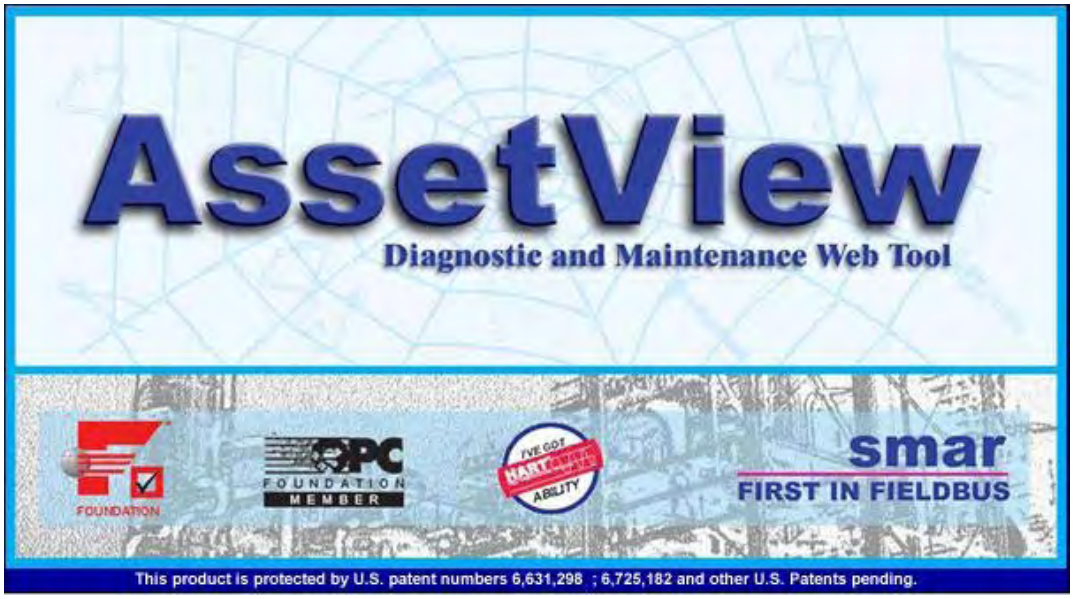
AssetView - smar First in Fieldbus

INSTALLATION AND OPERATION

USER'S MANUAL



JUL / 07

AssetView

VERSION 3.2

ASETVIEWME

smar

www.smar.com

Specifications and information are subject to change without notice.
Up-to-date address information is available on our website.

web: www.smar.com/contactus.asp

INTRODUCTION

To fulfill the requirements of a control system, the plant needs a system that can provide specific management functions, such as calibration, diagnostics, identification, materials of construction and setup for the *Field Devices*.

Smar **AssetView** is a software system for on-line network enabled asset management. The primary objective is to unleash the powerful diagnostics capabilities found in *Fieldbus* devices in general and particularly in Smar devices, providing several maintenances schemas and making the user interface friendlier.

AssetView deals only with devices and is used for the long-term maintenance and device operation. **AssetView** is not restricted to just displaying error messages from the device, but it can take devices through test sequences, record data, plot charts and analyze them providing a much more sophisticated failure analysis.

Another important characteristic of the **AssetView** is the web technology based architecture. The user interface is the Internet Explorer web browser and it can be used on any Windows platform.

Since there will always be a mix of instrument brands in a plant, it is important to have a maintenance tool that is independent of the device manufacturer. The same single software must support devices even though these come from different manufacturers.

The device manufacturers know best what information to display, and how to present it for the user to get the best out of their device. The device manufacturer is the ideal candidate to make pages available for their devices, incorporating their knowledge and visualization characteristics, and keeping them up to date with the latest features and capabilities. That's the proposal of **AssetView**: to allow the manufacturers to develop the devices' home pages.

AssetView software is network enabled and allows the user to tap into the information of the devices, indicating the condition of any device at any time, so that users can have a complete overview to picture the status of the entire plant.

This product is protected by U.S. patent numbers 6,631,298; 6,725,182 and other U.S. Patents pending.

TABLE OF CONTENTS

INSTALLATION AND CONFIGURATION

Using AssetView with Studio302

If you are installing ***AssetView*** with ***Studio302***, please refer first to the **System302 Installation Guide** available with the ***System302*** Documentation CD and follow the instructions to complete the installation and configure your system.

Then, refer to the steps described on sections ***1.3 After the Installation*** and ***1.4 AssetView Initial Settings*** in this manual, and configure specific settings for the system to execute ***AssetView*** properly.

Using AssetView with System302 Version 6.1.x

Before installing ***AssetView*** with ***System302*** version 6.1.x, the user must have already installed a few essential applications that support **Smar** software.

