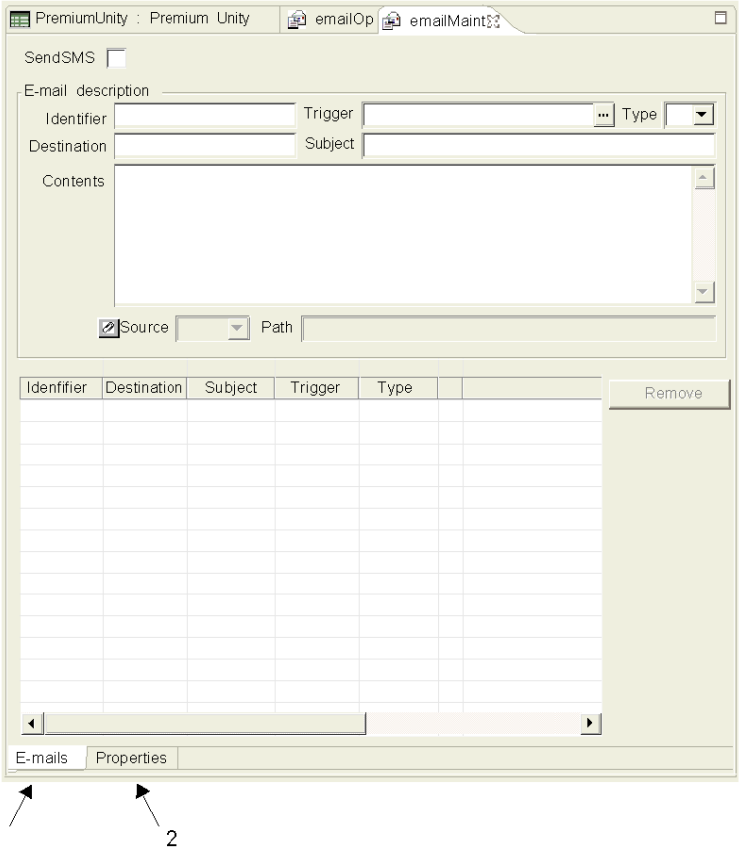
SMS messages may also be sent to mobile phones if you are using a TSX ETG 3021 or if the email server of the client has the capability. SMS is a dedicated configuration of the email service. Email or SMS is sent when predefined application or process event is triggered.

For more information on the email and SMS service principle, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

NOTE:

- The SMS service is only available for the TSX ETG 302• product range.
- The product is not designed for:
  - integrity of data sent by the module with the email or SMS service,
  - the exactness of the time at which the message has been sent.

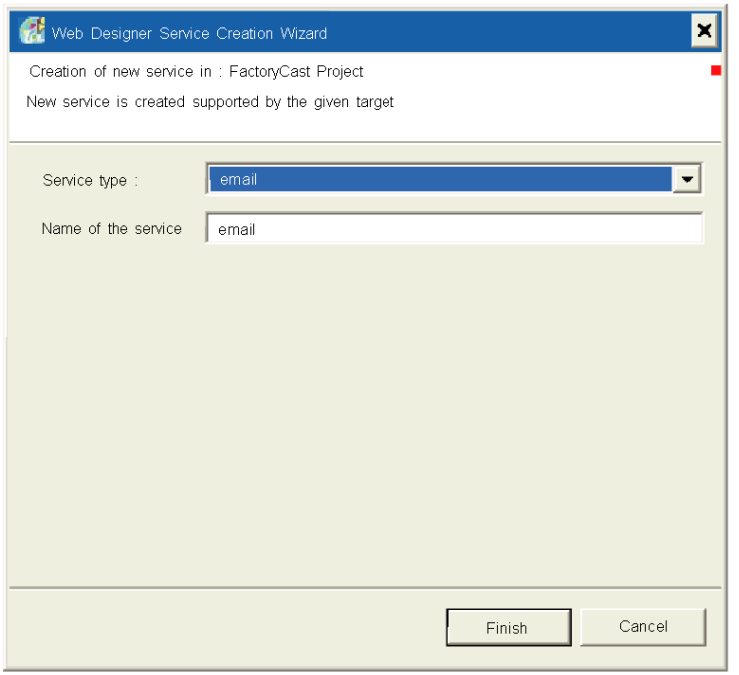
Configuration properties screen for email and SMS services:



1 Use this button to configure e-mails or SMS to be sent.
2 Use this button to configure e-mails or SMS properties.

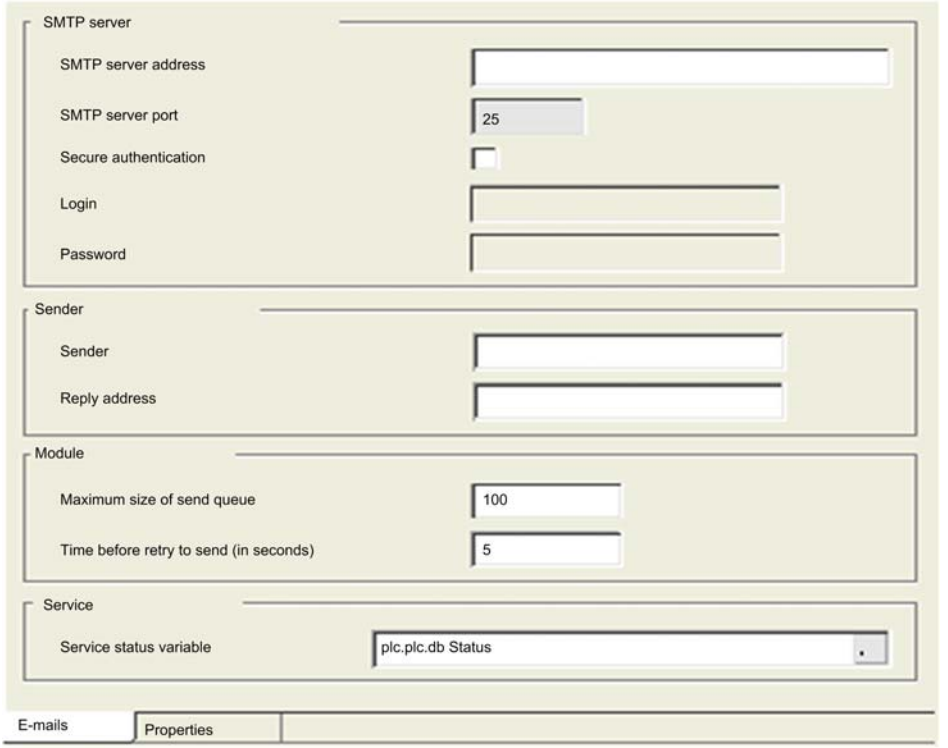
Creating an Email or a SMS Service

The table below describes how to create an e-mail or a SMS service:

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: • Click **Project** →**New** →**Service** or, • Right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **email** in the **Service Type** list box.
4	Enter a service name or click on **Finish** to keep the name by default.
5	The email service has been created.

Configuring the Server

The properties configuration screen for the email and the SMS service is shown below:



The fields in the properties configuration screen are:

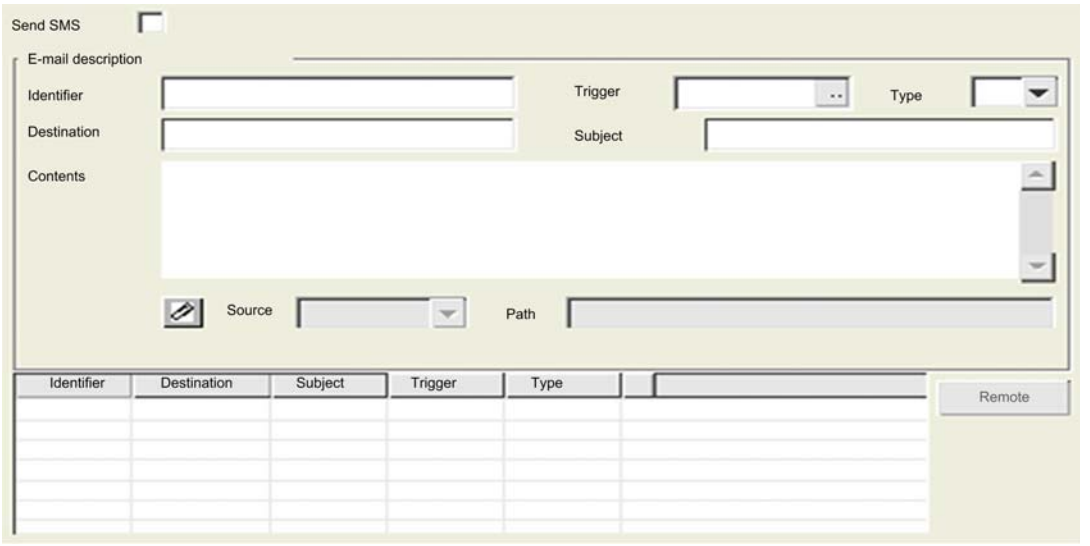
Fields	Function
SMTP server	
SMTP server address	SMTP address of the server.
SMTP server port	TCP port used by the SMTP server (generally port 25).
Secure Authentication	Select this box if authentication is needed to access the SMTP server. The server must allow PLAIN or LOGIN authentication.
Login	Login to access the SMTP server.
Password	Password to access the SMTP server.

Fields	Function
Sender	
Sender	Email address of the sender of the message.
Reply address	Email address to which a reply will be sent if the user clicks **Reply**.
Module	
Maximum size of the send queue	Maximum number of emails that can be stored in the buffer memory before being sent: • Default value = 100, • Minimum value = 30, • Maximum value= 200.
Time before retry is sent (in seconds)	Delay before emails stored in the buffer memory are re-sent after failure: • Default value = 15 s, • Minimum value = 5 s, • Maximum value= 3,600 s.
Service	
Service status variable	Used to determine the status of the Email service.

NOTE: When the maximum number of emails is reached (100), no further messages can be queued.

Configuring the Email and the SMS Service

The email and SMS configuration screen is shown below:



The fields in the email and SMS configuration screen are:

Fields	Function	
Send SMS	Select this box to send a SMS instead of an email.	
Identifier	Email address or phone number (SMS) of the sender of the message.	
Trigger	Event that will trigger the email.	
Type	**NY**: Notify	Triggered by bit status change or word value change.
	RE: Rising Edge	Triggered by a bit rising edge or by an increasing word value.
	FE: Falling Edge	Triggered by a bit falling edge or by a decreasing word value.
	BQ: Bad Quality	Triggered if the trigger status is Bad quality.
Destination	Email addresses or SMS numbers of the recipients (separator ‘,’).	
Subject	Subject of the notification.	
Content	Content of the notification.	
	Click this button to attach a file to the email (not available in the case of a SMS).	
Source	Select the media from which the attached file comes from (not available in the case of a SMS).	
Path	Specify the name and the path of the file to be attached to the email. Typical attached files are Datalogging CSV files. Default path is /USERDATA for all Media.	

NOTE:

- You can include dynamic application data inside the message body:
  - double click in the body of the message at the place where you want to display the value of a variable and select the variable within the list which is displayed.
  - type the variable name between brackets.
- The following fields are mandatory to record and save an email: **Identifier**, **Trigger** and **Destination**.

Limitations

The number of messages (email or SMS) you can configure in the project is restricted to 100.

The maximum number of email or SMS services is 2.

NOTE: The SMTP server must allow PLAIN or LOGIN authentication. Other authentication protocols are not supported.

Calculation Service

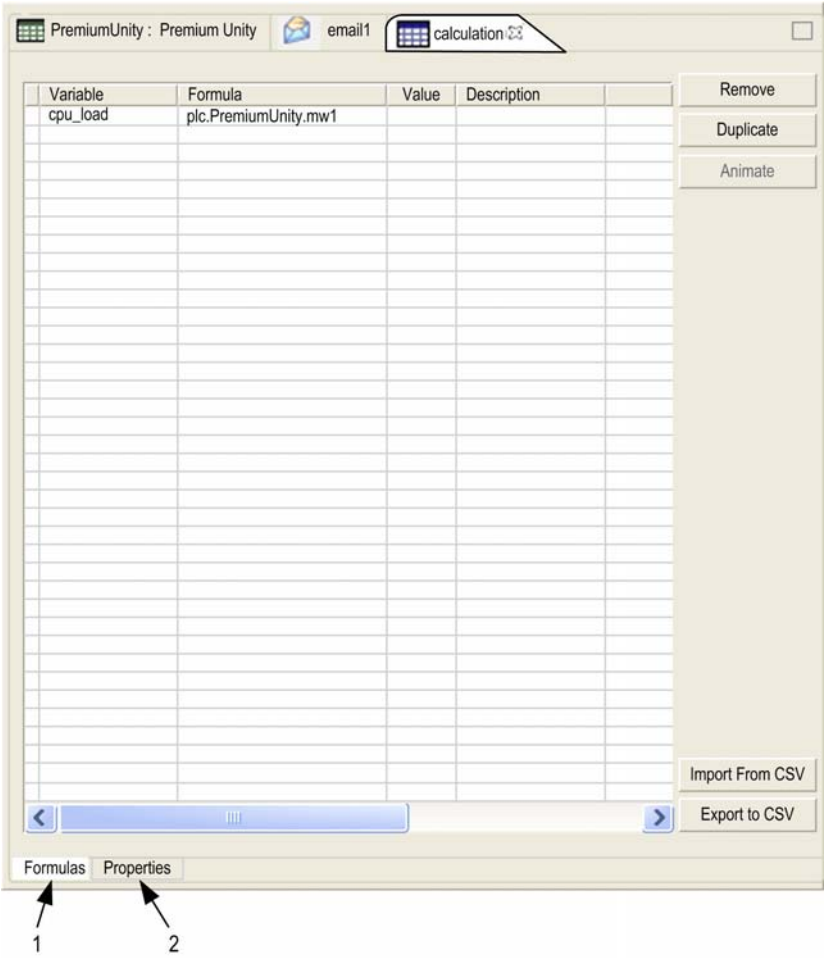
General

The TSX ETG 30•• module can perform various arithmetic and logical operations on a combination of application variables. The calculation service also enables you to read/write variables of the device service as well as inputs/outputs of the embedded I/O board. Some of these calculations include scaling, formatting, and logic processing for event triggering.

The calculation service comprises spreadsheet where formulas are defined in cells. The spreadsheet is interpreted and processed by the server. The result of each formula is associated with a new internal variable. Formulas are executed periodically, according to the rate configured for each spreadsheet.

For more information on the Calculation service principle, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

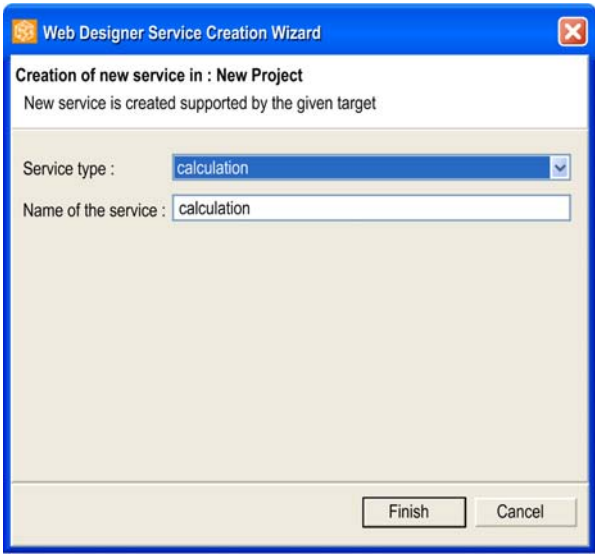
The configuration properties screen for the Calculation service is shown below:



1 Use this button to configure formula.
2 Use this button to configure properties common to all formula.

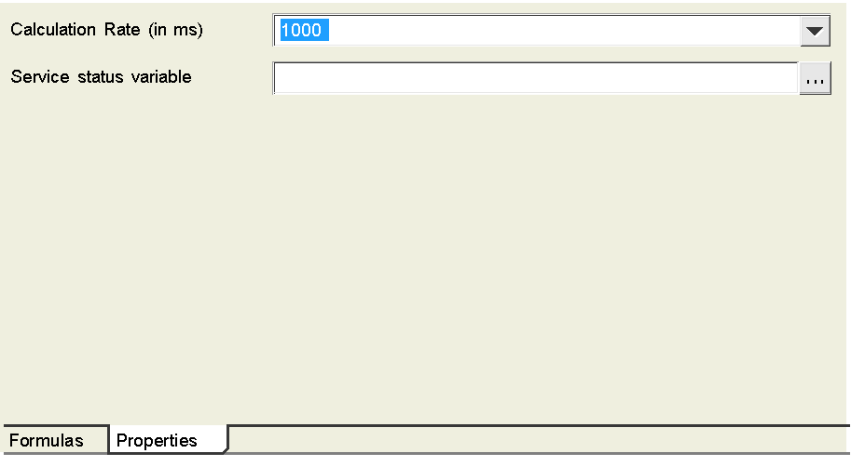
How to Create a Calculation Service

The table below describes how to create a Calculation service:

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: • Click **Project** →**New** →**Service** or, • Right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **Calculation** in the **Service Type** list box.
4	Enter the service name, or click **Finish** to keep the name by default.
5	The Calculation service has been created.

Configuring the Properties

The properties configuration screen for the Calculation service is shown below:

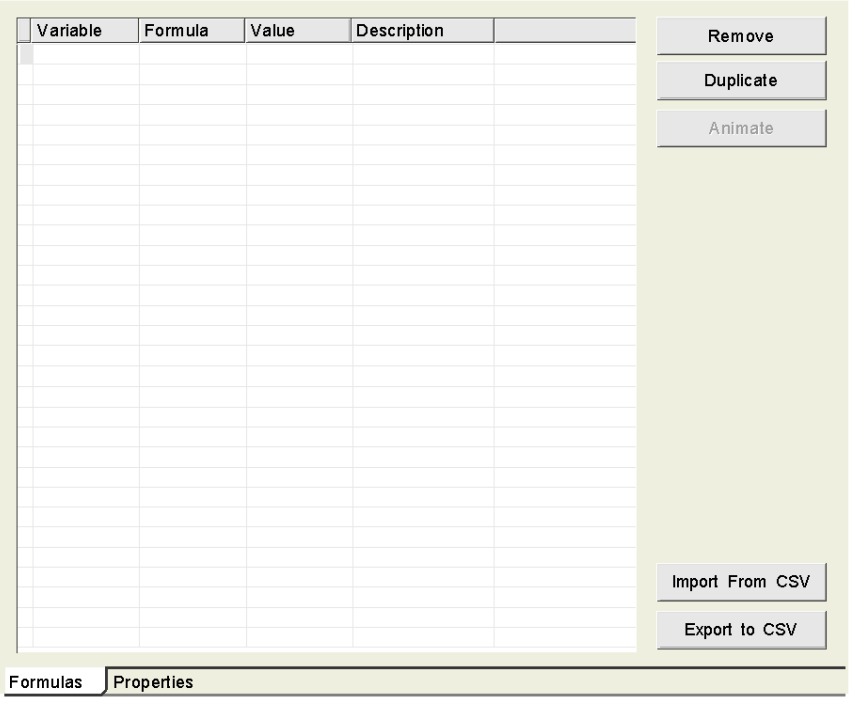


This table describes the fields in the Calculation configuration screen:

Fields	Function
Calculation rate (in ms)	Frequency of execution of formula using variables.
Service Status variable	Used to determine the status of the calculation service.

Configuring Formulas

The formula configuration screen for the Calculation service is shown below:



This table describes the fields in the formula configuration screen:

Fields	Function
Variable	Name of the variable. It can be the name of a PLC variable that you set to the value of the calculation result.
Formula	Formula associated with the variables. The operators are limited.
Value	Gives the result of the formula (value of the variable) in real time if your are connected to the module and in animation mode.
Description	Comment on the variable.
Buttons	
Remove	Delete the selected variable from the table.
Duplicate	Duplicate the selected variable.
Animate	Use this button to switch to animation mode. You must be connected to the module or in simulation mode.

Fields	Function
Import from CSV	This button enables you to import symbols from a *.csv* file. You can create this file using Excel or a text editor (in this case, change the *.txt* file extension to *.csv*). You must use the following syntax: *variable,formula,description*.
Export to CSV	This button enables to export the variable table for the current service to a *.csv* file.

List of Available Operators

The following list provides details of numeric binary, boolean and unary operators. The result of the operation is displayed in the Result type column:

Type	Operator	Description	Example
Binary numeric	+	addition	1+2 displays the result "3"
	-	subtraction	5-2 displays the result "3"
	*	multiplication	5*2 displays the result "10"
	/	division	15/3 displays the result "5"
	<	less than	1<2 displays the result "true"
	>	greater than	1>2 displays the result "false"
	<=	less than or equal to	1<=2 displays the result "true"
	>=	greater than or equal to	2>=2 displays the result "true"
	==	equal to	3==2 displays the result "false"
	!=	not equal to	1!=2 displays the result "true"
Boolean numeric	&	and	1+1 displays the result "1"
	|	or	1 | 0 displays the result "1"
Unary	!	inverse	!1 displays the result "0"
	-	sign inversion	-1 displays the result -1
	.<. ? . : .		a<b ? c:d returns c if a<b otherwise the result is d

NOTE:

- The calculation service enables you to mix variables of different types.
- In case of mathematical errors such as divided by 0, the result of the calculation is nan (not a number).

Execution of Formula

Web Designer for TSX ETG 30•• periodically executes formula, according to the frequency configured in the **Properties** screen. The formula cells are interpreted then executed one by one from top to bottom. Web Designer for TSX ETG 30•• updates the associated variable configured in the variable field with the new value.

Limitations

The number of calculations you can configure in the project is restricted to 100.

The maximum number of calculation services is 2.

Database Service

General

The Database service enables the TSX ETG 30•• to perform automatic archiving of application data (process events, status, measures, etc.) into a remote relational database server. Data can be archived (written) periodically or on event. Capability to connect directly TSX ETG 30•• modules to relational databases provide easy integration of control level system into company information management system.

The TSX ETG 30•• module can be connected directly to the following remote relational databases:

- SQL Server,
- MySQL,
- Oracle.

Various database tables can be created per database server. The database service allows data archiving into 3 different database servers for redundancy.

For more information on the Database service principle, refer to the *FactoryCast HMI Gateway TSx ETG 30•• Product Range user manual*.

NOTE: The product is not designed for:

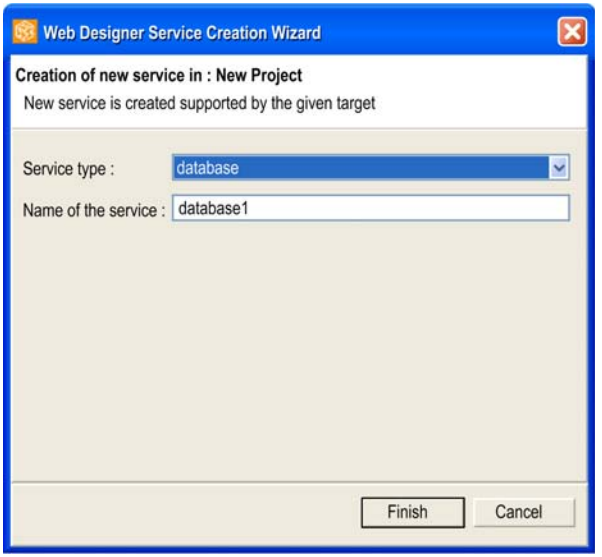
- integrity of data sent by the module with the database service,
- the exactness of the time at which data are logged.