Installing Internet Explorer 6.0 or higher

The Internet Explorer installation file is located at the folder **Tools\IE6**, in the ***System302*** CD.

Run the application **Ie6setup.exe** and follow the instructions in the dialog boxes to complete the installation. It will be necessary to restart the computer after the IE installation.

Installing IIS on Windows 2000, Windows XP or Windows Server 2003

Install the *Internet Information Services* (IIS), version 5.0 or higher. The IIS is a Windows *Add-on Component*. Place the Windows CD in the CD-ROM drive. Open the **Control Panel** and double-click the **Add or Remove Programs** application.

In the **Add or Remove Programs** window, click **Add or Remove Windows Components** on the menu on the left. The **Windows Components Wizard** dialog box will open.

- On Windows 2000 or Windows XP, mark the item **Internet Information Services (IIS)** and click **Next**. Follow the instructions to complete the IIS installation and click **Finish**.

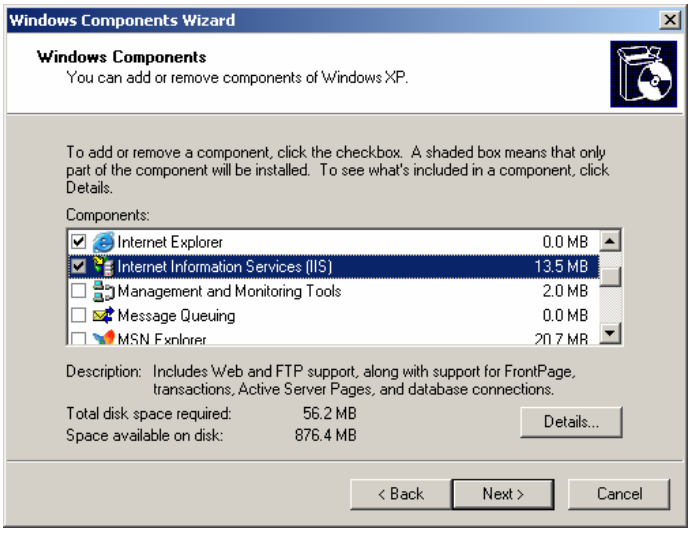


Figure 1.1. Installing IIS on Windows 2000 or Windows XP

- On Windows 2003 Server, select the item **Application Server** and click **Details**. In the **Application Server** dialog box, mark the items **ASP.NET** and **Internet Information Services (IIS)** and click **Ok**. In the **Windows Component Wizard**, click **Next** and follow the instructions to complete the installation. Click **Finish** to conclude.

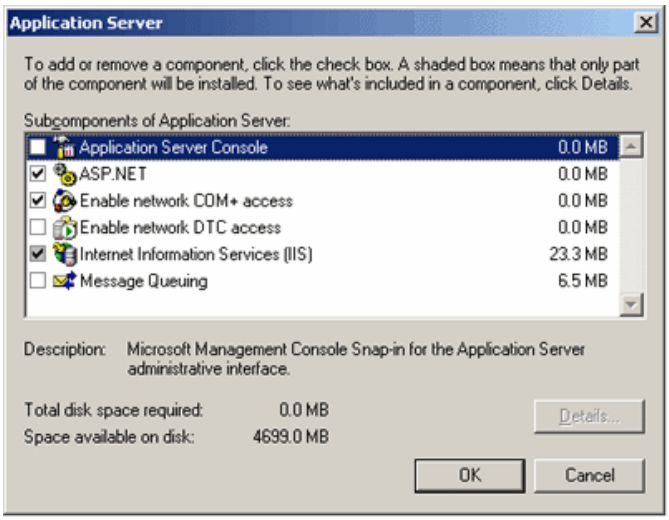


Figure 1.2. Installing IIS on Windows 2003

IMPORTANT
If IIS was already installed in the machine but the ASP.NET was not installed, it will be necessary to remove IIS and install ASP.NET together with IIS. **In this case, open the *Application Server* dialog box and unmark the item *Internet Information Services* (IIS). Click *Ok* and click *Next* on the *Windows Components Wizard* window. Follow the instructions to uninstall IIS.** **Then, open the *Windows Components Wizard* window again, select the item *Application Server* and click *Details*. Mark the items ASP.Net and *Internet Information Services* (IIS), click *Ok* and follow the instruction to complete the installation.**

To check if the installation was successful, open the *Internet Explorer* window and type the machine name or "*localhost*". The **Internet Information Services** page should be loaded.

Installing AssetView

IMPORTANT
To install *AssetView*, the user must be logged on as an Administrator or a member of the Administrators group.