The configuration screen for the Database service is shown below:

1 Use this button to configure the actions list (Database tables).
2 Use this button to configure the general properties of the database.

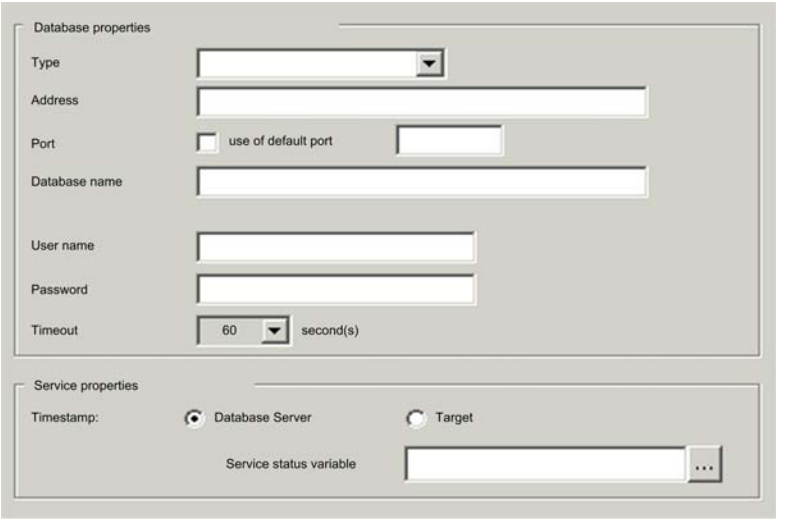
How to Create a Database Service

The following table describes how to create a Database service:

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: • Click **Project →New →Service** or, • Right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **database** in the **Service Type** list box.
4	Enter the service name or click **Finish** to keep the name by default.
5	The Database service has been created.

Configuring the Properties

The properties configuration window for the Database service is shown below:

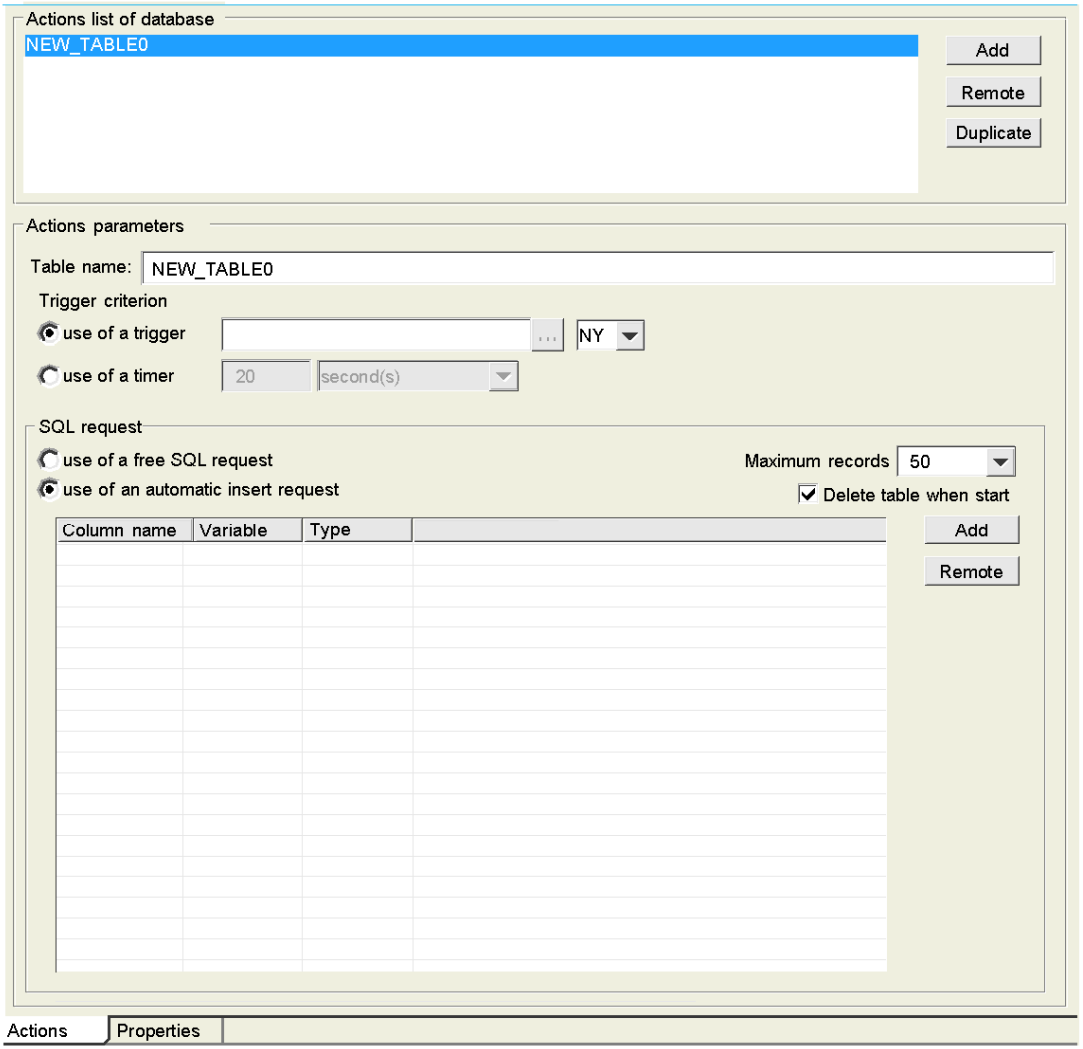


The following table describes the parameters of the database service:

Fields	Function
Type	• **Oracle**: from version 8i to 10g or above • **mySql**: from version 4.1 to 5.5 or above • **SQL_Server**: from version 6.5 to 2008 R2 or above
Address	IP address of the database server.
Port	Used to validate a default address.
Use default port	Port used by the database to access the server.
Database name	Name of the database that will contain all data configured by the user.
User name & Password	Protection of database and access by username and password (database connection string).
Timeout	Period of time that will be allowed to elapse before the system kills the current process when an anomaly occurs.
Service status variable	Used to determine the status of the database service.

Configuration of the Action List (Database Tables)

The configuration screen for the Database tables is shown below:



The following table describes the fields in the database tables configuration screen:

Fields		Function
Actions List of the database		List of all tables configured on the server. Use the **Add**, **Remove** and **Duplicate** buttons to create, delete or copy a table. When you duplicate an existing database, the new name will have the suffix _copy added to its original name.
Actions parameters		Name of the new archiving table. If the table does not exist in the database, it will create it on the first connection. To trigger variable logging, you must specify an event. This will either be a periodic event (use periodic log), in which case you need to set a time base, or it will be an event associated with a variable (use trigger), in which case you need to provide the name of the variable (for example, calculation.calculation1.Pressure1).
SQL Request		Two options are available: ● create SQL requests in the **Free Text SQL Request** window, ● or use the table provided to specify the name of the column, and the variable type and name. In this case, the column name syntax must comply with the database syntax. As a general rule, avoid using punctuation marks, upper case letters, and hyphens, (refer to your database documentation).
	Maximum records	Configure the maximum number of records that will be stored in a database table. If that number is reached, the oldest data are erased.
	Delete table when start	If the box is checked, the database table will be deleted on restart of the module.
	Column name	Name of the column. Its syntax must comply with the database syntax.
	Variable	Variable to be logged.
	Type	Type of the variable.

Database Properties

The table below shows the equivalents of Xopen types for other databases:

Xopen type	MySql,	Oracle 8i,	SQL Server.
BOOLEAN	SMALLINT	NUMBER(1)	SMALLINT
TINYINT	SMALLINT	SMALLINT	SMALLINT
SMALLINT	SMALLINT	NUMBER	SMALLINT
INTEGER	INTEGER	NUMBER	INTEGER
BIGINT	DECIMAL(200)	NUMBER	NUMERIC(38,0)
DOUBLE	DECIMAL(50,80)	NUMBER	FLOAT(32)
REAL	REAL	REAL	REAL

Xopen type	MySql,	Oracle 8i,	SQL Server.
TIMESTAMP	TIMESTAMP	TIMESTAMP	TIMESTAMP
DATE	DATETIME	DATE	DATETIME
VARCHAR	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)
All other types	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)

Limitations

The maximum number of database services that can be configured is 3.

The maximum number of database tables is 10 per service.

The maximum number of columns/variables is 50 per table.

Datalogging Service

Introduction

The datalogging service allows application data archiving (events, alarms, process data, devices status, measures, etc.) in the internal memory of the TSX ETG 30•• module. This service allows you to log data into local CSV files in ASCII format. The CSV files are stored in the memory of the TSX ETG 30•• module (internal flash memory or saved memory of the module, Compact Flash (CF) card or USB memory key).

The datalogging can be performed either periodically, or when a specific event occurs (configured by the user). CSV files are directly usable by a MS Excel spreadsheet or a database management system (DBMS). The CSV files can also be sent via FTP, or attached to an email (using the email service) and sent automatically to specified users. The CSV files can also be accessed by FTP client.

You can use the datalogging history files to animate the Datalogging history *(see page 236)* trending in the Graphic Editor.

For more information on the Datalogging service principle, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range User Manual*.

Accessing the Datalogging Configuration and Properties Screen

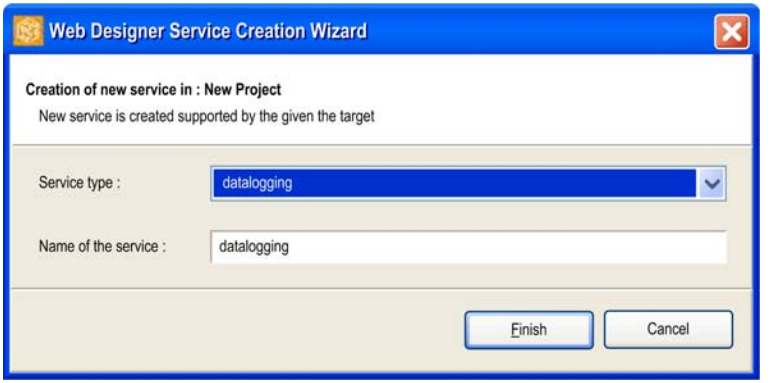
To access the datalogging configuration screen, double click on Datalogging in the project navigation window.

The configuration properties screen contains:
- a **Configuration** tab
- a **Properties** tab

The **configuration** properties screen for the Datalogging service is shown below:

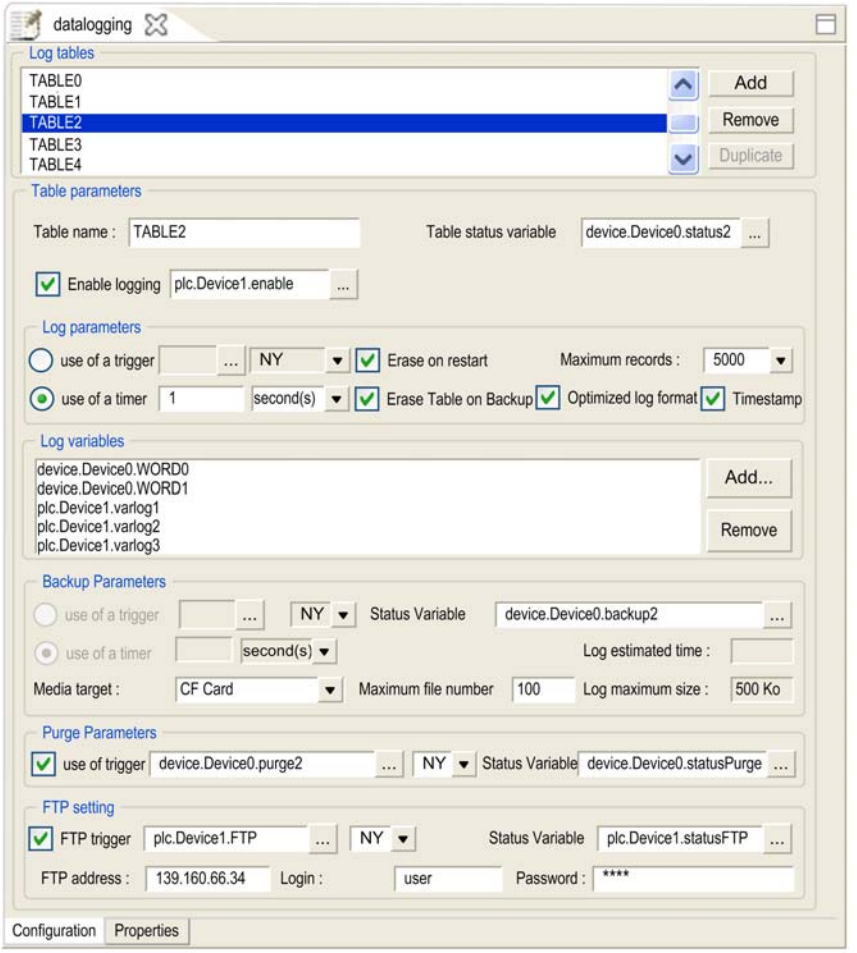
1 Use this tab to customize the Datalogging service.
2 Use this tab to configure the general properties of the Datalogging service.

How to Create a Datalogging Service

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: • click **Project →New →Service** or, • right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **datalogging** in the **Service type** list box.
4	Enter the service name or click **Finish** to keep the name by default.
5	The datalogging service has been created.

NOTE: You can create only one datalogging service.

View of the Datalogging Configuration Screen



Datalogging Configuration Screen Parameters

Log Tables Parameters:

Fields	Function
Log Tables	List of the current log tables stored in the module. It is possible to: ● Create a new log file using the **Add** button, ● Remove a log file using the **Remove** button, ● Duplicate a log file using the **Duplicate** button.

Tables Parameters:

Fields	Function
Table name	Name of the log file that contains all data configured by the user.
Table status variable	Determine the status of the table.
Enable logging	By selecting this check box and defining an associated variable in the **Enable logging** variable, the table can only perform actions such as: log data, backup, purge or FTP when the associated variable is set to a value other than zero and when the trigger is activated. **NOTE:** Select the type of trigger in the drop down menu. Refer to Meaning of the Trigger Types *(see page 166)*.

Log Parameters:

Fields	Function
Use of a trigger / timer	To trigger logging of variables, you must configure an event in the **Use of a trigger / timer** variable. This event must be either: • a periodic event (**use of a timer**), in which case you need to set a time base • an event associated with a variable (**use of a trigger**), in which case you need to provide the name of this variable (for example, calculation.calculation1.Pressure1). **NOTE:** Select the type of trigger in the drop down menu. Refer to Meaning of the Trigger Types *(see page 166)*.
Erase on restart	Selecting this check box deletes the table log files on restart of the module.
Erase Table on Backup	Selecting this check box removes the previous logs in the table after backup, so the table restarts empty.
Timestamp	Selecting this box records in the log file Timestamp (hour and date) for each event. **Note:** Timestamps are mandatory if you want to use the log file for a Datalogging History *(see page 236)*.
Optimized log format	Selecting this box for optimizes the log file format *(see page 163)* of the *.csv* file. In this case, the variable name does not appear in each record.
Maximum record number	Configures the maximum of records that can be stored in a log file. If that number is reached, new records overwrite old records.

Log Variables Parameters:

Fields	Function
Log variables	The **variable name** part lists the variables (PLC/devices or Calculation variables) that are stored in the log file. It is possible to: ● Create a new log variable using the **Add** button ● Remove a log variable using the **Remove** button

Backup Parameters:

Fields	Function
Use of a trigger / timer	To trigger logging of variables, you must configure an event in the **Use of a trigger / timer** variable. This event must be either: ● a periodic event (**use of a timer**), in which case you need to set a time base ● an event associated with a variable (**use of a trigger**), in which case you need to provide the name of this variable (for example, calculation.calculation1.Pressure1). The **use of a trigger** and **use of a timer** fields are greyed-out depending whether the **Global backup** check box from the datalogging properties windows *(see page 164)* is checked. **NOTE:** Select the type of trigger in the drop down menu. Refer to Meaning of the Trigger Types *(see page 166)*.
Media target	Use to define the media target to use.
Maximum file number	Defines the maximum number of CSV files to use for each table. By default it is set to 2. The maximum authorized value is 100. The last file is the .csv file, the previous is the .0 file.
Status variable	Determine the status of the Backup action. The status is set to 0 when the service starts, to 1 when the backup action begins, and to 2 when the backup action completes.
Log estimated time	Provides information on the time length of the log based on the maximum file number, the logging and backup period. It is only available when using a timer.
Log maximum size	Provides the maximum log size. this field can be changed via the backup parameters in the datalogging Properties Screen *(see page 164)*.

Purge Parameters:

Fields	Function
Use of trigger	Specifies the event that triggers the purge.
Status Variable	Determine the status of the Purge action. The status is set to 0 when the service starts, to 1 when the purge action begins, and to 2 when the purge action completes.

FTP Settings:

Fields	Function
FTP trigger	Specifies the event that triggers sending the selected table log files (CSV file) via FTP.
FTP address	The address of the remote FTP server.
Status Variable	Determine the status of the FTP action. The status is set to 0 when the service starts, to 1 when the FTP action begins, and to 2 when the FTP action completes.
Login and Password	Login parameters for the remote FTP server access.

FTP Access to Datalogging CSV Files

Datalogging CSV files stored in the module memory can be accessed from any FTP client utility using the following path in each of the memory media of the module:

- /NAND/FLASH1/USERDATA for the internal Flash.
- /RAMDISK/USERDATA on the internal saved RAM.
- /CFA00/USERDATA on the CF card.
- /USBHD/00/USERDATA on the USB key.

File Format

The file format is fixed and cannot be modified by the user. The file is encoded in the ASCII format as a text file with a *.csv* extension. Microsoft Excel is able to open these files.

Example of log file:

2007-10-01;02:44:55;plc.plc1.height;150;plc.plc1.length;200;plc.plc1.width;50;

2007-10-01 03:48:08; plc.plc1.height;140;plc.plc1.length;150;plc.plc1.width;30;

2007-10-01 04:55:10; plc.plc1.height;220;plc.plc1.length;280;plc.plc1.width;80;

2007-10-01 06:01:05; plc.plc1.height;170;plc.plc1.length;220;plc.plc1.width;60;

Example of optimized log file:

Date;plc.plc1.height;plc.plc1.length;plc.plc1.width;

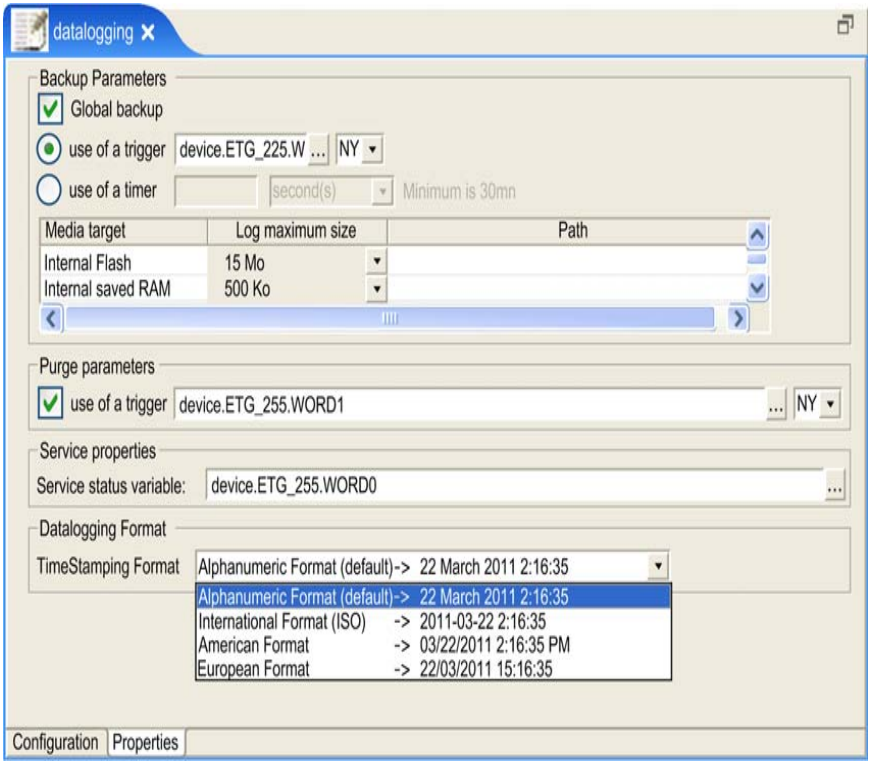
2007-10-01 02:44:55;150;200;50;

2007-10-01 03:48:08;140;150;30;

2007-10-01 04:55:10;220;280;80;

2007-10-01 06:01:05;170;220;60;

View of the Datalogging Properties Screen



Datalogging Properties Parameters

Backup Parameters:

Fields	Function
Global backup	When checked, all created tables use the same event to trigger a backup. When not checked, each created table has its own event to trigger a back up. **NOTE:** When a **Global backup** check box is ticked, the fields **use of a trigger** and **use of a timer** become available.
use of a trigger	Provide the name of a variable to trigger variable logging on an event associated to this variable. **NOTE:** Select the type of your trigger in the drop down menu available on the left. The meaning of those types is available at Meaning of the Trigger Types *(see page 166)*.
use of timer	Provides a periodic time base to trigger variable logging on an event.

Fields	Function
Media target	**Internal saved RAM** to store the information on the RAM memory of the module **Internal Flash** to store the information on the Internal Flash memory of the module **CF card** to store the information on the Compact Flash card of the module **USB** to store the information on a USB memory key
Log maximum size	Specify the maximum size of memory allocated to the backup files. The maximum log file size is defined for each media via the drop down menu, but the value can be changed. For more information, refer to Datalogging Limitations *(see page 166)*.
Path	If empty, the default path is \USERDATA for each of the media in Media target as follows: ● /NAND/FLASH1/USERDATA for the internal flash ● /RAMDISK/USERDATA for the internal saved RAM ● /CFA00/USERDATA for the CF card ● /USBHD/00/USERDATA for the USB key You can specify different relative paths if necessary, for example: ● **MYDIR** in Internal Flash Path field: the files will be created in /NAND/FLASH1/USERDATA/MYDIR ● **MYDIR/MYSUBDIR** in CF Card Path field: the files will be created in /CFA00/USERDATA/MYDIR

Purge Parameters:

Fields	Function
Use of a trigger	If checked, this event triggers a purge of the current backup files on all media currently in use. **NOTE:** Select the type of your trigger in the drop down. Refer to Meaning of the Trigger Types *(see page 166)*.

Service Properties Parameters:

Fields	Function
Service status variable	Selects the variable with the associated event that is to be used as a trigger to check the status of the Datalogging service.

Datalogging Format Parameters:

Fields	Function
TimeStamping Format	Selects the format for the timestamping (Alphanumeric,International, European,American).