Place the ***System302*** Installation CD at the CD-ROM driver. The **Installation** dialog box will automatically open. Click **Install SYSTEM302**.

Follow the instructions in the dialog boxes, providing the necessary information during the installation.

Make sure to select the **Custom** installation mode. In the **Select Features** dialog box, check the option **AssetView** from the list of applications available:

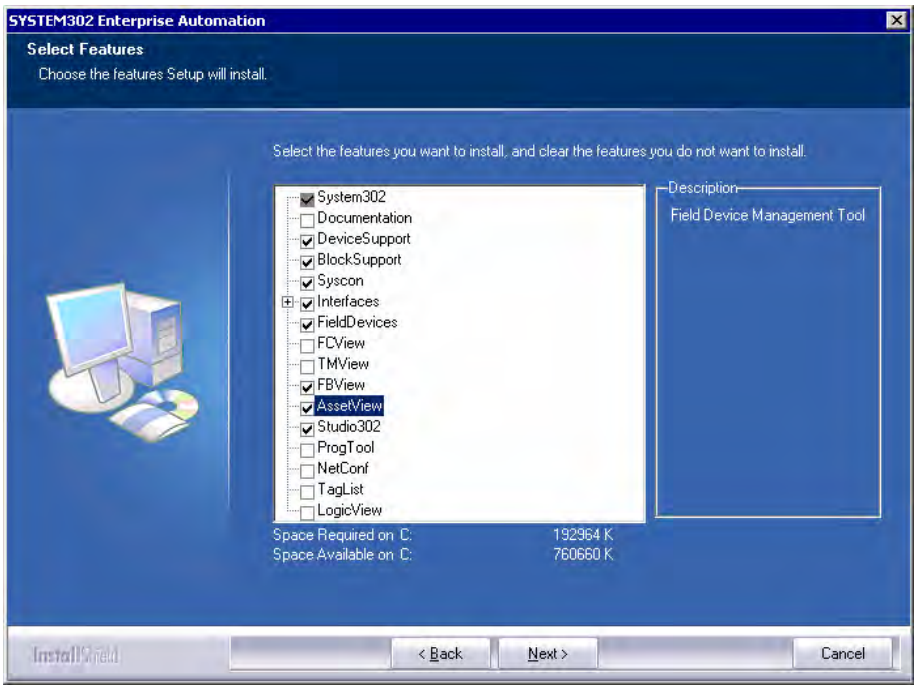


Figure 1.3. Installing AssetView

It will be necessary to restart the computer after the installation is complete.

IMPORTANT
If a database application is not located during the *AssetView* installation, the MSDE database will be automatically installed. **If any error message appears during the *AssetView* installation and configuration, please refer to the section *Troubleshoot* for details on how to manually configure the system.**

AssetView Licensing

The ***AssetView Server*** requires a *HardKey* to run properly. A specific number of field devices will be managed according to the license option select by the user.

The following table shows the license types available according to the maximum number of field devices installed on the plant.

Note that if there are more than 200 instruments, it will not be possible to use the MSDE database, only the SQL Server database.

Option	Number of Devices:	Database Required:
1	25	MSDE or SQL Server
2	100	MSDE or SQL Server
3	200	MSDE or SQL Server
4	300	SQL Server
5	400	SQL Server
6	500	SQL Server
7	750	SQL Server
8	1000	SQL Server
9	1500	SQL Server
A	2000	SQL Server

B	**2500**	**SQL Server**
C	**3000**	**SQL Server**
D	**4000**	**SQL Server**
E	**5000**	**SQL Server**
F	**7500**	**SQL Server**
G	**10000**	**SQL Server**

Connect the *HardKey* to the parallel port or the USB port of the machine. Then select **Start > Programs > System302** and click on **Get License**.