NOTE: With Microsoft Excel, in International and European formats, by default, the seconds are not displayed.

To see the seconds:

- Modify and add second in the cell format for the column date (jj/mm/aaaa hh:mm:ss) before saving the file.

Meaning of the Trigger Types

You can select the type of your trigger. The types available are:

Type	Meaning	Function
NY	Notify	Triggered by a change from a bit status or word value.
RE	Rising Edge	Triggered by a bit rising edge or by an increasing word value.
FE	Falling Edge	Triggered by a bit falling edge or by a decreasing word value.
BQ	Bad Quality	Triggered if the trigger status has bad quality.

Datalogging Limitations

The Datalogging service has the following limitations:

- The maximum number of Datalogging services is 1.
- The maximum number of tables is 10 in total.
- The maximum number of variables is 100 per table.
- The maximum number of records per table is 10000.
- The maximum number of backup copies is 2 by default (up to 100 backup CSV files per table), it may be changed for each table.
- The Datalogging Service Web Designer application must be designed to require less than 1 MB of memory.

Maximum Log Size Limitation

The memory space allocated to the datalogging service is limited depending on the type of media used.

The following table provides the possibilities of memory space allocation per type of media

Allocated Memory Possibilities	**Type of media**			
	Internal saved RAM	**Internal Flash**	**CF Card**	**USB Storage**
250 Ko	Yes	–	–	–
500 Ko	Yes	Yes	Yes	–
750 Ko	–	Yes	–	–
1 Mo	–	–	Yes	Yes
5 Mo	–	–	Yes	–
10 Mo	–	–	Yes	Yes
100 Mo	–	–	Yes	–

Allocated Memory Possibilities	Type of media			
	Internal saved RAM	Internal Flash	CF Card	USB Storage
256 Mo	–	–	Yes	Yes
512 Mo	–	–	Yes	Yes
1 Go	–	–	Yes	Yes
2 Go	–	–	–	Yes

Active Pages Service

General

The active pages service allows you to create custom dynamic HTML pages that can be used for real-time HTML reporting. Active pages service can incorporate real-time values of application variables into the body of the HTML pages with a behavior similar to an active server page. Real-time values are refreshed by the sever side in run-time.

This technology has 2 benefits:

- Creation of animated Web pages without using Java applets, so that HTML page size is kept to a minimum. Very useful in case of modem connection or in a Pocket PC environment.
- The only protocol used for communication with the browser is HTTP, so this technology can cross firewalls.

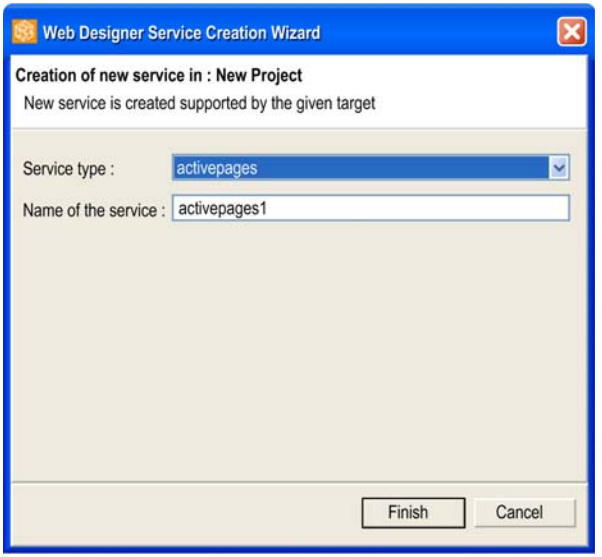
For more information on the Active Pages service principle, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

The configuration properties screen for the Active Pages service is shown below:

1 Use this button to configure the Active Pages service.
2 Use this button to configure properties of the pages.

How to Create an Active Pages Service

The following table describes how to create an Active Pages service:

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: ● Click **Project →New →Service** or, ● Right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **active pages** in the **Service Type** list box.
4	Enter the service name or click **Finish** to keep the name by default.
5	The Active Pages service has been created.

Configuring the Properties

The properties configuration screen for the Active Pages service is shown below:

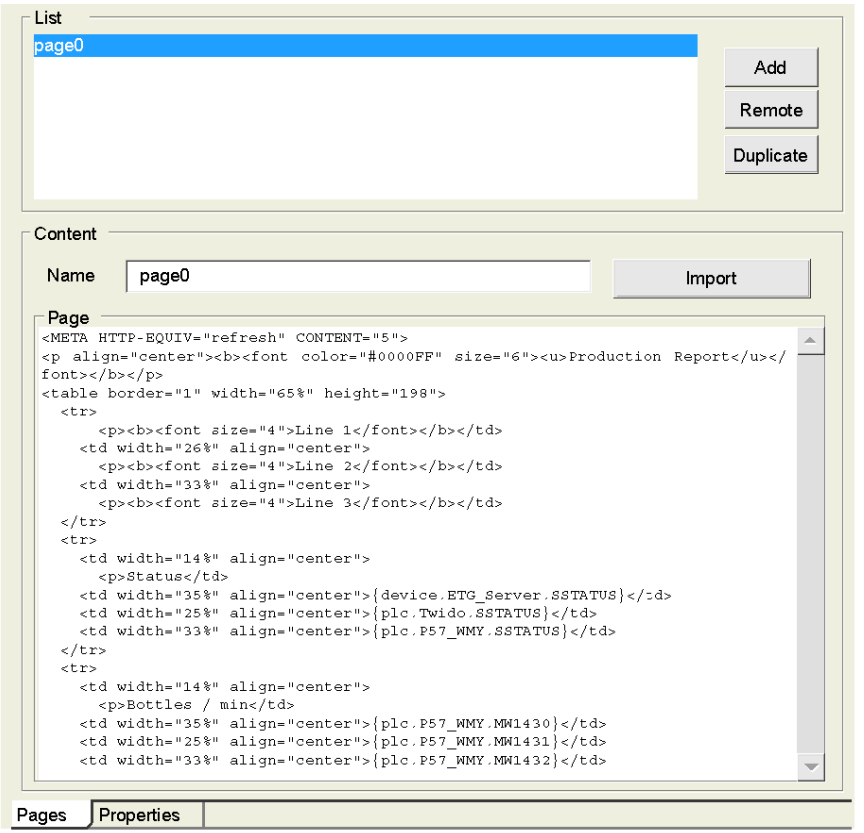
The following table describes the fields in the properties configuration screen:

Fields	Function
Port	Active pages port number for the server IP address. The port numbers are between 1024 and 65535. By default, the first port declared will be assigned number 1606.
Service status variable	Used to determine the status of the Active Pages service.

NOTE: It is possible to create two Actives Pages services. In this case, you must configure the two services with different port numbers.

Configuring Pages

The Pages configuration screen for the Active Pages service is shown below:



The following table describes the fields in the page configuration screen:

Fields	Function
List	List of all the active HTML pages on the server. Use the **Add**, **Remove** and **Duplicate** buttons to create, delete or copy a page. When you duplicate an existing page, the new name will have the suffix _copy added to its original name.
Import	Use this button to import complete HTML code from an *.htm* or *.txt* file. You can create the file with Frontpage or a text editor. It overwrites the code already written to the page.
Name	Name of the page currently being created. You can rename the page using this field.
Page	Use this field to write the HTML code for the current page or to view code which has been imported. Double-clicking in the field enables you to display the list of variables. If you select one of these variables, it is directly incorporated into the code. When one of these variables is selected, it is directly incorporated into the code so that in runtime, realtime value of PLC or devices variables will be refreshed in the HTML report.

Accessing the Pages

To access the pages, use the following syntax:

- http://IP address of module: Active Pages port or
- http://domain name of module: Active Pages port

Example:

- *http://139.160.234.166:1606*
- *http://hmi4:1606*

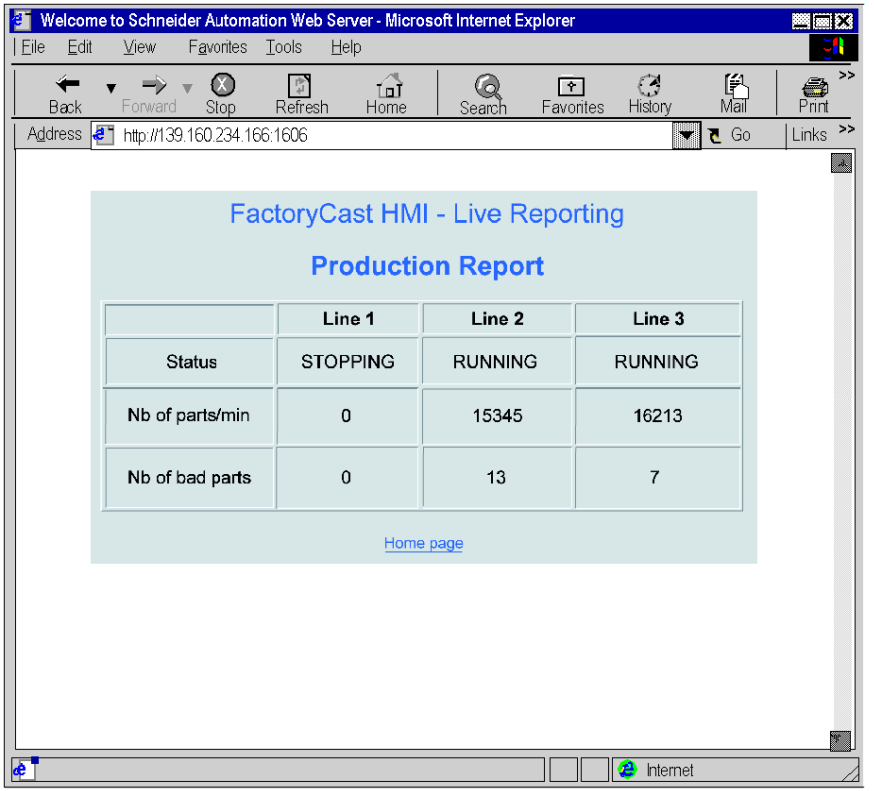
To access a specific page, you must use the following syntax:

- http://IP address of module: Active Pages port / name of page
- http://domain name of module: Active Pages port / name of page

Example:

- *http://139.160.234.166:1606/page0*
- *http://hmi4:1606/page0*

The following diagram illustrates an example of an Active Page report:



NOTE: Automatic refresh of the page called up is not available by default but you can include a refresh command in the HTML code of the page.

Example of HTML code you can use in a page to be refreshed:

```
<meta http-equiv="refresh" content="1";url="page1">
```

`where content= refresh time in seconds;url=name of page to be reloaded`

Limitations

The maximum number of active page services is 2 per project.

The active pages service may include up to a maximum of 64 pages in the project.

1,000 variables can be declared for the entire set of project pages.

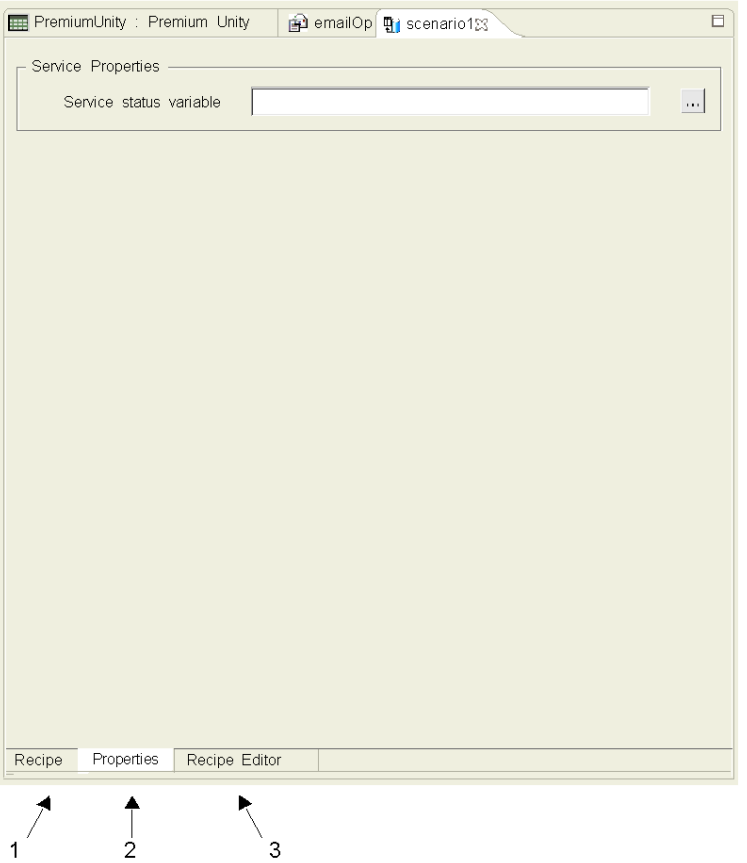
Recipe Service

General

The Recipe service is used to initialize a group of variables set at predetermined values (also called recipe) when a specified event occurs. The predetermined values are saved in a recipe file in XML format. Recipe files can be stored locally in the TSX ETG 30•• memory or in a remote PC.The recipe execution is initialized automatically by the TSX ETG 30•• module on an event trigger (process event, operator action, etc). When the event occurs, the recipe service accesses the recipe file (in XML format) stored locally or remotely through an HTTP server, reads the values that correspond to the variables, then updates the PLC variables.

For more information on the Recipe service principle, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

The Recipe service configuration screen is shown below:

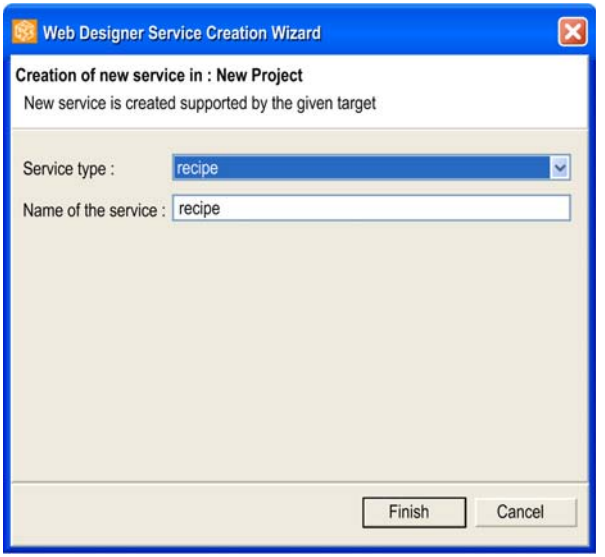


The numbered references are as follows:

Reference	Function
1	View the recipe service's status with this tab.
2	Configure recipes' properties with this tab.
3	Configure a recipe's values with this tab.

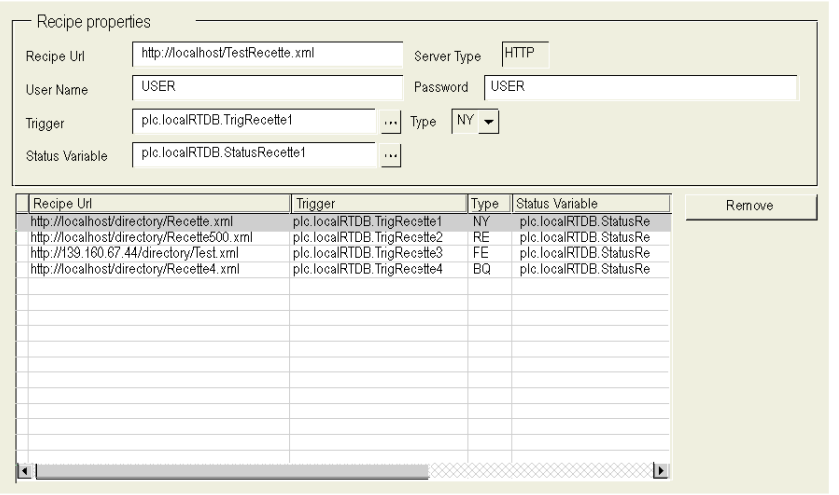
How to Create a Recipe Service

The table below describes the procedure to create a Recipe service:

Step	Action
1	Click your project's name in the navigator.
2	To add the new service: • Click **Project →New →Service** or, • Right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **recipe** in the **Service Type** list box.
4	Enter the service name or click **Finish** to keep the name by default.
5	The Active Pages service has been created.

Configuring the Properties

The configuration screen for the Recipe service is shown below:

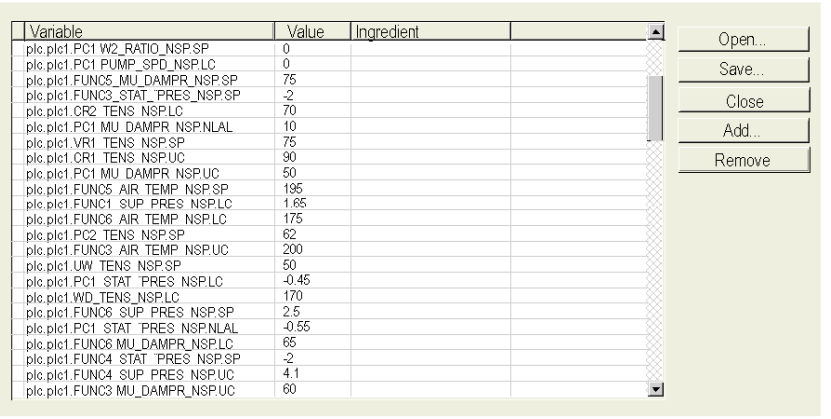


This table describes the various fields that make up the configuration screen:

Field	**Function**	
Recipe URL	Location of the recipe file, with the extension .xml. If the file is stored in the module, the URL must be in the format *http://localhost/directory/filename.xml*, or *http:///IP address of HTTP server/directory/filename.xml*.	
Username	Username for connecting to the HTTP server.	
Password	Password for connecting to the HTTP server.	
Status Variable	Variable that describes the recipe's status.	
Trigger	Variable from which the event is triggered.	
Type	NY: Notify	Triggered on a bit or word value state change.
	RE: Rising Edge	Triggered on a rising edge for a bit, or a value increase for a word.
	FE: Falling Edge	Triggered on a falling edge for a bit, or a value decrease for a word.
	BQ: Bad Quality	Triggered if the trigger status is "Bad quality".
Remove	To remove a recipe from the list.	

Recipe Editor

Use the Recipe Editor screen to input a recipe's values in an XML-format recipe file:



This table describes the Recipe Editor:

Field	Function
Variable	Name of the variable to which a value is to be given.
Value	Value to attribute.
Ingredient	Optional comment to describe the variable's role.
Open	To open an XML-format recipe file.
Save	To save a recipe as an *.xml* file.
Close	To close the Recipe Editor.
Add...	To add a variable.
Remove	To remove a variable.

Adding Variables

This table describes how to add variables:

Step	Action
1	Click **Add**. **Result**: the variable selection box is displayed.
2	Select the variables to insert into the recipe file. You can select multiple variables by holding down the Ctrl or Shift keys while left-clicking.
3	Click **Confirm**. **Result**: the recipe file contains the selected variables.

Saving a Recipe File

This table describes how to save a recipe file:

Step	Action
1	Click **Save**. **Result**: the **Save as** dialog box appears.
2	You must save the file on disk in order to transfer it to an HTTP server later. If you would like the file to remain local to the module, you must save it in a directory located in the website root of the project currently being configured. For example: *C:\Program Files\Schneider Electric\FactoryCast HMI\workspace\project_name\wwwroot\recipes\my recipe.xml*.
3	Click **Save**. **Result**: the recipe file is saved.

Transferring a Recipe File to a Module

This table describes how to transfer a recipe file to a module:

Step	Action
1	In the navigator, select the recipe file to transfer in the directory located under the website root (*wwwroot*).
2	Right-click **Partial transfer** and select **PC -> Target**.

NOTE: For a recipe file that is not local to the module, you must first transfer it to the target HTTP server without using Web Designer.

Example of an XML File

```
<?xml version="1.0" encoding="utf-8" ?> -
<table>-
 <data>
  <name>plc.localRTDB.VarRecette403</name>
   <value>4</value>
   <ingredient>douwn part black</ingredient>
   </data>- <data>
  <name>plc.localRTDB.VarRecette402</name>
   <value>3</value>
   <ingredient>up part blue</ingredient>
   </data>- <data>
  <name>plc.localRTDB.VarRecette401</name>
   <value>2</value>
   <ingredient>left part red</ingredient>
   </data>- <data>
  <name>plc.localRTDB.VarRecette400</name>
   <value>1</value>
  </data>
</table>
```

Limitations

- Recipe files must be accessible by an HTTP server.
- A Web Designer for TSX ETG 30•• application can only manage a single recipe service.

Recipe Database Service

Presentation

The Recipe database service enables you to set the value of process variables to predetermined values stored in a database table. In other words, you can create recipes or initialize application variables of your process with values stored in a database (SQL Server, MySQL and Oracle).

You can also save the state of your process by storing the value of your application variables into database tables.

This can be achieved periodically, or when a specific event occurs (configured by the user).

Allowing write access can change system behavior.

Only 1 recipe database service can be used per project.

⚠ WARNING

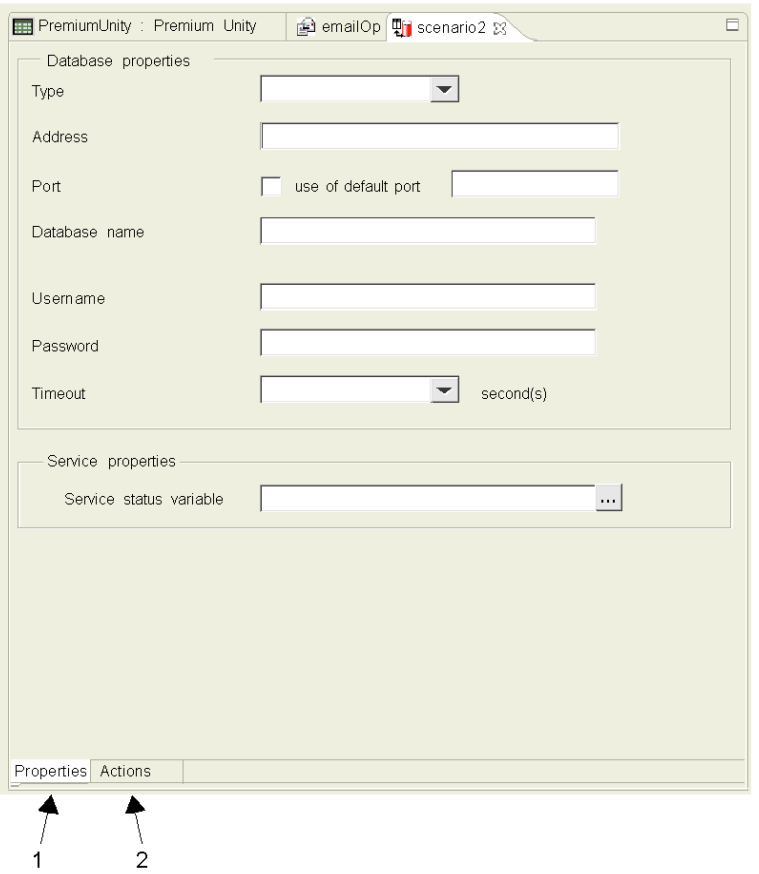
UNINTENDED EQUIPMENT OPERATION

- Carefully select the variables and direct addresses you authorize to be modified by the recipe.
- Do not authorize modification of variables of critical nature concerning human and material safety by the recipe.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information on the Recipe Database service principle, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range User Manual*.

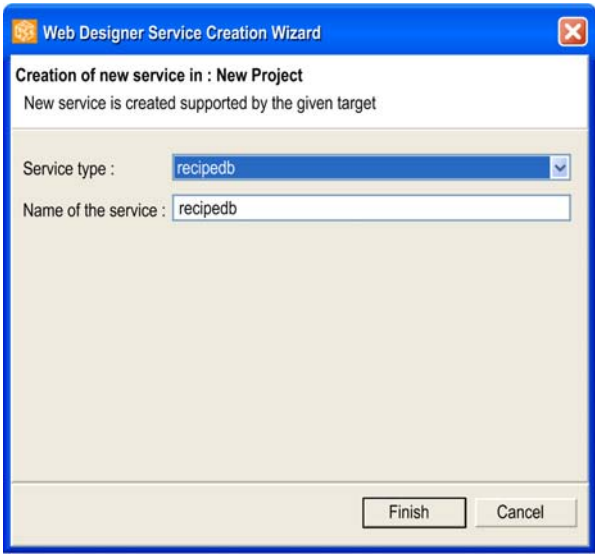
The Recipe database service configuration screen is shown below:



1 Configure the properties of the recipe database system with this tab.
2 Configure the actions to be undertaken with this tab.

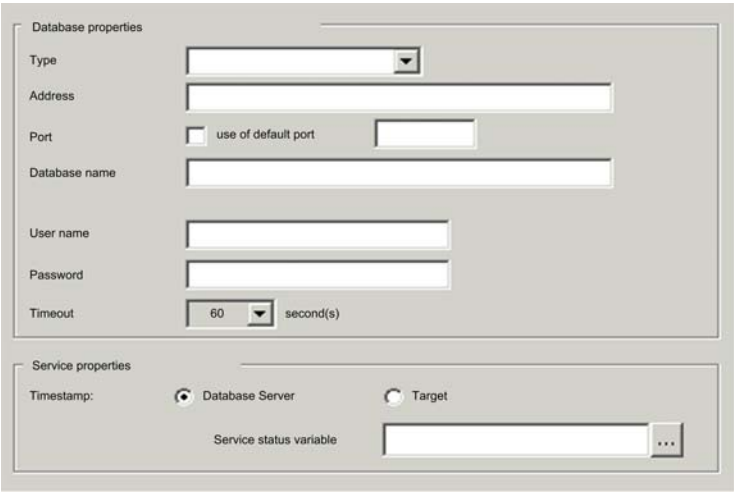
How to Create a Recipe Database Service

The following table describes how to create a recipe database service:

Step	Action
1	Click the name of your project in the browser.
2	To add the new service you can: • click **Project →New →Service** or, • right-click **Services** in the browser, then click **New Service**. **Result**: the following window appears. 
3	Select **recipedb** in the **Service Type** dropdown list.
4	Enter the service name or click **Finish** to keep the name by default.
5	The recipe database service has been created.

Configuration of Properties

The properties configuration window of the Database connection service is shown below:

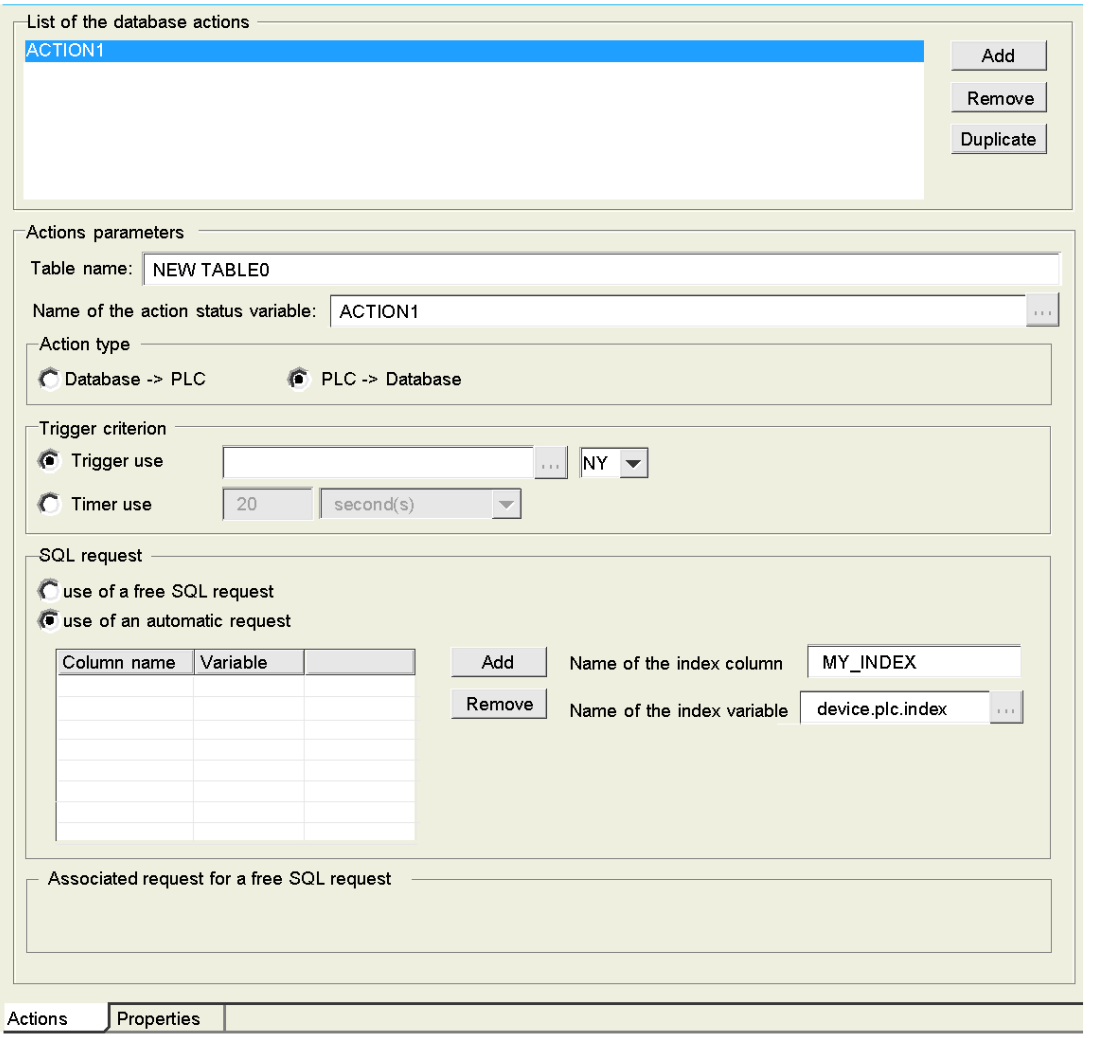


The following table describes the fields of the database server configuration screen:

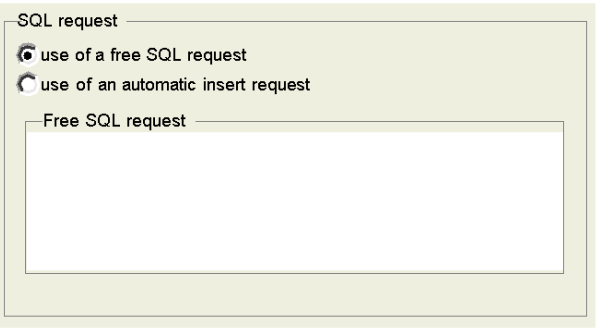
Fields	Function
Type	• **Oracle**: from version 8i to 10g or above • **mySQL**: from version 4.1 to 5.5 or above • **SQL_Server**: from version 6.5 to 2008 R2 or above
Address	IP address of the database server.
Port	Used to validate a default address.
use of default port	Port used by the database to access the server.
Database name	Name of the database that will contain all data configured by the user.
User name and password	User name and password (database connection string) to access the database server.
Timeout	Period of time that will be allowed to elapse before the system stops the current process when it improperly operates.
Service status variable	Used to determine the status of the recipe database service.

Configuring the Actions

The action screen of the recipe database service is shown below:



This table describes the fields that make up the action screen:

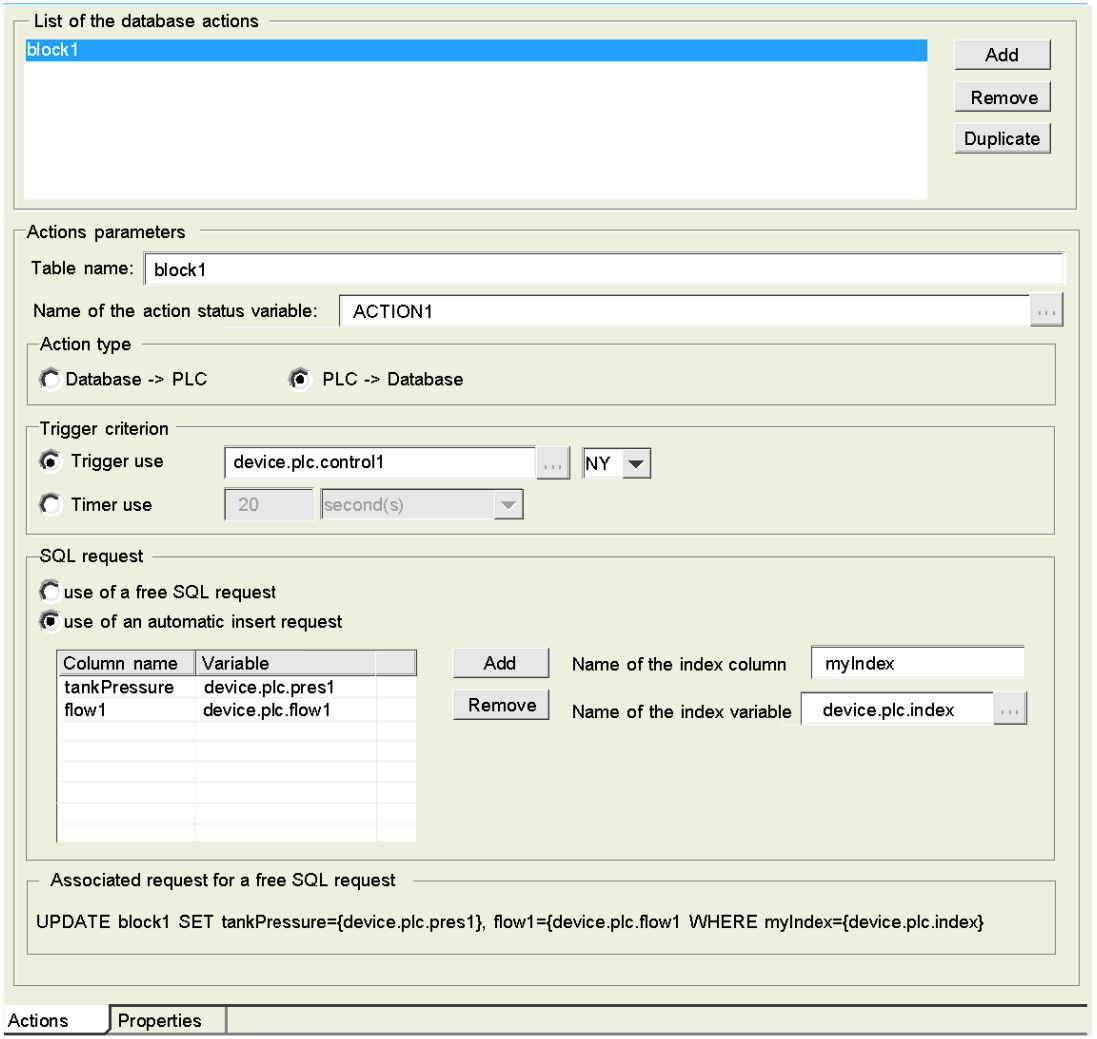
Field	Function	
Name of the status action variable	List the actions already configured.	
Action parameters		
Table name	Type a name to identify the action.	
Action status variable	Type the variable name that will represent the action status.	
Action type		
Database -> PLC	Initialization of your system variable with the value of the database.	
PLC -> Database	Save the current state of the system in the database.	
Trigger criterion		
Trigger use	Specify the variable that will trigger the action.	
	NY:	Triggered on a bit or word value state change.
	RE:	Triggered on a rising edge for a bit, or a value increase for a word.
	FE:	Triggered on a falling edge for a bit, or a value decrease for a word.
	BQ:	Triggered when the trigger value is not refreshed properly.
Timer use	Specify the period at which the action will be triggered.	
SQL request		
Use a free SQL request	Type your SQL request using the SQL syntax. In this case the screen looks like this: 	

Field	Function
Use of an automatic request	This function enables you to update tables without using a SQL syntax. Refer to the following paragraph for more information. Use the table provided for this purpose specifying the name of the column and the type of the variable. In this case, the column name syntax must comply with the database syntax. Avoid using punctuation marks, upper case letters and hyphens (refer to your database documentation). **Note:** The name of the action and the name of the table are identical if you use Automatic Request therefore you cannot read and write to the same table in that case. Use the free SQL request to precise the name of the table.
Associated request for a free SQL request	This part displays the SQL request syntax corresponding to the automatic request you have entered.

Automatic Request Example

In this example, you will update the block1 table in the database with PLC values when the state of the device.plc.control1 variable changes.

The following figure shows you the window that corresponds to the example:



Step	Action
1	Create a **recipe database** service.
2	Click the **Actions** tab.
3	Type the name of the table you want to update (i.e. block1) in the **Table name** field.

Step	Action
4	Specify a variable that will represent the action status (i.e. ACTION1) in the **Name of the action status variable** field.
5	Select **Database -> PLC** in the **Action type** area.
6	Select use of a trigger in the **Trigger criterion** area and select the variable that will trigger the action by clicking . Specify the type of event that will trigger the action (i.e. NY).
7	Select **use of an automatic request**.
8	Click **Add** and type tankPressure for the column name. The column name syntax must comply with the database syntax.
9	Select the corresponding variable (i.e. device.plc.pres1) by clicking on the left side of the **Variable** field.
10	Redo step 8 and 9 to add the values of device.plc.flow1 in the flow1 column.
11	Specify a name for the index of the table and select a variable to store the index value.

Limitations

Web Designer for FactoryCast HMI only manages a single recipe database service.

The maximum number of tables is 20 per service.

The maximum number of columns is 50 per table.

Monitoring

9

Subject of this Chapter

This chapter presents the different ways provided by Web Designer for TSX ETG 30•• to monitor your system.

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
9.1	Data Editor	192
9.2	Graphic Editor	202
9.3	Creating Custom Web Pages	250

9.1 Data Editor

Overview

The Data Editor allows you to edit/create data monitoring tables or to display data tables. Data tables provide read/write access to application data and device registers. Write access is password protected.

Allowing write access can change system behavior.

⚠ WARNING

UNINTENDED SYSTEM OPERATION

- Password protect access to writable variables.
- Grant write access only to trained personnel.
- Do not grant write access to critical control variables.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

This section shows how to use the Data Editor to display and modify the values of the symbol variables and direct addresses.

What's in this Section?

This section contains the following topics:

Topic	Page
Data Editor	193
Creating a Data Template	194
Data Editor Spreadsheet	195
Inserting a Symbol (Variable) in a Data Template	198
Inserting a Direct Address in a Data Template	200
Using an Existing Data Template	201

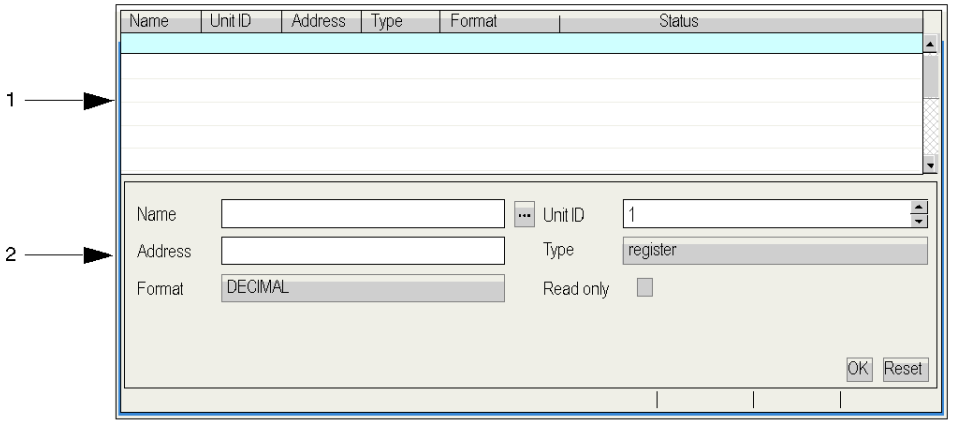
Data Editor

Overview

Data Editor is a Java applet that enables you to create dynamic data tables that can be updated with run-time data from the PLC.

Elements of Data Editor

The following illustration shows you the Data Editor:



Number	Description
1	List of the variables included in this table.
2	The configuration area makes it possible to: ● select and/or modify a symbol, ● select and/or modify an address, ● select the variable type, ● select the variable's display format, ● check the read-only option.

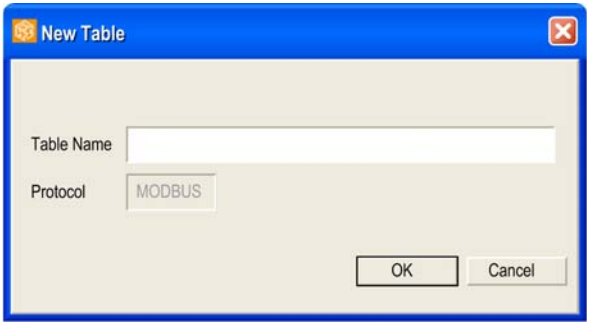
Creating a Data Template

Overview

To display some symbols (variables), create a new data template.

Creating a Data Template

Follow the steps in the table below to create a data template:

Step	Description
1	Right click the *DataTables* directory in the navigator and select **New Table**. **Result**: the New Table window appears. 
2	Enter a name of the new Data template.
3	Click **OK**.

NOTE: Save the current spreadsheet before selecting a new spreadsheet. Selecting a new spreadsheet deletes the current spreadsheet.

Data Editor Spreadsheet

Overview

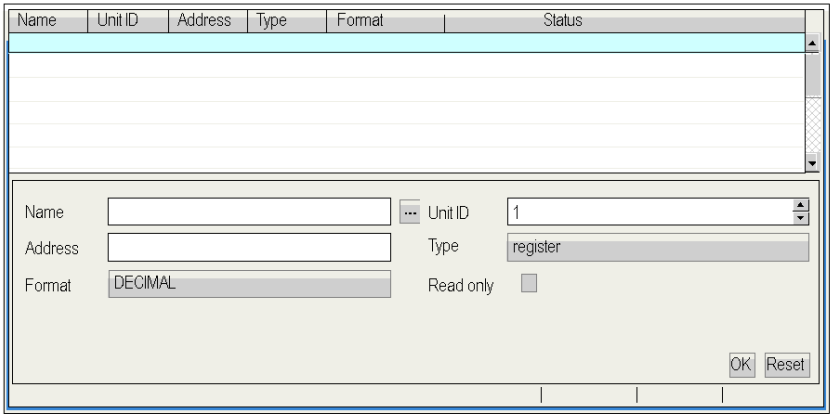
Depending on the target, the Data Editor displays data in a spreadsheet with the following fields:

- name,
- address,
- type,
- read only,
- format,
- unit,
- UnitID/station,
- status.

This section describes the spreadsheet screen and gives an explanation of each field.

Spreadsheet

The following figure shows the Data Editor:



Field Name

The fields in the Data Editor screen are:

Fields	Function
Name	The Name column contains the names of symbolic variables from the Namespace. The symbolic variables which may be used in the Data Editor are those that have been predefined by the configuration tool. The symbolic variables are grouped in a file called *Namespace*.
Unit ID	The UnitID/Station column indicates to which device the variable is allocated.
Address	The Address column contains the addresses of the symbols. You can display any direct address by entering its reference in this field. This direct address does not need to be referenced in *Namespace*. However, a symbol must be associated with this direct address.
Type	Data type *(see page 196)*: input or output register, input or output bit.
Format	Format *(see page 197)* of the data value.
Read Only	If this box is selected the variable cannot be output directly.

Type Field

The Data Type field contains the data type of the symbol variable or direct address. The types of data of the symbolic variable appear automatically when the symbol variable is located. Direct address data types must be set by the user from a drop-down list.

The following data types are valid:

Abbreviation	Data type
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
TIME	32-bit unsigned integer (in ms)
DATE	Date (32-bit BCD)
TOD	Date/time (32-bit BCD)
BOOL	1 internal bit (boolean)

Format Field

The Format field contains the format type for displaying the value of the symbol variable or direct address. The following formats are accepted:

Abbreviation	Format Type
bool	Boolean
dec	Decimal
hex	Hexadecimal
binary	Binary
ASCII	Bytes displayed as ASCII characters
time	Day_hr_min_sec_ms
date	YYYY-MM-DD or HH:MM:SS

Status Field

The Status column contains messages about the status of communications with the symbol variable or direct address. If communications are normal, the status message is "OK".

Otherwise, the Status column contains a message describing the event.

Inserting a Symbol (Variable) in a Data Template

Overview

If you want to view or modify the value of a symbol (variable) in the Namespace, insert that symbol (variable) in a data template.

⚠ WARNING

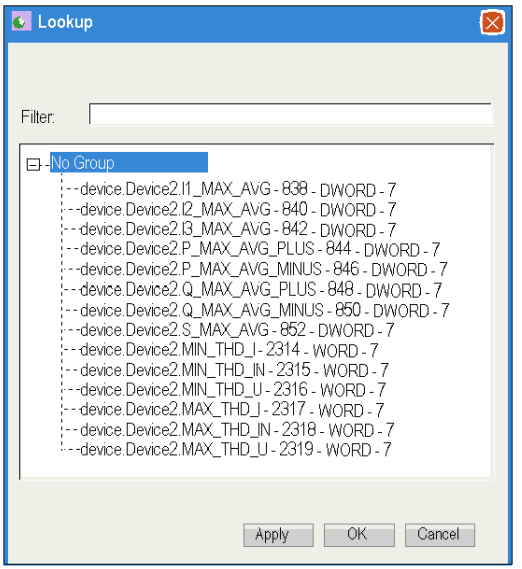
UNINTENDED EQUIPMENT OPERATION

- Limit embedded server access to qualified personnel.
- Restrict access to the embedded server by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Inserting a Symbol (Variable)

Follow the steps in the table below to insert a Symbol (variable):

Step	Action
1	Double-click on an empty row in the spreadsheet. **Result**: The data editor's configuration area appears.
2	In the configuration area, click on the button. **Result:** The **Lookup** window appears. 
3	Select the symbols (variables) you want to insert in the data template by clicking them in the list.
4	Click **OK**. **Result**: New rows corresponding to the symbols (variables) you selected appear in the spreadsheet.
5	Save your data table by clicking .