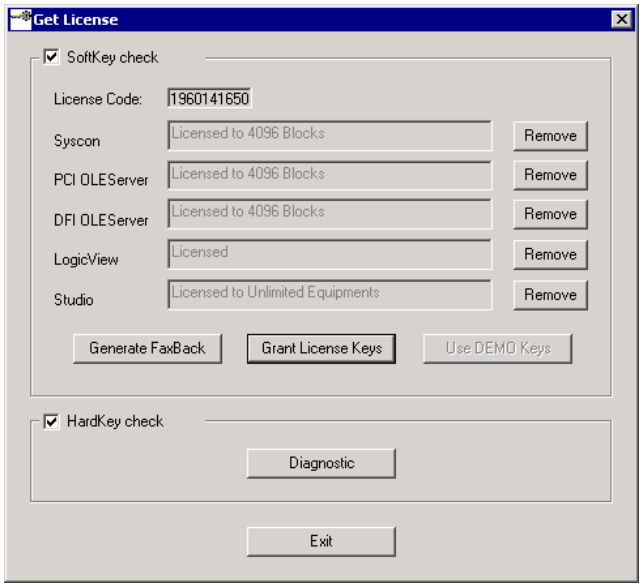


Figure 1.4. Checking the *HardKey*

1. Click the button **Diagnostic**.
2. In the **HardKey** dialog box, fill the form with the required information and click the button **Diagnostic** to generate the *HardKey* log file.
3. A message will indicate if the report was generated successfully. Click **OK** to open the log file.
4. On the **Get License** window, click **Exit** to conclude.

NOTE
If an error message appears during the test, check if the *HardKey* is connected properly and if you have a valid license.

After the Installation

Remember that it is necessary to restart the computer after the installation is complete. Otherwise, it would be necessary to restart the database. From the **Start** menu, select **Programs > Startup > Service Manager**. The **SQL Server Service Manager** dialog box will open. Click **Start/Continue** and check if the icon of the database server appears in the Windows Taskbar.

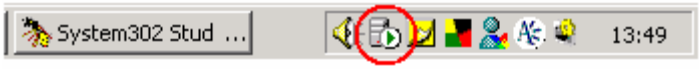


Figure 1.5. Starting the SQL Server Service Manager

Configuring the Windows Firewall

If the Windows Firewall is enabled, add the port 80 used by ***AssetView*** to the exception list:

1. Open the Windows **Control Panel** and double-click the option **Windows Firewall**.
2. The **Windows Firewall** dialog box will open. Click the **Exceptions** tab:

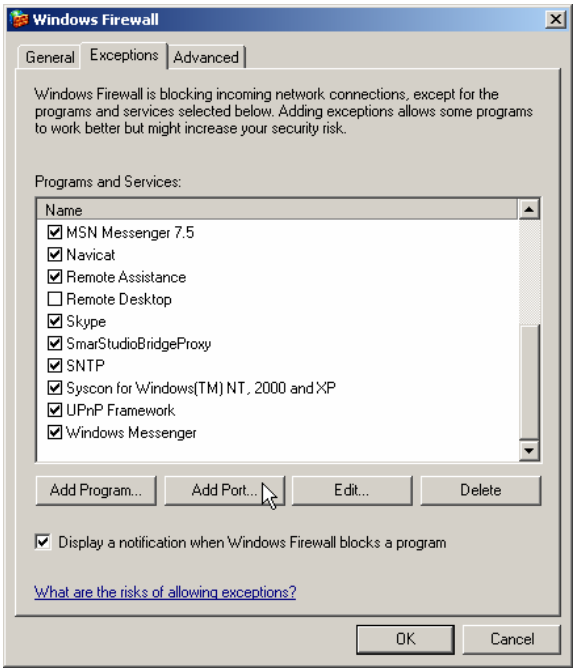


Figure 1.6. Configuring the Windows Firewall

3. Click the button **Add Port**.
4. On the **Add a Port** dialog box, type **Web** as the port name and type **80** for the port number. Select the **TCP** protocol and click **Ok** to conclude.

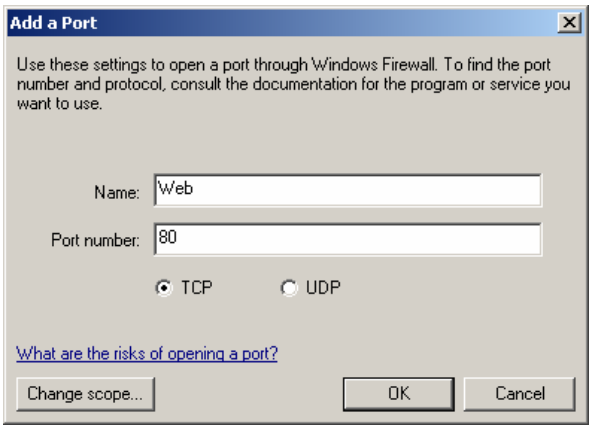


Figure 1.7. Configuring the Port 80

5. Click **Ok** on the **Windows Firewall** window to conclude.

Configuring the DCOM Properties Manually

Advanced security properties from Windows XP SP2 and Windows Server 2003 SP1 must be configured to enable the communication between ***AssetView*** and ***System302*** components.

On the **Start** menu, click **Run**, type **dcomcnfg** and click **Ok**. The **Component Services** window will open. On the left panel, select **Component Services > Computers > My Computer**.