Inserting a Direct Address in a Data Template

Presentation

If you want to view or modify the value of a direct address, insert that direct address in a data template.

Allowing write access can change system behavior.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Limit embedded server access to qualified personnel.
- Restrict access to the embedded server by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Inserting a Direct Address

Step	Action
1	Double-click on an empty row in the spreadsheet. **Result**: The data editor's configuration area appears.
2	In the **Address** field of the configuration area, enter the variable's Direct address.
3	In the configuration area, click on **Apply**. **Result:** A new row that corresponds to the variable address is displayed in the spreadsheet.

Using an Existing Data Template

Overview

Once you have created data templates, you may want to access or modify them.

Accessing a Data Template

The following procedure shows you how to access a existing data template.

Step	Action
1	Extend the *DataTables* directory in the navigator. **Result**: The existing tables appear in the navigator.
2	Either: ● Double click on the table you want to modify in the list or, ● Right click on the table you to modify and select **Edit**. **Result**: The selected table appears in the editing zone.

9.2 Graphic Editor

Subject of this Section

This section describes the functions and characteristics of the Graphic Editor. The Graphic Editor is a Web page that enables the user to create dynamic graphic displays using a predefined set of graphic objects. The Graphic Editor is both a graphic editor that can be used to create and modify displays and a Runtime environment that allows the user to view animated displays using data from the PLC. To limit the size of the applet, only Viewer is accessible from the module's website.

What's in this Section?

This section contains the following topics:

Topic	Page
Overview of the Graphic Editor	203
Graphic Editor Toolbar	205
User Functions in the Display Window	210
Properties Sheet	213
Security	215
Graphic Editor Applet Parameters	216
Graphic Objects	218
Extended Graphic Objects	239

Overview of the Graphic Editor

Interface

The Graphic Editor 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.

View of the Graphic Editor

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

Graphic Objects

The graphic objects supplied with the Graphic Editor can communicate with the modbus devices from which the Graphic Editor was downloaded. There is no additional "wiring" between the graphic objects and the "communication objects". The graphic objects are designed as standalone objects, which means that no connection is needed between the objects, and that each object is capable of operating on its own.

Allowing write access can change system behavior.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Restrict access to the embedded server by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: Write access is controlled by a password whose default value is USER.

Creating and Modifying Graphic Displays

To create and modify graphic displays, click **Edit...**. 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 modbus devices by clicking **Done** to leave Edit mode. If you are satisfied with the graphic display you have created, you can save it in the module for later use by clicking **Save...**, provided that you have entered the correct password.

NOTE: Be careful when you modify and save a graphic page, the last modifications will be saved and will overwrite the existing page even if someone else has created it.

User Functions

Most of the user functions in the Graphic Editor can be found in the top window *(see page 205)*. You can modify the size and position of a graphic object directly in the display window. 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 page 213)*.

Graphic Editor Toolbar

Overview

The Graphic Editor toolbar is composed of several dialog panels, only one of which is shown at a time. Switching from one dialog to another is done by clicking the buttons on the current dialog. This section describes the dialog panels that comprise the top window.

Top Dialog

The **Edit Dialog** allows you to select a graphic object for placement in the display window, and provides access to graphic editing functions. The available graphic objects are presented in a set of palettes, with one palette visible at a time. There are two palettes.

The standard palette:

The extended palette:

The controls in the **top dialog box** provide the following functions.

- **Drop-down List**. The drop-down list box shows the graphic pages that have been saved, and are available for retrieving. When you select a graphic page from this list, the graphic display currently visible in the window is replaced with the one selected. If the current graphic page has been modified since it was last saved, you will be asked for confirmation that the changes are to be discarded. If the special entry <new> is chosen from the list, then the display window is cleared, and a new graphic page can be created.
- **Save**. The **Save** button causes the **Save dialog box** to become visible. This button is disabled until you have entered a correct write-enable password.
- **Delete**. The **Delete...** button causes the **Delete dialog box** to become visible. This button is disabled until you have entered a correct password, or if the current graphic display has not yet been saved.
- **Edit**. The **Edit...** button causes the **Edit dialog box** to become visible.
- **Information display area**. The information display area shows the name and version of the Concept, PL7 or Unity Pro program that is running in the connected PLC.

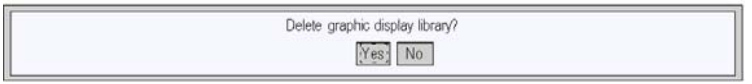
Save Dialog

The **Save dialog box** allows you to save the current graphic display.

When the **Save dialog box** is presented, the name of the current graphic page is shown in the dialog's text field. If the current graphic page has not yet been saved (i.e., a "new" graphic display), then the text field is blank. Once you have either accepted the current name (a "save" operation) or provided a new name (a "save as" operation), then you can click **OK** to save the contents of the current graphic display to the Web server module. The **Cancel** button will cause the **Top dialog box** to be shown again, with no action being taken.

Delete Dialog

The **Delete dialog box** allows you to delete the current graphic page.



If you click **Yes**, the existing graphic display window is cleared and the graphics file on the Web server module is deleted. Clicking **No** will cause the **Top dialog box** to be shown again, with no action being taken.

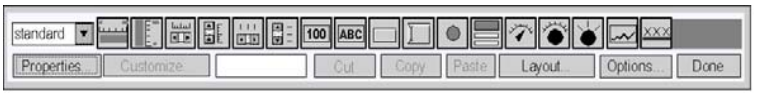
Password Dialog

The **Password dialog box** allows you to enter the password that enables those user functions that modify graphic display files or PLC run-time data values.

If you enter the correct password and click **OK**, then you will be allowed to save and delete the current graphic display. Correct password entry also permits you to write new values to the PLC (via those graphic objects that support writing values to a PLC, if any). If you click **OK** when the text field is empty, then the current password permissions, if any, are cleared. The **Cancel** button will cause the **Top dialog box** to be shown again, with no changes made to current password permissions.

Edit Dialog

The **Edit dialog box** allows you to create or modify a graphic page, by selecting a graphic object for placement in the display window, and accessing all the graphic editing functions. The graphic objects available are presented in a single object palette.

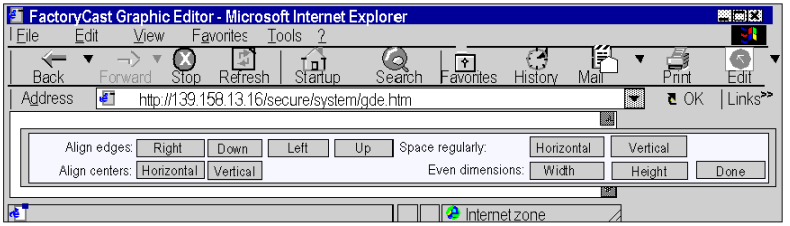


The controls of the **Edit dialog box** provide the following functions:

- The **Drop-down List Box** shows the set of palettes that are available. When you select the name of a palette from the list, the palette area of the dialog displays the selected one's graphic objects.
- The **Palette** shows the graphic objects that are in the current palette with an icon that depicts each graphic object's type (meter, button, etc.). When you click any of the icons in the palette, a graphic object of the corresponding type becomes selected for insertion. While the Graphic Editor is in "insert mode," if you click in an open area of the display window, an instance of the selected graphic object is inserted into the graphic display.
- The **Information Area** shows the name and size of the graphic object that is currently selected.
- The **Cut** button causes the currently selected graphic object(s) to be removed from the graphic display and saved to a buffer (i.e., an internal clipboard), replacing any existing contents of the buffer.
- The **Copy** button causes the currently selected graphic object(s) to be copied to the buffer, replacing any existing contents.
- The **Paste** button causes the content of the clipboard to be inserted into the upper left corner of the graphic display. The pasted graphic objects can then be moved to the desired location in the display.
- The **Properties** button causes the properties sheet *(see page 213)* for the currently selected graphic object to be shown.
- The **Customize** button causes the Customizer for the currently selected object to be shown, if the graphic object has been provided with one.
- The **Layout** button shows the **Layout dialog box**.
- The **Options** button shows the **Options dialog box**.
- The **Done** button causes the **Top dialog box** to be shown again.

Layout Dialog

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



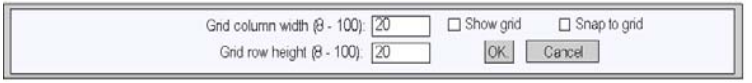
The controls of the **Layout dialog box** provide the following functions.

- The **Right**, **Bottom**, **Left**, and **Top** buttons can be used to align the edges of the selected graphic objects so that their specified sides are at the same position. Select at least two graphic objects to enable these buttons.
- The **Horizontal**, and **Vertical** buttons are used to align the centers of the graphic objects. Select at least two graphic objects to enable these buttons.
- The **Horizontal** and **Vertical** buttons are used to space the selected graphic objects regularly, in order that the horizontal or vertical spacing between the objects is the same. Select at least three graphic objects to enable these buttons.
- The **Width** and **Height** buttons are used to achieve parity in dimensions of the graphic objects, so the selected width or height corresponds. Select at least two graphic objects to enable these buttons.
- The **Done** button causes the **Edit dialog box** to be shown again.

NOTE: For layout operations (except **Space evenly**) one of the selected objects is considered the "reference object" to which other selected objects refer in order to know their new position or dimension. For example, when the "Width" button is pressed, of the selected objects will have their width changed to match the width of the reference object. The reference object is differentiated from the other selected objects by making its selection box a different color than the others.

Options Dialog

The **Options dialog box** is used to change the settings related to a grid drawn in the display window. The grid is solely for assistance in editing or creating a graphic display and is shown only when the Graphic Editor is in "edit mode."



The controls of the **Options dialog box** provide the following function.

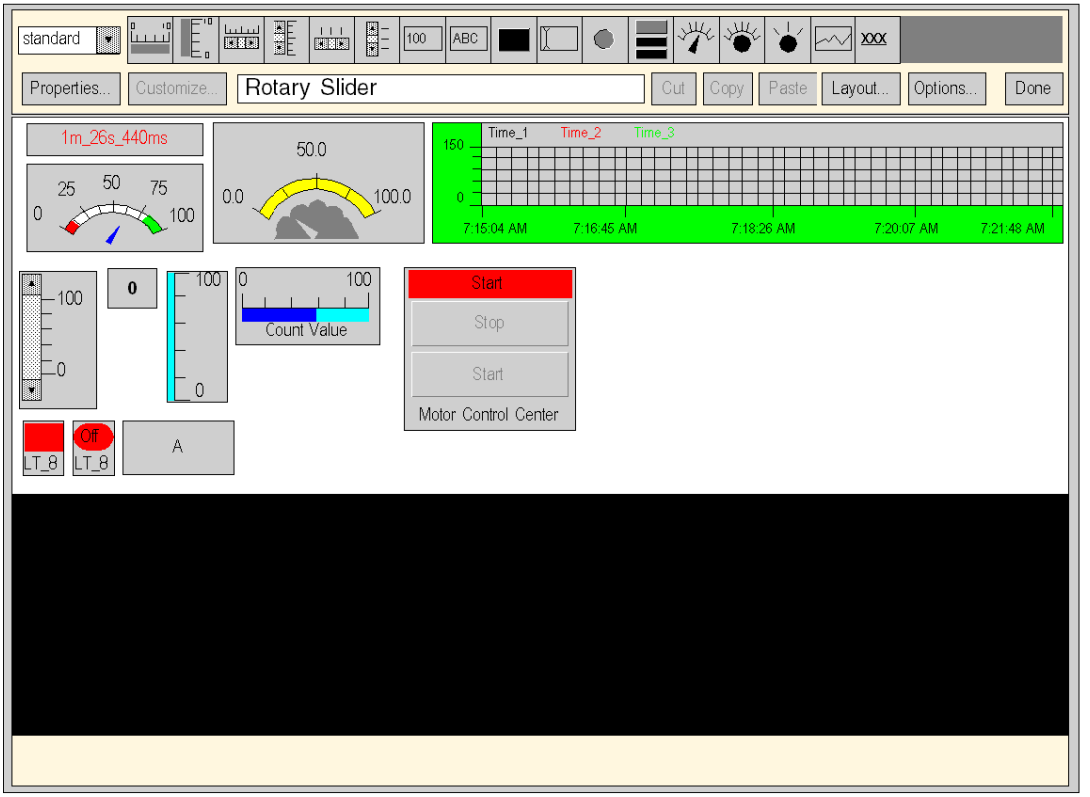
- The cell size of the grid can be changed by the entering the grid's column width and row height into the dialog's text fields.
- If the **Show grid** check-box is checked, the grid will be drawn; otherwise, no grid will be shown.
- If the **Snap to grid** check-box is checked, then, when you change the size or position of a graphic object, the changed coordinate(s) or dimension(s) is automatically adjusted so that it coincides with a grid point.
- The **OK** button causes the current option settings to become active, and the **Edit dialog box** to be shown again.
- The **Cancel** button causes the **Edit dialog box** to be shown again, with no option settings being changed.

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.

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



Selecting Graphic Objects

You can set the selection status (selected/deselected) for a graphic object using the following user actions:

- To select a graphic object, just click 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 press 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, 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 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 the object. When you select an object in this way, it becomes the reference object *(see page 208)* 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 the graphic objects by clicking the mouse button in a free area of the display window, not 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 may 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 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 property sheet *(see page 213)*. If this window is displayed, you can modify the properties of the selected graphic object. You can display the property sheet by clicking **Properties...** 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 a long-winded process. 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 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.

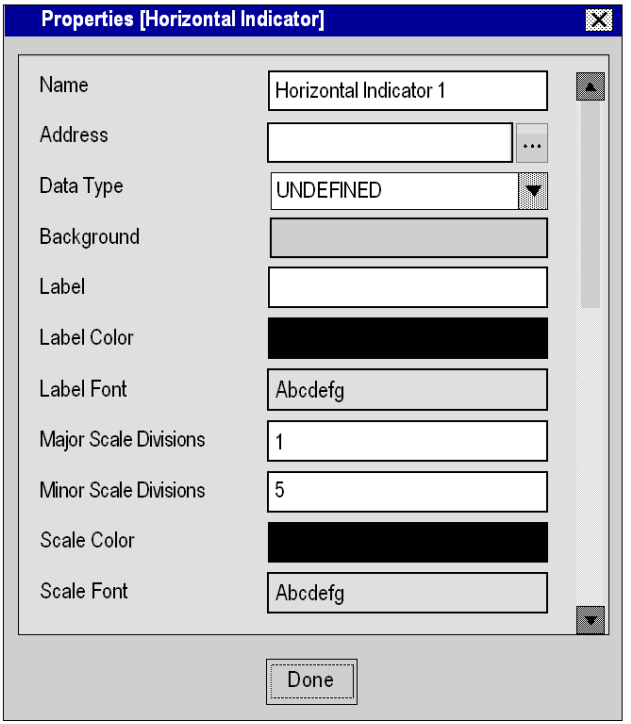
Display Background Image

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. Refer to the Adding Images part *(see page 242)* for information on adding images.

Properties Sheet

Overview

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

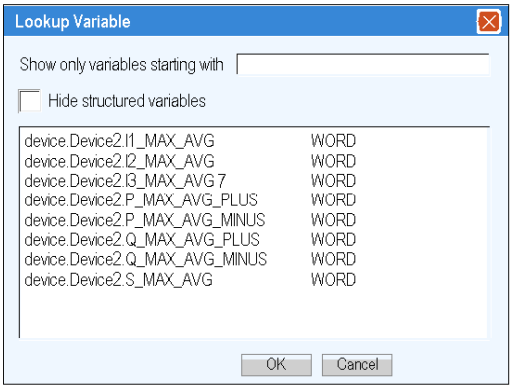


The properties of a graphic object are specific to its type. They are contained in a drop-down list, and are identified by a name and value. The Graphic Editor provides a description of the graphic objects *(see page 218)*.

Find variables dialog box

For each of the graphic objects provided with the Graphic Editor, a property editor is provided for its **Address** property. This property editor not only allows you to directly enter the address of a variable, but also provides access to the **Find variables dialog box**. The Lookup Dialog allows you to pick a symbol (variable) name from a list of symbol (variables) that have been "Web enabled" by Web Designer.

The Lookup Variable dialog box looks like this:



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.
- Web Designer for TSX ETG 30•• 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 **Graphic Editor** behavior 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, a message is displayed. If this parameter does not appear in the <APPLET> tag, no file will be automatically loaded at start-up. In this case, select 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 display. 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 Web browser user is not authorized to send data values to Modbus devices.
  - **VIEW_RW**: The **Graphic Editor** starts up in View mode (read/write). The Web browser user is authorized to send data values to Modbus 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 Modbus 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 Modbus 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 Modbus 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

Introduction

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

Be aware, however, that if communication to the device linked to the graphic object is lost, the object becomes inoperative without the end device's knowledge.

For example, say you have programmed a pushbutton object to jog a motor when the button is depressed and to stop jogging when the button is released. If communications are lost while the button is depressed, the motor will continue to jog even when the button is released. Graphic objects should not be used to control situations such as this unless other interlock methods are installed in the system.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use graphic objects in situations where loss of communication to the TSX ETG 30•• can put human integrity or material damage at risk.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

In addition, 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*.

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*

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...100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0...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...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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*

Property	Description	Limits
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)	
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...10
Border Width	Width (in pixels) of the graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated gross starting value (without scale) for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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...100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0...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...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	Note 3 *(see page 249)*
Minimum Value	Gross minimum value (without scale) of the variable in the device	Note 3 *(see page 249)*

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 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...10
Border Width	Width (in pixels) of the graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated gross starting value (without scale) for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*

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...100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0...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...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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*
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...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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*

Property	Description	Limits
Data Type	Variable data type	Note 2 *(see page 249)*
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	
Border Width	Width (in pixels) of the graphic object border	0...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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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...6

Property	Description	Limits
Value Background	Background color of the value's display zone	–
Value Color	Color of the value's digital display text	
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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*
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...10
Border Width	Width (in pixels) of the graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated gross starting value (without scale) for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
Background	Graphic object background color	–
Messages	The 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...32
Border Color	Color of the border of the graphic object	–
Value	Simulated input value for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
Background	Background color of the graphic object	–

Property	Description	Limits
Values	Values to send to the device	Note 4 *(see page 249)*
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 waits 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...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...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 **Set** or press **ENTER** (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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*

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	
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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*
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...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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*

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	
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...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...32
Border Color	Color of the border of the graphic object	–
Value	Simulated input value for testing the graphic object	Note 3 *(see page 249)*

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 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...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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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...100

Property	Description	Limits
Minor Scale Divisions	Number of minor scale divisions (not marked)	0...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...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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*
Dial Degrees Sweep	Portion of circular segment to be used to draw the dial	60...300
Pointer Type	Type of pointer used (needle, arrow, etc.)	–
Pointer Color	Color used for the pointer	
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...32
Border Color	Color of the graphic object border	–
Value	Simulated gross starting value (without scale) for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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...100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0...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...6
Dial Degrees Sweep	Portion of circular segment to be used to draw the dial	60...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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*
Border Width	Width (in pixels) of the graphic object border	0...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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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 segment to be used to draw the dial	60...300
Knob Color	Color used for the knob	–
Border Width	Width (in pixels) of the graphic object border	0...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 the many properties of this object, a custom module is provided. It is by means of this module, and not the **Graphic Editor** properties sheet, that 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...100
Minor Scale Divisions	Number of minor scale divisions (not marked)	0...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...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...120
Time Scale Divisions	Number of divisions on the horizontal scale	0...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...100
Border Width	Width (in pixels) of the graphic object border	0...32
Border Color	Color of the graphic object border	–

The following trend recorder properties are available for each pen:

Property	Description	Limits
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
Maximum Value	Maximum gross value (without scale) of the device variable	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the device variable	Note 3 *(see page 249)*
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 it. 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 an 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 the link. If you only click 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
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

Datalogging History

A Datalogging History provides a continuous, time-based charting of the value of up to six symbols (variables) coming from the log file of the Datalogging service. A Datalogging History emulates a strip-chart recorder, with the pens on the right, and the "paper" moving from right to left. A vertical scale can be shown on the left side of the chart for showing the range of the values being recorded, and a horizontal scale can be shown below the chart for showing the time span of the chart.

NOTE: In order to plot the Datalogging History, select the Timestamp option in the Datalogging Service *(see page 157)* configuration window.

In order to make it easier to set this object's many properties, a Customizer is provided. Use the Customizer (and not the **Graphic Editor's** Property Sheet) to set Datalogging History properties (except Name).

3 buttons are available in edition and animation mode:
- Reload: the Datalogging History object is a static widget. This button enables to refresh the value used to build the chart.
- +: zoom on the trend. It decreases the time scale in order to have a better vision of a part of the trend.
- -: zoom out on the trend. It increases the time scale in order to have a larger vision of the trend.

If you place the mouse cursor on a point of the trend, a tooltip appears displaying the exact value at that point. Stay pressed and rollover several points to display their tooltips.

Releasing the mouse button and rolling over any point will cleanup existing tooltips and display a new one.

Right click on it to make it disappear.

The following table describes properties for the Datalogging History. Properties available for each pen are described in the next table:

Property	Description	Limits
Name	The name for the graphic object	–
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0...100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0...100

Property	Description	Limits
Scale Color	The color for the scale and its labels	–
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1...6
Maximum EU Value	The maximum value, in engineering units, of the symbol (variable)	–
Minimum EU Value	The minimum value, in engineering units, of the symbol (variable)	
Update Period	The update interval (in seconds) for the chart	0.5...120
Time Scale Divisions	The number of horizontal scale divisions	0...6
Chart Background	The color for the chart area	–
Grid Color	The color of the grid drawn in the chart area	
Vertical Grid Divisions	The number of vertical divisions for the grid	0...100
Border Width	The width (in pixels) for the graphic object's border	0...32
Border Color	The color for the graphic object's border	–

These Datalogging History properties are available for each pen:

Property	Description	Limits
Name of the CSV file	The name of the CSV file used to build the trend. Location: ● Default (no path): the file is located on the FLASH memory. ● /CFA00/USERDATA/TABLEx: the file is located on the CF card. ● /USBHD/00/USERDATA/TABLEx: the file is located on the USB memory. ● /RAMDISK/USERDATA/TABLEx: the file is located on the saved RAM. **Note:** the log file includes timestamps *(see page 160)*.	–
Address	The name of a symbol (variable) to monitor.	
Data Type	The data type of the symbol (variable). **Note:** the data type is numerical.	
Maximum PLC Value	The maximum raw (unscaled) value of the symbol (variable) in the PLC.	Note 3 *(see page 249)*

Property	Description	Limits
Minimum PLC Value	The minimum raw (unscaled) value of the symbol (variable) in the PLC.	Note 3 *(see page 249)*
Pen Color	The color of the "pen" used to record the scaled value.	–
Pen Label	The label used to identify the pen.	