Right-click the icon **My Computer** and select the option **Properties**. On the **My Computer**

Properties dialog box, select the **Default Properties** tab and check if the option **Enable Distributed COM on this computer** is marked.

Select the **COM Security** tab. Click **Edit Default** on the **Access Permissions** area. The **Access Permission** dialog box will open:

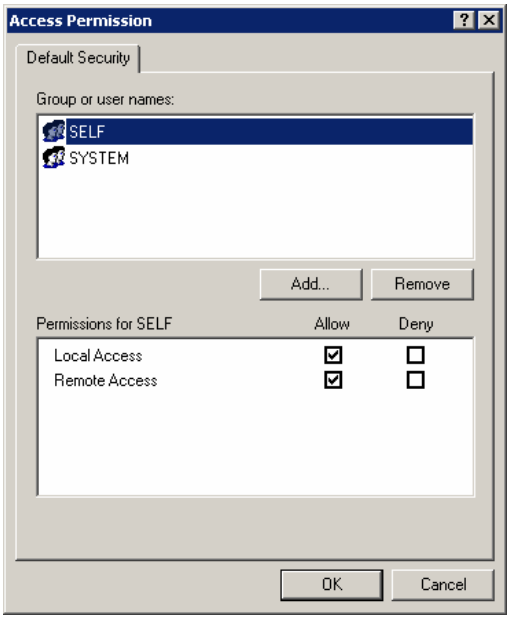


Figure 1.8. Configuring the Access Permission

Click Add and include the user **ASP.NET** and the following groups: **Administrators**, **Users**, **Interactive**, **System**, **Engineer**, **AssetViewGuest**. See the example on the figure below:

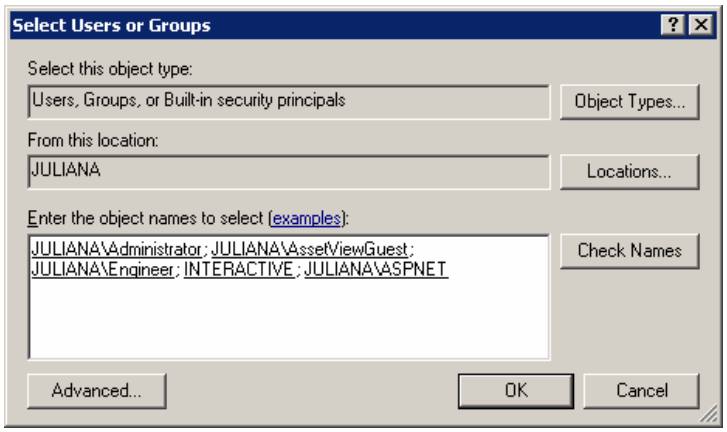


Figure 1.9. Adding Users and Groups

Click **Ok** to return to the **Access Permission** dialog box. For each user and group added, select its icon and mark the **Allow** column for the options **Local Access** and **Remote Access**.

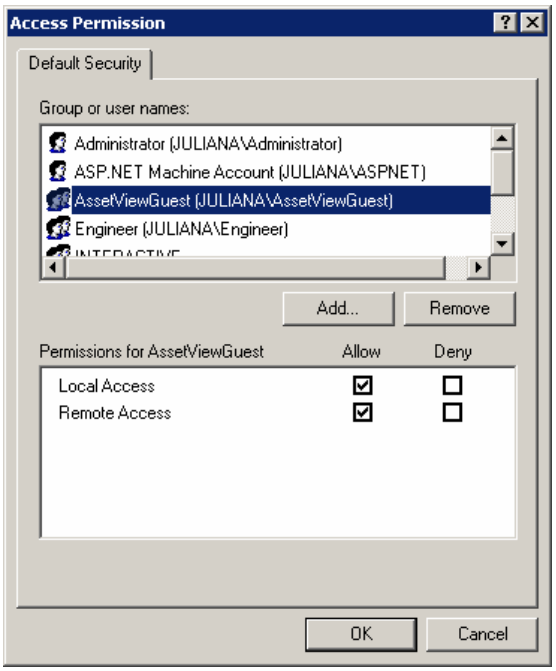


Figure 1.10. Local and Remote Access Permissions

Click **Ok** to return to the **My Computer Properties** dialog box. Then, click **Edit Default** on the **Launch and Activation Permissions** area and repeat the steps described above to add the same user and groups, allowing the permission for **Local Launch**, **Remote Launch**, **Local Activation**, and **Remote Activation**.