Extended Graphic Objects

Introduction

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

Be aware, however, that if communication to the device linked to the graphic object is lost, the object becomes inoperative without the end device's knowledge.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use graphic objects in situations where loss of communication to the TSX ETG 30•• can put human integrity or material damage at risk.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For example, say you have programmed a pushbutton object to jog a motor when the button is depressed and to stop jogging when the button is released. If communications are lost while the button is depressed, the motor will continue to jog even when the button is released. Graphic objects should not be used to control situations such as this unless other interlock methods are installed in the system.

In addition, to help clients who wish to insert several simple applets into a single HTML page, 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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*

Property	Description	Limits
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 that of the PC	
Value	The text itself	

Bar Graph

A bar graph gives an analog 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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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	Note 3 *(see page 249)*
Minimum Value	Minimum gross value (without scale) of the variable in the device	Note 3 *(see page 249)*

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 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...10
Border Width	Width (in pixels) of the graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated gross input value (without scale) for testing the graphic object	Note 3 *(see page 249)*

Bitmap

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

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

Property	Description	Limits
Name	Name of the graphic object	–
Background	Graphic object background color	Note 1 *(see page 249)*

Property	Description	Limits
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	
Border Color	Color of the graphic object border	
Bitmap Choices	File names of custom bitmaps to display Refer to the next paragrah for information on adding images into the module.	

Adding Images

You can add images into the module in one of the following way:

- Add your images into the *images.zip* file (path: */NAND/FLASH1/wwwroot*).
- Create a directory into the module (i.e. */NAND/FLASH1/wwwroot/bitmaps*). Copy your images into this directory. In this case, you need to specify the path of the images you want to use (i.e. */NAND/FLASH1/wwwroot/bitmaps/key.gif*).

Step	Action
1	Create an *images* folder on your PC.
2	Copy the images you want to use in this folder.
3	Import the *user.jar* file from the TSX ETG 30•• to the PC (path: */NAND/FLASH1/wwwroot/classes*) using a FTP client.
4	Open the *user.jar* file using a file archiver.
5	Drag and drop the *images* folder in the *user.jar* file. Confirm that the relative path of the image files is 'images/'.
6	Transfer the *user.jar* file back to the module using a FTP client.

Generic Bitmap

The generic Bitmap interface graphic 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 interface graphic element are as follows:

Property	Description	Limits
Name	Name of the graphic object	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*

Property	Description	Limits
Data Type	Variable data type	Note 2 *(see page 249)*
Background	Graphic object background color	Note 1 *(see page 249)*
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 Refer to the previous paragrah for information on adding images into the module.	
Border Width	Width (in pixels) of the graphic object border	
Border Color	Color of the graphic object border	
Value	Simulated starting 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 it with the mouse. Graphic links can also be recognized by their underlined labels, and by the fact that the mouse cursor changes to a hand 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. If you only click the link, the URL will open in the existing browser window.

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

The properties of the graphic link are as follows:

Property	Description
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	–
Address	Direct address of the variable to monitor	Note 3 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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 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. Set to 0 for no flashing.	200...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 graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated input value for testing the graphic object	Note 3 *(see page 249)*

Motor

The Motor graphic 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 graphic interface element are as follows:

Property	Description	Limits
Name	Name of the graphic object	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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 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 graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated input value for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*
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 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 graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated input value for testing the graphic object	Note 3 *(see page 249)*

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	–
Address	Direct address of the variable to monitor	Note 3 *(see page 249)*

Property	Description	Limits
Data Type	Variable data type	Note 2 *(see page 249)*
Background	Graphic object background color	–
Values	Values to send to the device	Note 4 *(see page 249)*
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 waits 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	Button label text	
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 graphic object border	0...32
Border Color	Color of the graphic object border	–

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	–
Address	Direct address of the variable to monitor	Note 1 *(see page 249)*
Data Type	Variable data type	Note 2 *(see page 249)*

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	
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. Set to 0 for no flashing.	200...2,000
Border Width	Width (in pixels) of the graphic object border	0...32
Border Color	Color of the graphic object border	–
Value	Simulated input value for testing the graphic object	Note 3 *(see page 249)*

Notes

The notes relating to this section are as follows:

1.	The Data Type property needs to correspond exactly to the actual data type of the variable. If the Address property is the direct address of a binary PLC reference (reference 0x/1x Quantum for example), set the Data Type property to Coil for outputs or to Discrete Input for discrete inputs.	
2.	The various values of the Data Type property have the following meanings:	
	Type	Signification
	COIL	output bit (Boolean)
	DISCRETE INPUT	input bit (Boolean)
	REGISTER	16-bit signed integer
	INT32	32-bit signed integer
	INT32SWAP	32-bit signed integer with least significant and most significant words inverted
	INPUT REGISTER	16-bit signed integer for analog input
3.	The limits of the Maximum PLC Value and Minimum PLC Value properties are the natural limits of the configured Data Type property.	
4.	For a push button, specify at least one value. If several values are entered, they will be assigned to an address table starting with the direct address indicated.	
5.	For the applet to display a numerical data value instead of a label, specify parameters in the HTML code as follows: name = "label" value = "$data$".	

9.3 Creating Custom Web Pages

Scope of this Section

This part shows you how to create custom Web pages for your website using FrontPage 2000 or Microsoft Expression web.

NOTE: For other ways to create custom pages, refer to the *FactoryCast HMI Gateway TSX ETG 30•• Product Range user manual*.

What's in this Section?

This section contains the following topics:

Topic	Page
Installing a Microsoft FrontPage Extension	251
Inserting a LiveBeanApplet with FrontPage	257
Inserting LiveLabelApplet Using FrontPage	266
Uploading FrontPage Support Pages	270

Installing a Microsoft FrontPage Extension

Overview

This section describes how to install/remove the Web Designer for TSX ETG 30•• extension for Microsoft FrontPage 2000.

Installing FactoryCast

During the installation of Web Designer for TSX ETG 30••, if FrontPage 2000 has been installed on the same PC, then the Web Designer Extension for FrontPage 2000 is automatically installed as a FrontPage "Macro File." If this is the case, then proceed to the next section, which provides instructions for adding the Extension to FrontPage's menu.

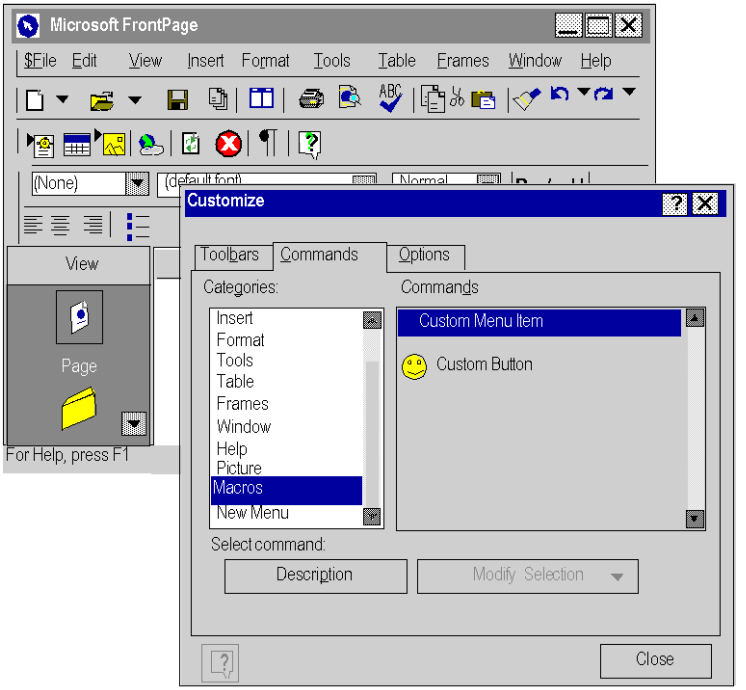
However, if FrontPage 2000 is installed after Web Designer for TSX ETG 30•• has been installed, then the Extension can be installed by either re-installing Web Designer for TSX ETG 30•• or manually copying the macro file to FrontPage's macro folder. For manual installation, after installing FrontPage 2000, the following will install the Extension:

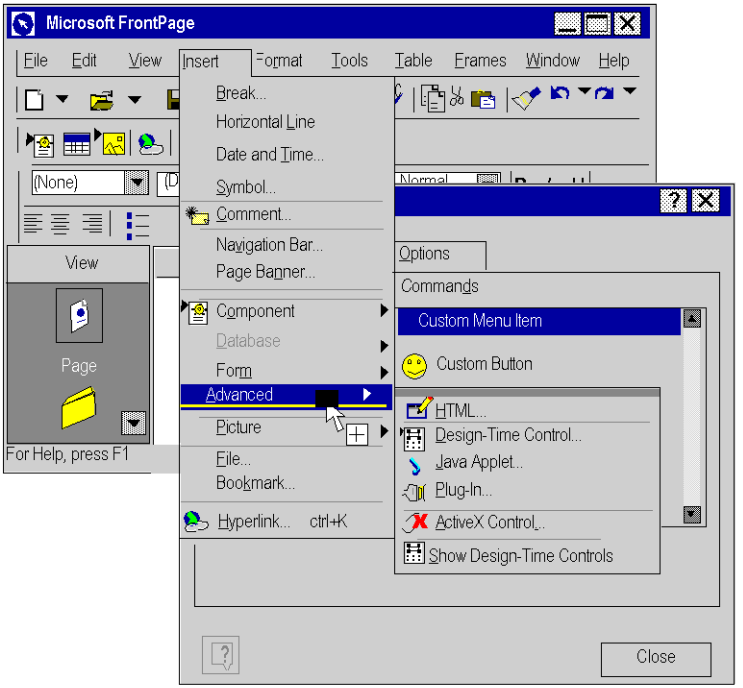
Copy the file *Microsoft FrontPage.fpm* from CD-ROM to the folder *%USERPROFILE%\Application Data\Microsoft\FrontPage\Macros* (create the final 'Macros' folder, if it does not already exist).

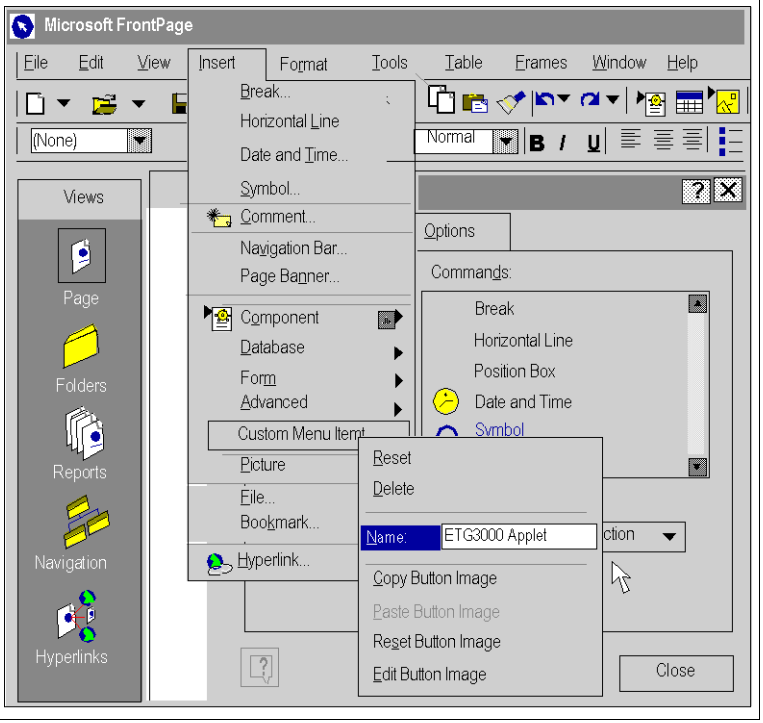
Adding Extension

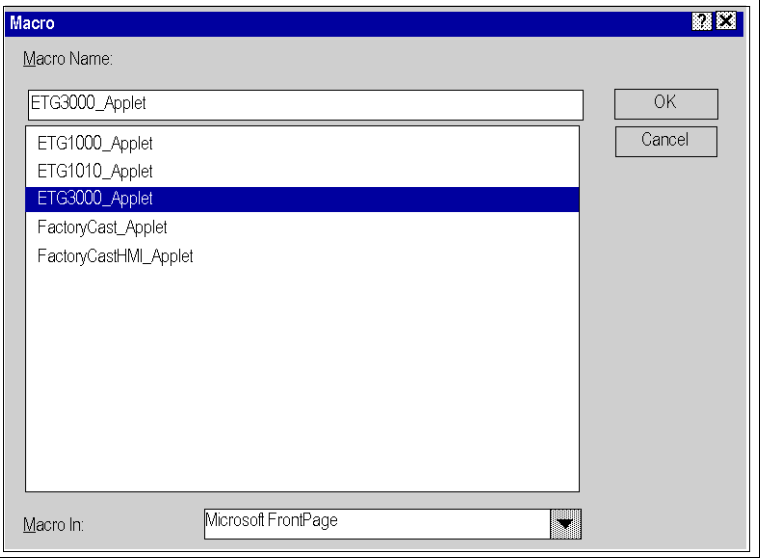
To add the Web Designer or the Modbus extension to the FrontPage **Insert** menu, do the following.

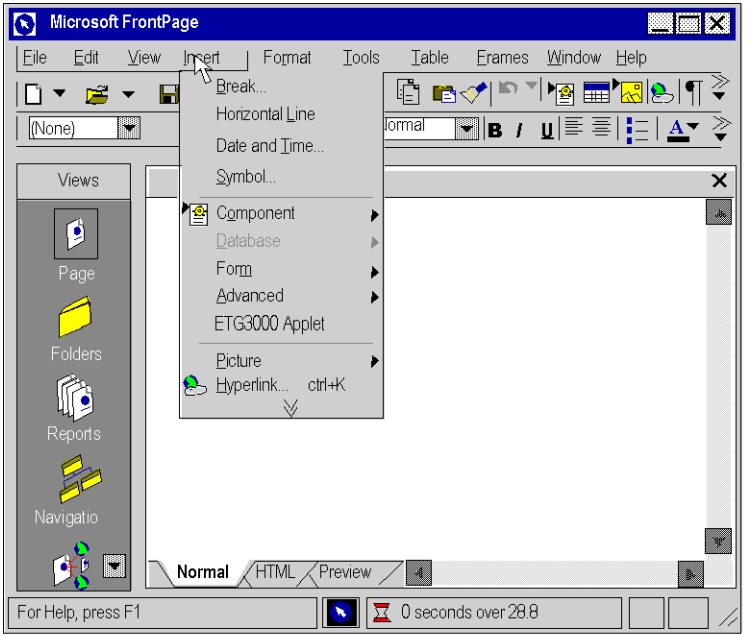
Step	Action
1	Start FrontPage 2000.
2	Click **Customize** on the **Tools** menu.

Step	Action
3	Click the **Commands** tab, and then select **Macros** from the **Categories** list. 

Step	Action
4	Drag and drop the entry **Custom Menu Item** from the **Commands** list to the **Insert** menu, beneath the **Advanced** command. (The **Insert** menu will automatically drop down when you drag over it.) 

Step	Action
5	Click **Modify Selection**, change the name to **ETG 3000 Applet**, and then press ENTER key. 

Step	Action
6	Click **Modify Selection** again, and then choose **Assign Macro**. 
7	Choose **ETG3000_Applet** from the list, and then click **OK**.

Step	Action
8	Click **Close**. The **ETG3000 Applet** command is added to the **Insert** menu. 

Removing FactoryCast Extension

To remove an extension from the FrontPage menu, do the following.

Step	Action
1	In FrontPage, click **Customize** on the **Tools** menu.
2	Click the **Insert** menu, and then select **ETG3000 Applet**.
3	Right click and select **Delete** from the popup menu.

Editing Applets

There are two ways to edit an applet that has been inserted into your Web page. First, you can double-click the object and make changes via dialog boxes. Or you can switch to the HTML editor in FrontPage and do your editing in this environment. It is suggested you edit via the first approach unless you are comfortable programming in the HTML language used to build Web pages.

Inserting a LiveBeanApplet with FrontPage

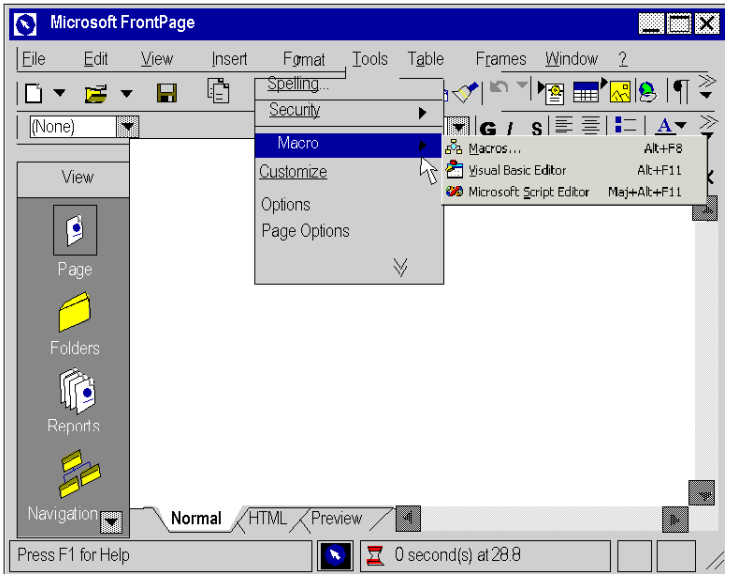
Overview

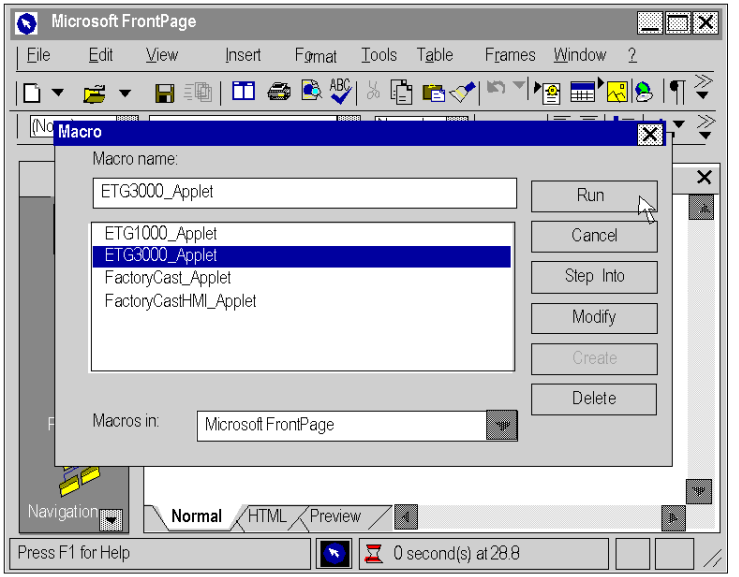
This section describes how to insert a *LiveBeanApplet* into a Web page. Before proceeding with the insertion, read the following note then carry out the 14 operations described below.

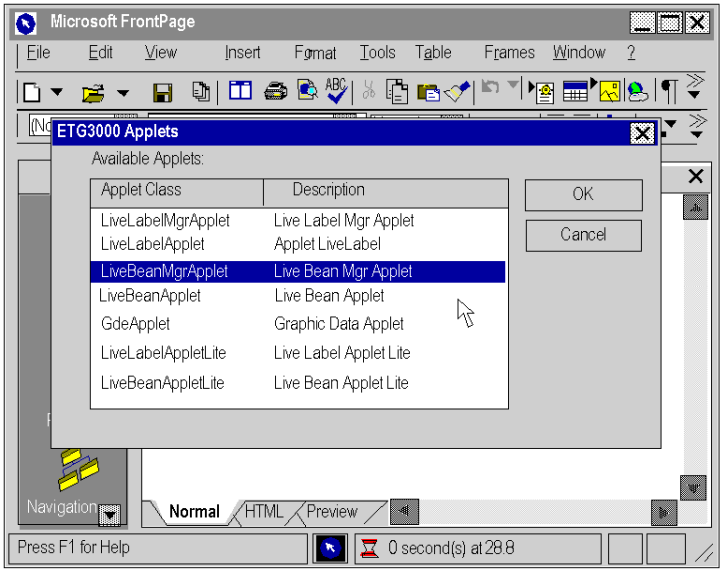
NOTE: Prior to inserting a *LiveBeanApplet* into a Web page, you must create a JavaBeans library using the Graphic Editor. Generally a user will create a JavaBeans library that has one instance of every object that they would like to use in a Web page. Think of this library as a set of templates that are copied to and customized for your Web pages. For example a library may have one analog meter, one rotary selector, and one push button. Multiple instances of each bean can then be added to a Web page, each with a set of unique parameters such as an address.