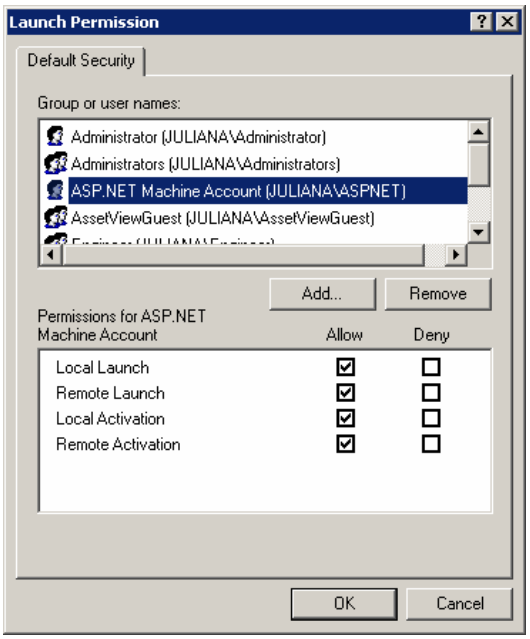


Figure 1.11. Launch and Activation Permissions

Click **Ok** to return to the **My Computer Properties** dialog box and click **Ok** again to conclude.

AssetView Initial Settings

To open the **AssetView Welcome Screen**, select **Start > Programs > System302 > AssetView** and click **Installation Guide**.

NOTE
When you run the *AssetView Server* for the first time, the *AssetView Welcome Screen* opens to guide the user while configuring the system.

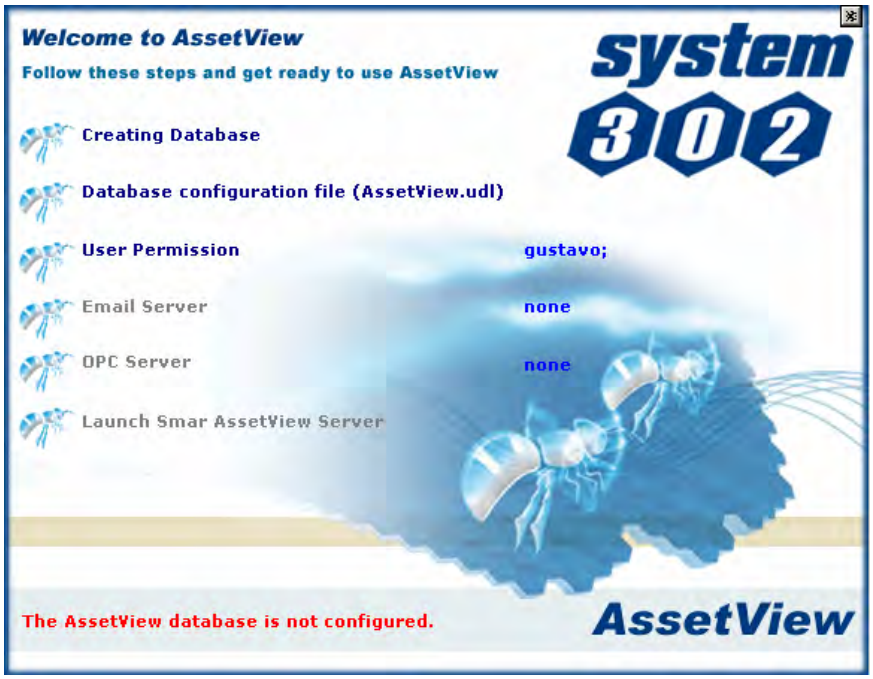


Figure 1.12. AssetView Welcome Screen

The **Welcome Screen** will indicate the status of the ***AssetView*** installation. For example, if the user is executing the application for the first time, the **Welcome Screen** will indicate that the database is not configured.

If an error message appears indicating that the *HardKey* is not valid, check if it is connected properly and if you have a valid license. See section **AssetView Licensing** for further details.

Use the links in the **Welcome Screen** and follow the instruction in the sections below to configure the computer to run the ***AssetView*** and ***AssetView Server*** applications.

Creating the Database

Run this procedure in the machine that hosts the database server to create the ***AssetView*** database.

It is not necessary to install ***System302*** and the database on the same machine, because the ***AssetView Server*** can remotely access the database. The *SQL Server 2000* can be installed on any computer that communicates with the ***AssetView Server***.