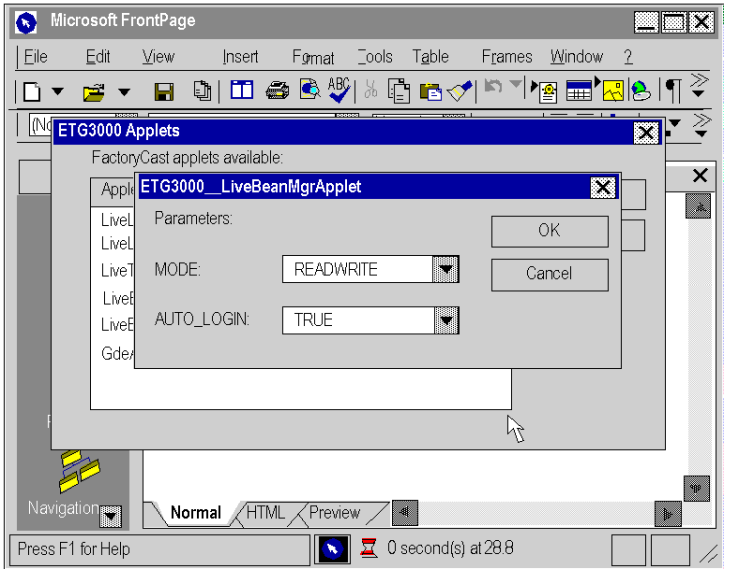
Inserting a LiveBeanApplet

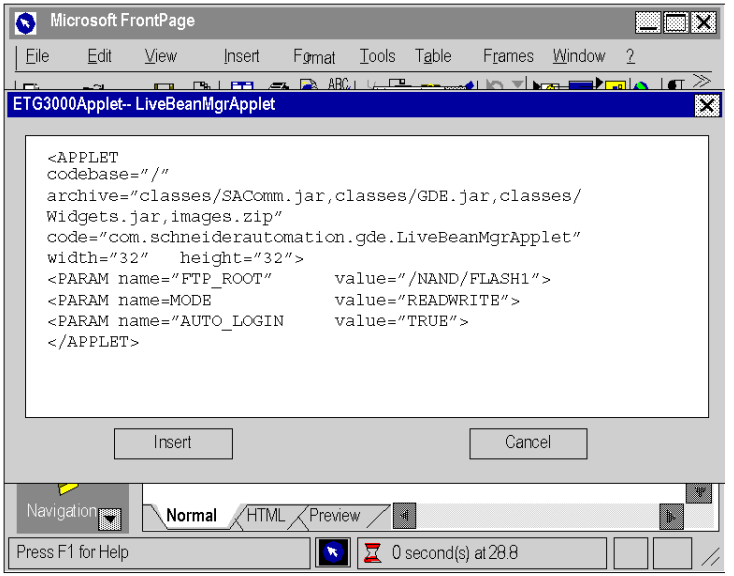
To insert a LiveBeanApplet, follow the steps below:

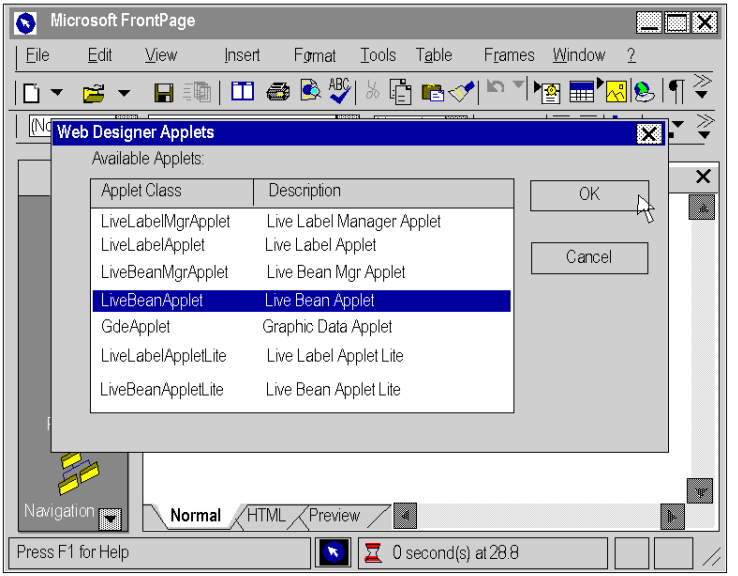
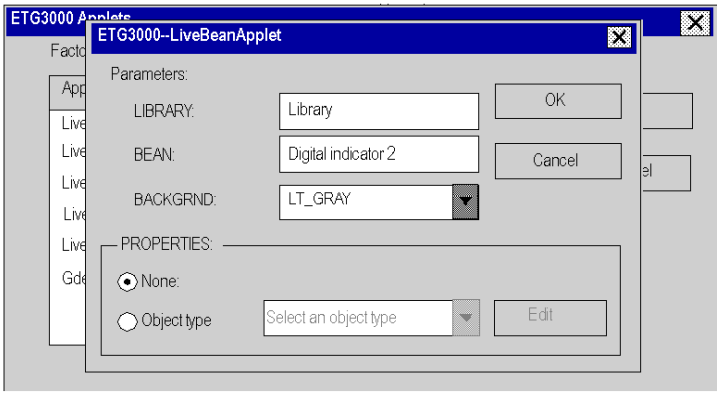
Step	Action
1	Select **Tools I Macro**, then to display the applet selection window click **Macros**. 

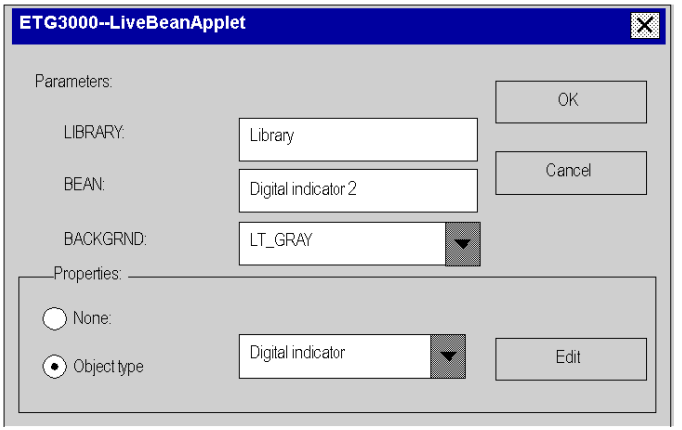
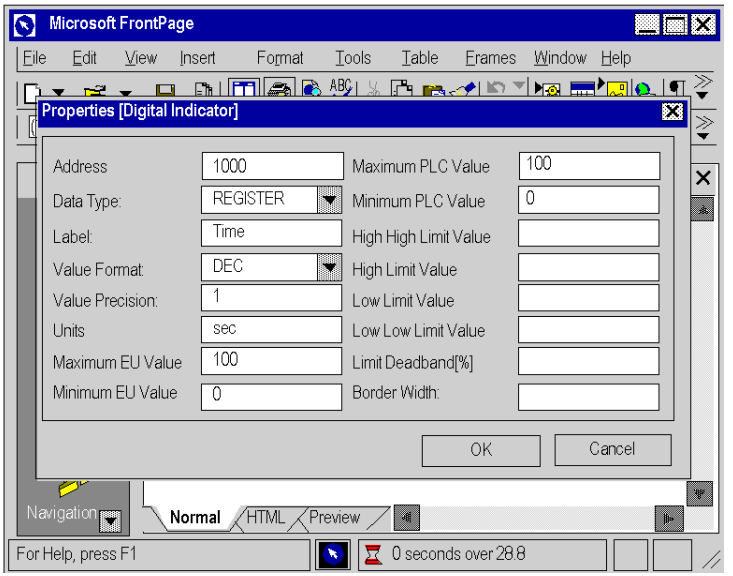
Step	Action
2	Select the **ETG3000_Applet** applet, then click **Run**. 

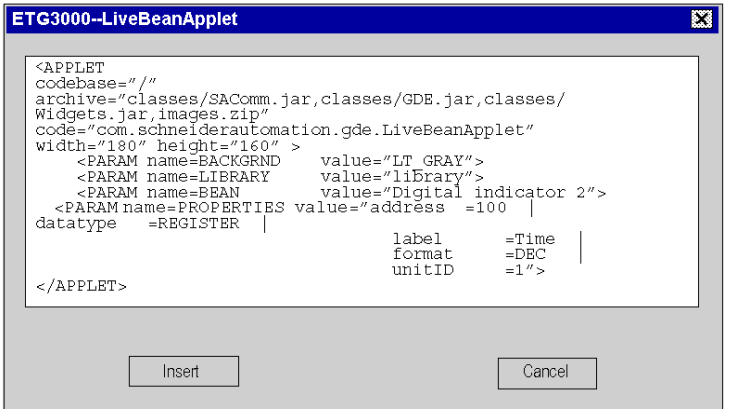
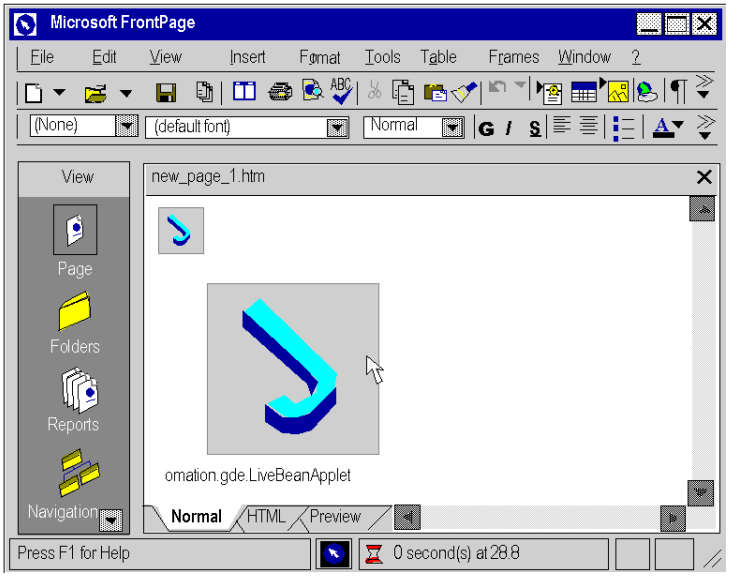
Step	Action
3	Select the **LiveBeanMgrApplet** applet , then click **OK**.  **Note:** The *LiveBeanMgrApplet* applet is a special applet, which should only be inserted into your Web page once.

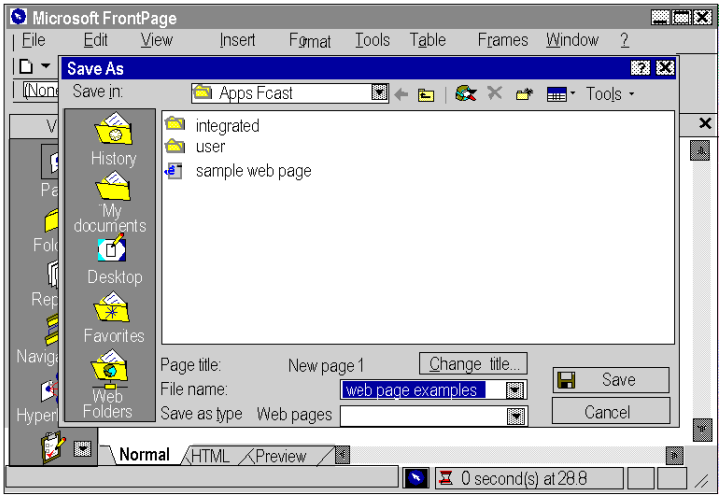
Step	Action
4	Configure the **Mode** and **Auto-Login** parameters, then click **OK**. 

Step	Action
5	A window opens, showing the Java code which will be inserted in your HTML document.  Click **Insert** to complete the insertion of the applet. **Note:** Although a gray 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.

Step	Action
6	Select the *LiveBeanApplet* in the Web Designer applet selection window, then click **OK**. 
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 **OK**. 

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 **Edit** 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 **OK** when you have finished. 

Step	Action
10	Click **OK**. A window opens, showing the Java code which will be inserted in your HTML document. Click **Insert** 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 **Cancel** in the Web Designer applet selection window to edit your Web page. 

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

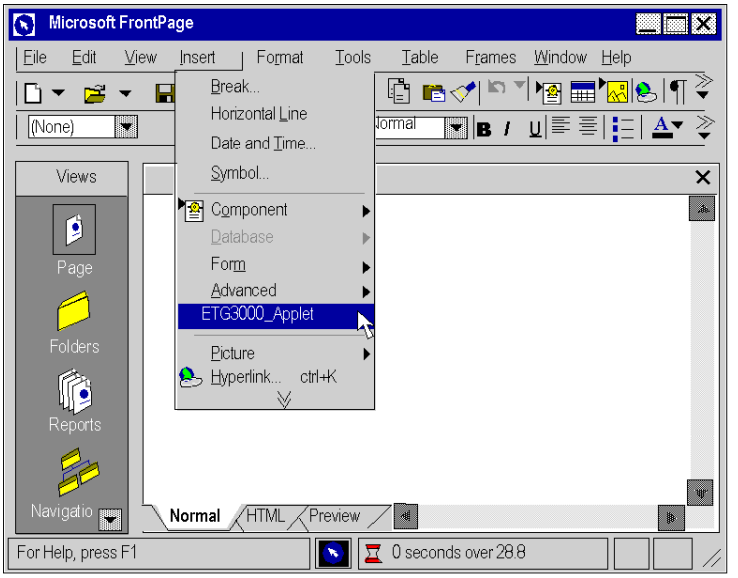
Inserting LiveLabelApplet Using FrontPage

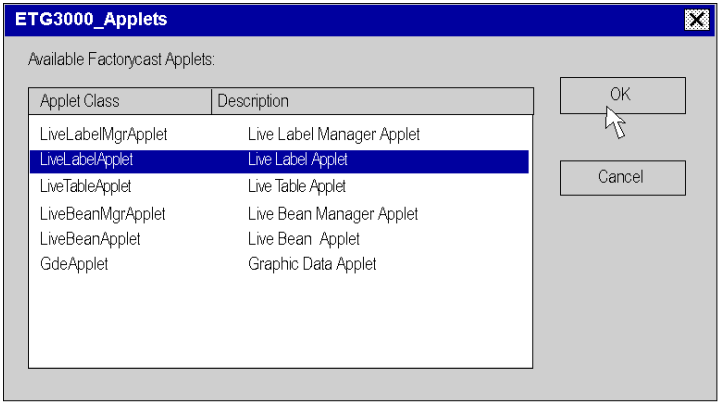
Overview

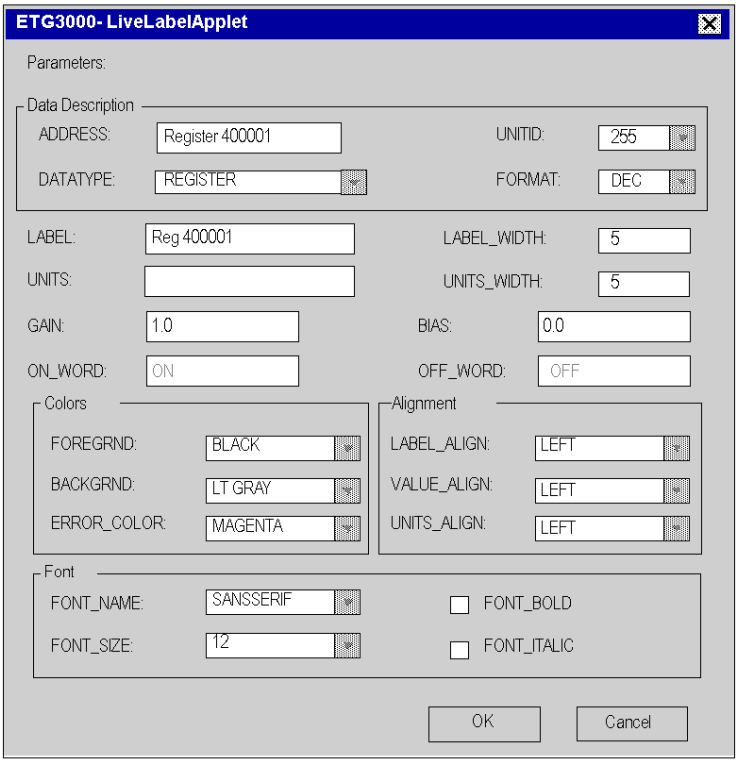
This section describes inserting *LiveLabelApplet* into a Web page.

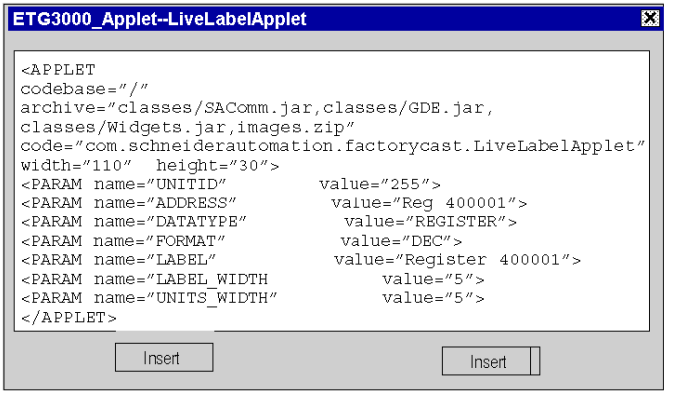
Inserting LiveLabelApplet

To insert a *LiveLabelApplet*, do the following.

Step	Action
1	Select **Insert** I **ETG3000_Applet** to view the TSX ETG 30•• applet selection window. 

Step	Action
2	Select the *LiveLabelMgrApplet* and then click **OK**.  **Note:** The *LiveLabelMgrApplet* is a special applet that is inserted one time only into your Web page. Though a gray box with a blue letter "J" will appear on your Web page during editing, this applet will not be visible when you view your Web page from the Web server module.
3	Select the *LiveLabelApplet* and then click **OK**. The Parameters edit window appears.

Step	Action
4	Fill in the parameters for the label and then click **OK**.  **Note:** For a description on each parameter, refer to the FactoryCast HMI Gateway TSX ETG 30•• Product Range.

Step	Action
5	A window will appear showing the HTML code that will be inserted into your HTML document. Click **Insert**. 
6	Continue to add additional instances of *LiveLabelApplet* to your Web page. Once you have inserted your last applet, click **Cancel** on the applet selection window to edit 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**'.

Setting Up an External Tool

10

Setting Up an External Tool

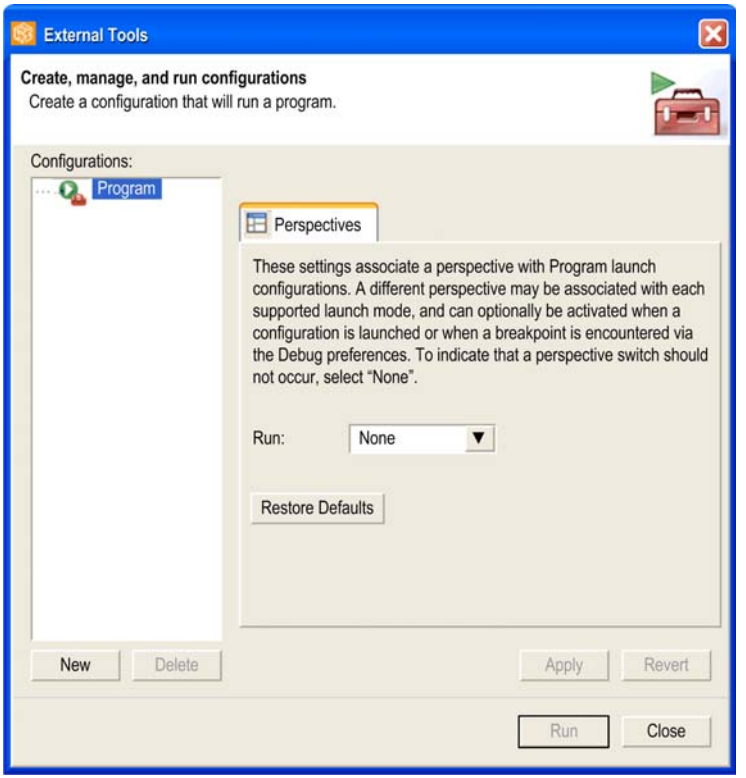
Overview

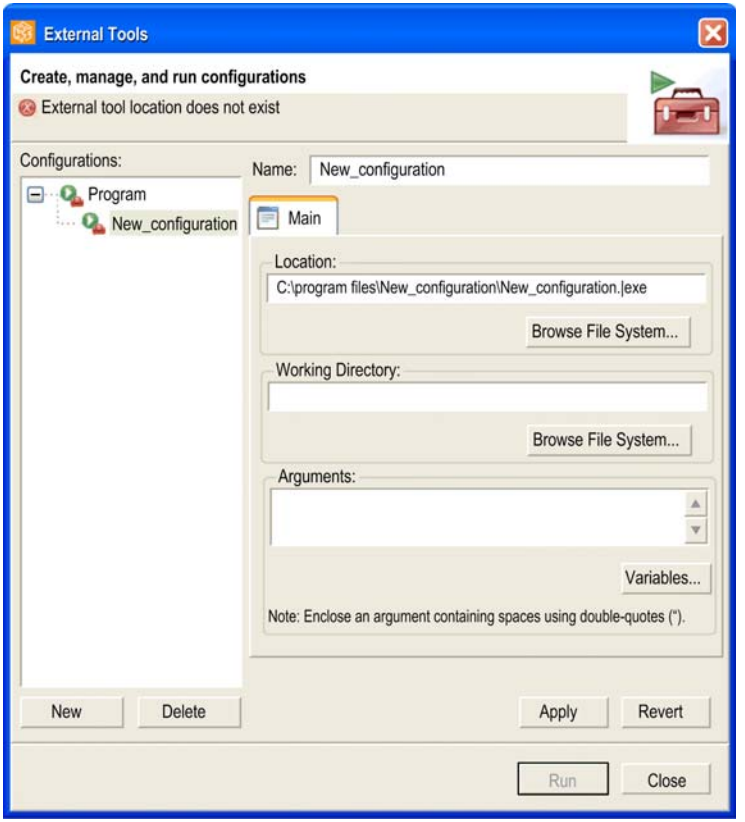
This function enables you to setup an external tool that will be used by Web Designer. For example, you can setup FrontPage to edit the files of your website.

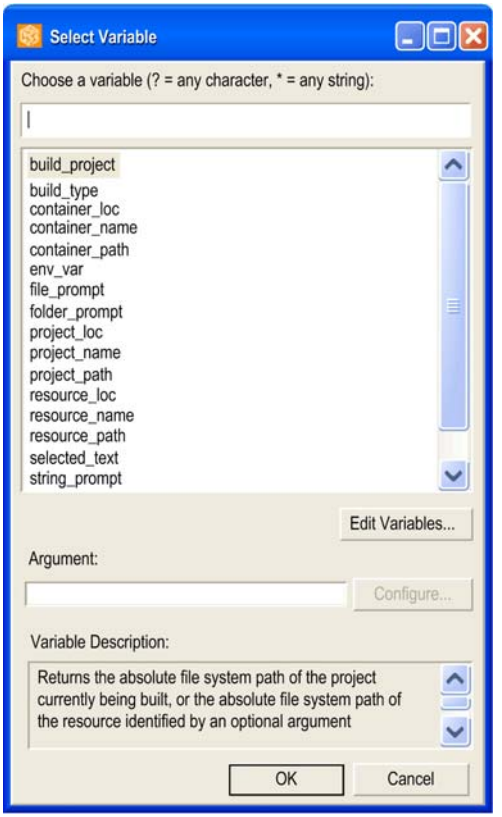
The following part shows you how setup FrontPage to open the files of the website, however the procedure is the same if you use another software.

Example

The following table shows how to set up a HTML editor. Here, hostname is used as an example:

Step	Action
1	Click **Options →Configuration of an external tool →External tools**. **Result**: the setup window for external tools appears. 

Step	Action
2	Click **New**. **Result**: the following window appears. 
3	Enter a name for the external software (i.e. FrontPage).
4	In the **Location** area, click **Browse File System**. **Result**: a file explorer opens.
5	Select the path of the *.exe* file of the external software (i.e. *C:\windows\frontpage\frontpage.exe*).
6	In the **Working Directory** area, click **Browse File System**. **Result**: a file explorer opens.
7	Specify the directory that contains the files you want to open with your external tool (i.e. *C:\workspace\WD_project\website*.

Step	Action
8	In the **Arguments** area, click **Variables...**. **Result**: the Select Variables window appears. 
9	Select the *ressource_loc* variable that returns the absolute file system path of a resource.
10	Click **Apply**.
11	Click **Close**.
12	Select a file of the website in your Web Designer navigator.
13	Click **Options →Configuration of an external tool →FrontPage**. **Result**: FrontPage opens automatically the selected file.

Changing the Workspace Directory

11

Presentation

The workspace is the space where projects are stored. Only those located in the current workspace can be opened. Projects are automatically created in the current workspace. It is possible to have several workspaces and to pass from one to another.

This function enables you to change the path to the workspace.

To do this, select **Change Workspace...** in the **Options** menu.

Formatting and Restarting a Module

12

Restart/Format a Target

Introduction

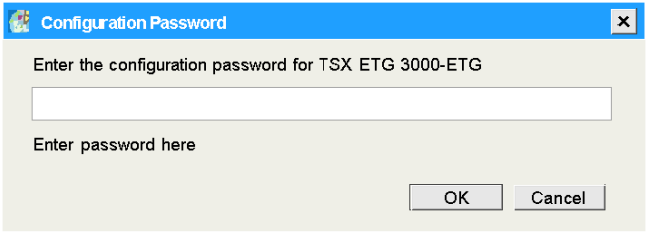
Restarting is necessary to take into account the modifications made to the application.

Formatting deletes the website on the module and restores the default website *(Website*, *GraphicScreens* and *DataTables* directories). Formatting allows you to delete all the modifications made to the website of a target, in order to start a fresh one from a defined status. It does not modify the system configuration.

Restarting the Target

Step	Action
1	In the menu tree, select a target.
2	In the **Target** menu, click **Reboot target**.

Formating the Target

Step	Action
1	In the menu tree, select a target.
2	In the **Target** menu, click **Format target**. **Result**: the Configuration Password window appears if a configuration password has already been set. Otherwise the formatting starts. 
3	Enter the configuration password and click **OK**.

Security

13

Subject of this Chapter

This chapter explains how to manage the security for a website using a firewall, access rights and password protection.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Internal Security	280
External Security	281
Variable Access Security, Symbol, Direct Address	283
Changing Passwords	284

Internal Security

Overview

Web Designer provides 2 mechanisms to allow that only authorized users view and modify your data:

- password entry,
- write restrictions.

Anyone who has access to a configuration tool and 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 hazardous.

⚠ WARNING

UNINTENDED OPERATION

Restrict control of access to the embedded server:

- Change passwords monthly.
- Do not use simple user names and passwords.
- Disable default passwords before commissioning the module.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Password Entry

Although you may add unprotected Web pages to the site, the default Web pages and any other pages to which you want to restrict access 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 restrict access to it, place it in the folder called *secure*.

External Security

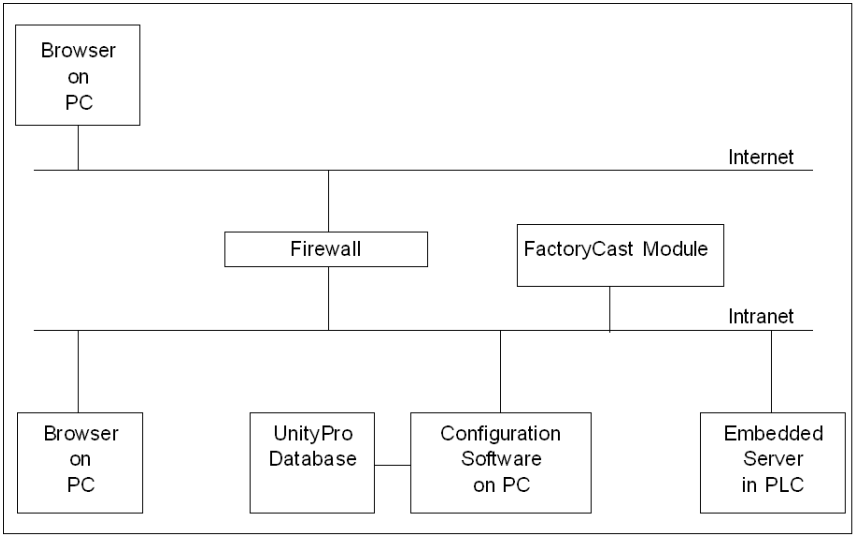
Overview

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. You can use a firewall to restrict or forbid access to your website.

A firewall can be configured to authorize network connections to a limited range of ports, or to authorize traffic to or from certain IP addresses.



Types of Firewalls

There are two types of firewalls:

- Network firewalls
- Application firewalls

Network Firewalls

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

Application-Level 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.

Firewall Configuration

Web Designer uses HTTP, FTP and Schneider Electric Modbus application protocol (MBAP) to access embedded server pages and files. If you want viewers to be able to access your site from the Internet and your embedded server is behind by a firewall, you need to configure the firewall to authorize HTTP, FTP and MBAP traffic.

Port	Protocol	Access to...
21	FTP	Embedded server files (behind a firewall)
Higher than 1024		
80	HTTP	Web pages
502	MBAP	Operational data

NOTE:

- The default FTP name and password are USER/USER.
- The FactoryCast client follows the "Firewall Friendly FTP" standard, RFC 1579. It issues an FTP PASV command to the FactoryCast server before any attempt to establish an FTP data connection.
- The online mode of the configuration tool is not operational if the module is behind a firewall. The ports in this mode are dynamically assigned.

Variable Access Security, Symbol, Direct Address

Presentation

Users who enter the write password can only modify variables (symbols) and direct addresses which are write-enabled. When you create a WEB-enabled database of variables and direct addresses, you can designate each element as read-only or write-enabled.

Unauthorized or incorrect modifications made to symbols and direct addresses may have undesirable or hazardous effects on the behavior of your application.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Restrict access to the embedded server by configuring passwords.
- Carefully select the symbols and direct addresses you authorize to be modified online.
- Do not authorize online modification of variables of critical nature concerning human and material integrity.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

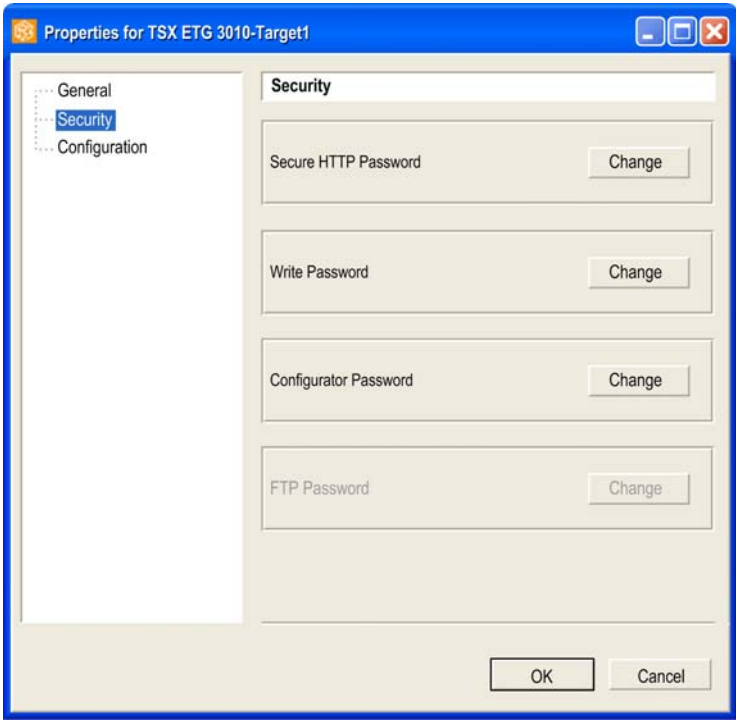
Changing Passwords

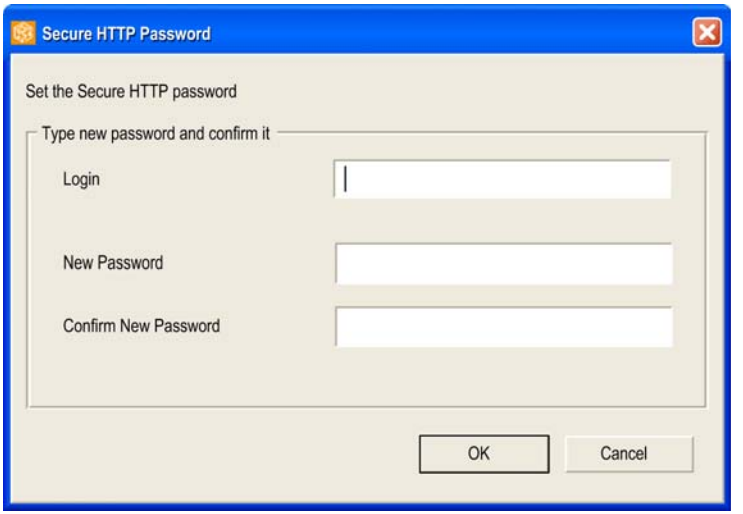
Introduction

This page enables you to modify the different user names and passwords that are used for identification.

Modify Passwords

This table describes how to change passwords:

Step	Action
1	In the browser, select the target.
2	In the **Target** menu, click **Properties**. **Result**: the Target Properties window appears.
3	Select **Security**. **Result**: the following window appears. 

Step	Action
4	Click **Modify** to change a password. Refer to next paragraph for a description of each passwords. **Result**: the Password window appears. 
5	Enter a new password and confirm it by typing it in the **Confirm new password** field. If it's an HTTP password, the login is also requested.
6	Click **OK** in the Password window. **Note**: if you leave any fields empty during the modification, you will be asked to confirm the replacement of the current password by an empty password.
7	Repeat actions 4...6 for each password to modify.
8	Click **OK** in the Properties window of the target to close the window.

Function

This table shows the fields in the various windows used to modify passwords:

Window	Function
Secure HTTP Password	Required for connecting to the secure HTTP pages of the module website via a browser.
Write Password	Required to write variables in animation mode.
Configurator Password	Required to access the configuration parameters of the module.
FTP Password	Not available.

Appendices

Scope of this Appendix

This appendix shows the menus of the high application and the contextual menus. It also gives you recommandations on datalogging service.

What's in this Appendix?

The appendix contains the following chapters:

Chapter	Chapter Name	Page
A	Flash Recommendation	289
B	Menu	291

Flash Recommendation

A

Recommendation on Datalogging Service

Size of the Log File

The following table shows you an estimation of the log file size in bytes depending on the number of variables logged and the number of logs:

Number of logs	Number of variables						
	1	2	5	10	20	50	100
1	65	110	245	470	920	2270	4520
2	130	220	490	940	1840	4540	9040
5	325	550	1225	2350	4600	11350	22600
10	650	1100	2450	4700	9200	22700	45200
20	1300	2200	4900	9400	18400	45400	90400
50	3250	5500	12250	23500	46000	113500	226000
100	6500	11000	24500	47000	92000	227000	452000

NOTE: To prolong the internal Flash life, rerun the log file at intervals greater than 30 minutes.

Menu

B

Subject of this Chapter

This chapter describes the menus for Web Designer functions.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Menu	292
Contextual Menu	295

Menu

Overview

The following table shows the complete menu system when all functions are supported:

Menu	Sub-menu	Overview
Project	New	Create a new project: Creating a new module/device/data table/graphic page. Creating a service. Creating files and folders.
	Open project	Open an existing project.
	Close project	Close current project.
	Save all	Save all items modified in the project.
	Import	Importing an existing (*.zip*) project or converting a FactoryCast or FactoryCast HMI project.
	Export	Exporting the current project to a *.zip* file.
	Global transfer	Downloading all the project's modules (and all the files).
	Project Validation	Verifying the project before transfer.
	Refresh	Updating the window and menu tree.
	Properties	View/modify the project's properties (passwords, comments, etc.).
	Quit	Exit application
Edit	Undo	Cancel last action.
	Cut	Removing the selected object and putting it on the clipboard (the object can be a project, a module, a device, a graphic object, a file, a variable etc.).
	Copy	Copy the object to the clipboard.
	Paste	Paste the clipboard.
	Delete	Delete the selected object.
	Find...	Search for text in the project.

Menu	Sub-menu	Overview
Target	Transfer	Transfer all files, either from your PC to the destination, or from the destination to your PC.
	Connect	Connecting to the module (if the module authorizes the connection) or to the simulator.
	Partial transfer	Transfer part of the project, either from your PC to the destination, or from the destination to your PC. In both cases, the destination can be set to: ● FLASH ● USB ● CF Card
	Disconnect	Disconnecting from the module or from the simulator
	Stop all services	Shutting down all the services (for targets using services).
	Start all services	Starting all the services (for targets using services).
	Site Explorer	Display a view of the website in the window on the bottom.
	Reboot target	Rebooting the connected module (for modules that authorize).
	Format target	Formatting the connected module (for modules that authorize).
	Set target address	Display/modify the IP Address, user name and password of the target.
	Upgrade target	Upgrade the Web Designer application to the latest version.
	Synchronize with PLC database	Synchronize the namespace of your project with a PLC database.
	Properties	View/modify the target's properties.
Service	Stop	Shut down current service.
	Run	Start current service.
	Operator screens	Display the operator screen, the menu is available for Factory Cast HMI modules only.
	PLC program viewer	Display the PLC program, the menu is available for Factory Cast HMI modules only.
	Print	Print current service.
	Statistics	View statistics for the selected service (incoming messages, outgoing messages, etc.).
Options	Configuration of an external tool	Set up an external tool (for example FrontPage).
	Change workspace...	Changing a workspace directory.
	Default display	Restoring the three-dimensional view of the work window by default.
	Configure external path	Specify a work space directory for Web Designer project.
	Automatic input	Fill in automatically the values of a new variable by incrementing the values of the last record.

Menu	Sub-menu	Overview
Help	Help	Access to Web Designer for TSX ETG 30•• Help file.
	About	Information about the version, copyright etc. of Web Designer for TSX ETG 30••.

Contextual Menu

The following table shows the contextual menu of the file tree.

File tree item	Menu (right-click)	Sub-menu	Comment
Project name	**New**	**Project** **Target**	Launch the wizard. First window.
	Edit		
	Paste		Paste project.
	Delete		Delete project.
	Rename		Rename project.
	Global transfer		Transfer project.
	Properties		View the project properties.
Module name	**New**	**Device** **Service**	Launch the wizard. Second window.
	Edit		
	Cut		Cut module
	Copy		Copy module
	Paste		Paste module.
	Delete		Delete module.
	Rename		Rename module.
	Transfer	PC->Target Target->PC	Transfer web site.
	Connect	**Target** **Simulation**	Connect module.
	Disconnect		Disconnect module.
	Properties		View the module properties.
Folder **Devices**	**New device**		View the selection window of symbols
	Paste		Paste device.

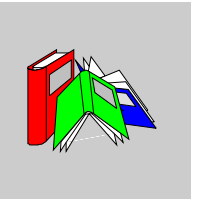
File tree item	Menu (right-click)	Sub-menu	Comment
Device element	**Edit**		Launch the device display window.
	Cut		Cut device.
	Copy		Copy device.
	Delete		Delete device.
	Rename		Rename device.
	Run		Start the service.
	Stop		Stop the service.
GraphicScreens *Folder*	**New Graphic Page**		Launch Graphic Editor.
	Paste		Paste the graphic.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.
GraphicScreens item	**Edit**		Graphic Editor.
	Open		View graphic.
	Cut		Cut the graphic.
	Copy		Copy the graphic.
	Delete		Delete graphic.
	Rename		Rename graphic.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.
DataTables *Folder*	**New data**		Launch the data editor.
	Paste		Paste the data table.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.
DataTables item	**Edit**		Data Editor.
	Open		Data Viewer.
	Cut		Cut the data table.
	Copy		Copy the data table.
	Delete		Delete the data table.
	Rename		Rename the data table.
Services *Folder*	**New service**		Create a new service.
	Paste		Paste a service.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.

File tree item	Menu (right-click)	Sub-menu	Comment
A service *Folder* **calculation**, **email**, **database**, **data logging**, **active pages**	**New**		Launch the service wizard with the selected service.
	Cut		Cut a service.
	Copy		Copy a service.
	Paste		Paste a service.
	Delete		Delete a service.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.
Service Folder	**Edit**		Launch the edit window of the service.
	Cut		Cut the service.
	Copy		Copy the service.
	Delete		Delete the service.
	Rename		Rename the service.
	Run		Start the service.
	Stop		Stop the service.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.
Web Site *Folder*	**New**	**Folder** **File**	Create a new file or folder.
	Paste		Paste a new file or folder.
	Import File		Importing an existing website.
	Partial transfer	Target->PC PC->Target	Transfer only the website. See note.

File tree item	Menu (right-click)	Sub-menu	Comment
Folder in **Web Site**	**New**	**Folder** **File**	Create a new file or folder.
	Cut		Cut the folder.
	Copy		Copy the folder.
	Paste		Paste a new file or folder.
	Delete		Delete the folder.
	Rename		Rename the folder.
	Import File		Importing an existing file.
	Partial transfer	Target->PC PC->Target	Transfer only the folder. See note.
File in **Web Site**	**Open**		Open the file.
	Open with System Editor		Launch another window with System Editor.
	Edit with	**Notepad**	Launch the HTML page in Edit mode with notepad.
		FrontPage	Launch the HTML page in Edit mode with FrontPage.
	Cut		Cut the file.
	Copy		Copy the file.
	Delete		Delete the file.
	Rename		Rename the file.
	Partial transfer	Target->PC PC->Target	Transfer only the file.
Namespace	**Open**		Launch the Namespace window.
Namespace Write Access	**Edit**		Launch the author rights Namespace window.

NOTE: If you are using a TSX ETG 30•• module, you can specify the media on which those files are transferred. Click **USB**, **CF card** or **Flash** in the next sub-menu to select the location.

Glossary



A

applet

Software component that runs in the context of another program, for example a Web browser.

ASCII

American Standard Code for Information Interchange.

Pronounced "aski". This is an American code (but now an international standard) which allows alphanumerical characters used in English, punctuation marks, some graphics characters and various commands to be defined with 7 bits.

AT commands

Also called **Hayes Commands**: Set of commands for various phone-line manipulations, dialing and hanging up for instance.

B

bit

Contraction of Binary Digit.

This is the binary unit of information content, which can represent two separate values (or states): 0 or 1.

A field of 8 bits constitutes 1 **byte**.

BOOTP

Bootstrap Protocol: Protocol for booting diskless terminals or stations by centralized management of network parameters.

C

CF card

CompactFlash card: Type of data storage device, used in portable electronic devices.

communication interruption

Communication error detected by the module when the periodic exchanges with the PLC stop.

configuration

The configuration comprises the data that defines the device (invariable) and that is necessary to the operation of the module.

CPU

Central Processing Unit: The microprocessor. This comprises the entire control unit and the arithmetic unit. The purpose of the control unit is to extract the execution instruction from the central memory along with the data needed to execute this instruction, to establish electrical connections in the arithmetic and logic unit and to start the processing of this data in the unit. **ROM** or **RAM** memories are sometimes included on the same chip, and sometimes I/O interfaces or buffers.

CRC

Cyclic Redundancy Check: Type of hash function used to produce a checksum – a small, fixed number of bits – against a block of data, such as a packet of network traffic or a block of a computer file.

D

DHCP

Dynamic Host Configuration Protocol: Protocol allowing a station connected to the network to obtain its configuration dynamically.

DNS

Domain Name System: It stores and associates many types of information with domain names and it translates domain names (computer hostnames) to IP addresses.

driver

Program which informs the operating system of the presence and characteristics of a peripheral.

F

FactoryCast HMI

Active Web server that executes HMI functions integrated in a PLC module. When you use the active Web server, you do not need to communicate via polling to update the HMI/SCADA database.

FDR

Faulty Device Replacement: Automatic configuration recovery service provided by the module.

firewall

Information technology (IT) security device which is configured to permit, deny or proxy data connections set and configured by the organization's security policy.

Flash memory

Form of non-volatile computer memory that can be electrically erased and reprogrammed.

FTP/TFTP

File Transfer Protocol/Trivial File Transfer Protocol: Network file transfer protocol.

G

GPRS

General Packet Radio Service: A radio technology for GSM networks that adds packet-switching protocols and shorter set-up time for ISP connections.

H

HMI

Human Machine Interface: The aggregate of means by which people (the users) interact with a particular machine, device, computer program or other complex tool (the system).

HTML

HyperText Markup Language: the predominant markup language for the creation of web pages. It provides a means to describe the structure of text-based information in a document and to supplement that text with interactive forms, embedded images, and other objects.

HTTP

HyperText Transfer Protocol: Network transfer protocol for documents written in hypertext (links).

I

IP

Internet Protocol: Data-oriented protocol used for communicating data across a packet-switched internetwork (i.e. the Internet).

IP Address

Unique address that devices use in order to identify and communicate with each other on a computer network utilizing the Internet Protocol standard (IP)—in simpler terms, a computer address.

ISO

International Standards Organization. Formats, symbols, transmission rules are covered by ISO standards. AFNOR is a member of ISO.

ISP

Internet Service Provider: Business or organization that sells to consumers access to the Internet and related services.

M

MIB

Management Information Base: Database used by the SNMP protocol for network management and containing information on data transmission, station or router components, etc.

- MIB II: standard MIB
- Schneider Electric MIB: private MIB

N

NAT

Network Address Translation: is the translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network.

NTP

Network Time Protocol: Protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks.

O

operating mode

The rules governing the behavior of the module when it is running.

P

PAP

Password Authentication Protocol: Password identification protocol used for remote modem connections.

PL7

Schneider Electric PLC programming software.

PLC

Programmable Logic Controller: It is a small computer used for automation of industrial processes, such as control of machinery on factory assembly lines.

PPP

Point-to-Point Protocol: Point-to-point communication protocol used for modem connections.

Premium

Family of Schneider Electric PLCs.

PSTN/RTC

Public Switched Telephone Network: The network of the world's public circuit-switched telephone networks.

Q

Quantum

Family of Schneider Electric PLCs.

R

RGB

Additive model in which red, green, and blue (often used in additive light models) are combined in various ways to reproduce other colors.

RS232

Serial communication standard that in particular defines the following operating voltage:

- A signal of +3 to +25V indicates a logic 0
- A signal of -3V to -25V indicates a logic 1

Between +3V and -3V the signal is regarded as invalid.

RS 232 connections are relatively sensitive to interference. The standard recommends not exceeding a distance of 15 meters and a speed of 20,000 baud (bps) maximum.

RS485

Serial connection standard operates at +/-5V differential. The connection uses separate wires for transmission and receipt. Their "3-status" outputs allow them to switch to listening mode when transmission is completed.

RTU

Remote Terminal Unit.

RUN

Function used to start execution of the application program in the PLC.

S

SCADA

Supervisory Control And Data Acquisition: Software that, interfacing with a programmable logic controller, gathers and analyzes information used to monitor and control commercial equipment.

SMTP

Simple Mail Transfer Protocol: Application protocol used to transmit messages via the Internet and direct them to a mailbox.

SNMP

Simple Network Management Protocol: Network management protocol for controlling a network remotely by polling the stations for their status and modifying their configuration, performing security tests and viewing information relating to data transmission. It can also be used to manage software and databases remotely.

SQL

Structured Query Language: Used to query (request data from) a relational database.

T

TCP

Transmission Control Protocol: Virtual circuit protocol that is one of the core protocols of the Internet protocol suite, often simply referred to as TCP/IP.

TCP/IP

The set of communications protocols that implement the protocol stack on which the Internet and many commercial networks run.

Time Out

Expiry of a waiting time. Stops the application or disconnects after a lengthy period of non-use.

U

UDP

User Datagram Protocol: One of the core protocols of the Internet protocol suite. Using UDP, programs on networked computers can send short messages sometimes known as datagrams to one another.

URL

Uniform Resource Locator: The global address of documents and other resources on the World Wide Web.

V

VPN

Virtual Private Network: A private network that is configured within a public network. It uses encryption and other security mechanisms so that only authorized users can access the network and that the data cannot be intercepted.

X

XML

Extensible Markup Language: it is aimed to facilitate the sharing of data across different information system. It is a simplified subset of the SGML and is designed to be relatively human-legible.

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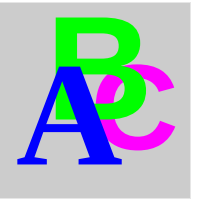

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