IMPORTANT
The database for *AssetView* version 3.1 or higher is not compatible with previous *AssetView* versions. When creating the database, the history of all registers and operations will be deleted. For further information on how to keep the database history from versions previous of *AssetView* 3.1, contact your Smar representative. **To create the *AssetView* database, the user must be logged on as an *Administrator* or a member of the *Administrators* group.**

In the **Welcome Screen**, click the link **Creating Database**. The **Configure SQL Server Database** dialog box will open:

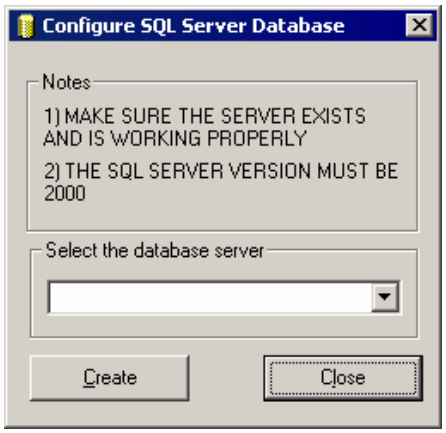


Figure 1.13. Configuring the SQL Server Database

Select the ***AssetView*** database server from the drop-down list and click **Create**.

NOTE
If the user selected the MSDE database, the server name should be: "*<machine name>/AssetView*".

If the database already exists in the selected server, a message box will open asking if the user wants to create a new database. Click **Yes** and all existing data will be deleted.

Wait a few seconds until the message box opens alerting the user that the database was created. Click **Ok** to close this dialog box:

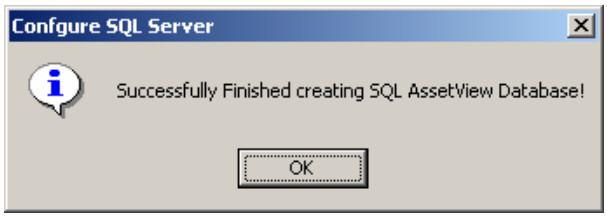


Figure 1.14. Creating the SQL Server Database

NOTE
If the database was not created properly, check the SQL Server configuration and the user login information.

Click **Close** to conclude the database configuration.

Creating the Remote Database

Follow this procedure to create the ***AssetView*** database in a dedicated machine, that is, in the remote computer where all database information will be saved.

Locate the ***AssetView*** installation folder. The default path is "*C:\Program Files\Smar\AssetView*". Copy the folder **SQL Server Support** to the remote machine and run the file **SqlServer.exe**, double-clicking its icon.

Select the database server from the drop-down list and click **Create**. When the database is created, click **Close** to conclude.

Database Configuration File

Now check if the database connection is configured properly. In the **Welcome Screen**, click the link **Database Configuration File**. The **Data Link Properties** dialog box will open:

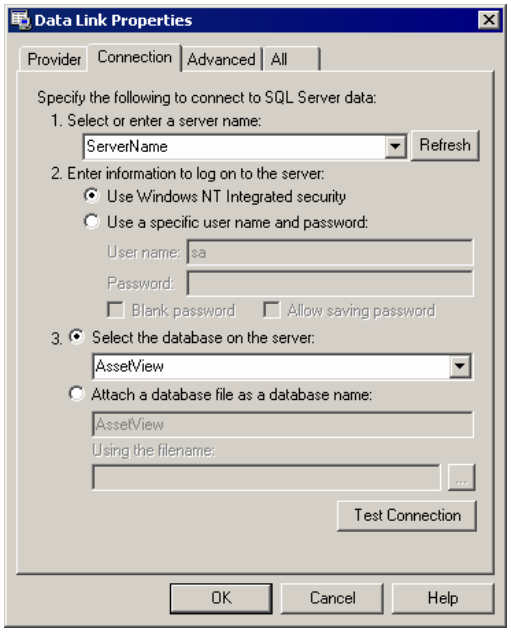


Figure 1.15. Connecting to the SQL Server Database

At the **Connection** tab:

1. Select the name of the SQL Server.
2. Choose the log on mode.
3. Select the ***AssetView Database*** on the server.
   If the database was created in the remote machine, make sure to select the name of the remote server.
4. Click **Test Connection** and wait for the message confirming the test succeeded:

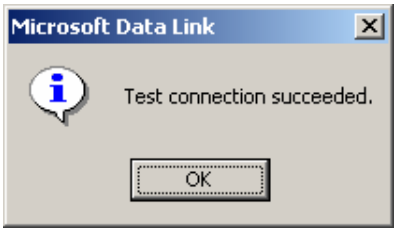


Figure 1.16. Testing the connection

Click **Ok** on the **Data Link Properties** dialog box to conclude.

User Permission

In the **Welcome Screen**, click the link **User Permission**. The **Local Users and Groups** window will open:

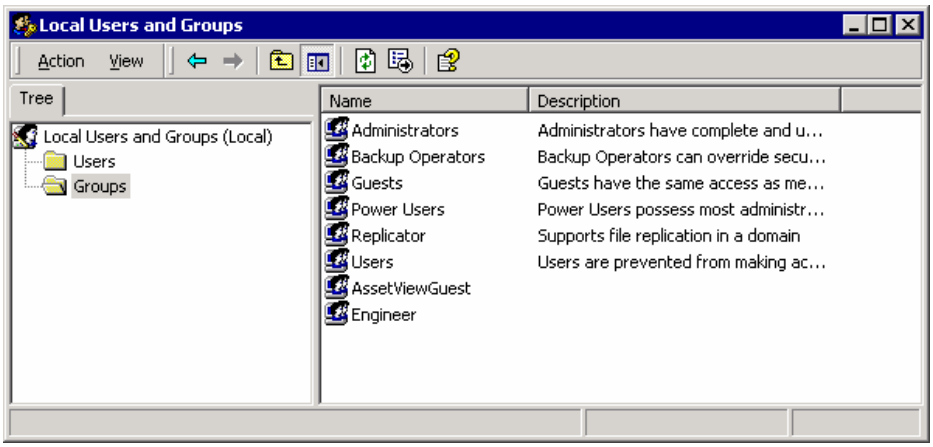


Figure 1.17. Local Users and Groups Window

Only the ***AssetView*** administrator can configure the access level. The access control of ***AssetView*** uses the Windows authentication, and for this reason the ***AssetView*** administrator is the administrator of the machine where the ***System302*** was installed.

Users added to the **Engineers Group** will have permission for writing and reading information from the server. Double-click the **Engineer** group to open the **Engineer Properties** dialog box.

Click **Add** and select the user(s) to be included in the **Engineer** group. Click **Ok** to confirm and conclude this procedure.

Users added to the **AssetViewGuest** group will only have permission to read information from the server. Double-click the **AssetViewGuest** group to open the **Properties** dialog box.

Click **Add** and select the user(s) to be included in the **AssetViewGuest** group. Click **Ok** to confirm and conclude.

Email Server

In the **Welcome Screen**, click the link **Email Server** to configure the SMTP Server address. The **Mail Options** dialog box will open:

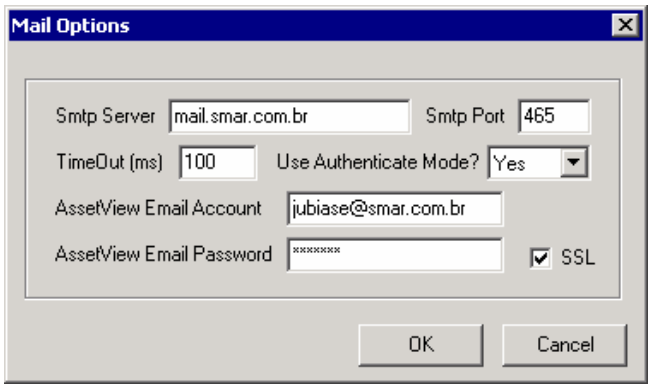


Figure 1.18. Configuring E-mail Options

1. Type the name or the IP address of the e-mail server in the **SMTP Server** box.
2. Configure the maximum idle time, in milliseconds, for the communication with the e-mail server in the **TimeOut** box. It is recommended to use a value 10 times bigger than the server's response time.
3. Configure the e-mail account for ***AssetView***.
4. If the e-mail server requires authentication, select **Yes** in the **Use Authenticate Mode** box and type the password for the e-mail address in ***AssetView***.
5. If the mail server uses the SSL protocol, check the option **SSL** and type the corresponding

number for the SMTP port, on the **SMTP Port** box.

6. Click **Ok** to save the changes and close this dialog box.

NOTE
Some e-mail servers may require a Domain and User name instead of the email address to configure the *AssetView Email Account* field.

Configuring the Communication

In the **Welcome Screen**, click the link **OPC Server** to configure the communication interface. The **Communication Settings** dialog box will open:

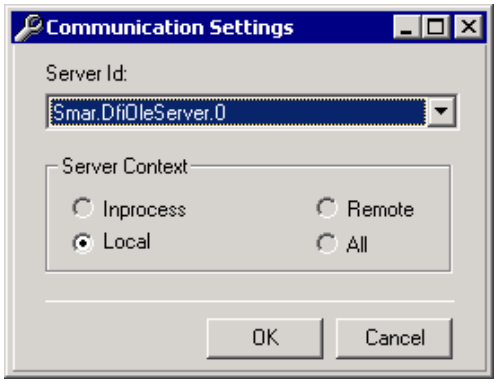


Figure 1.19. Configuring the Communication

Select the communication server from the list of available servers. Click **Ok** to conclude.

Now the system is ready to execute the ***AssetView Server*** and navigate on the ***AssetView*** devices' pages.

The following sections on this manual will describe the ***AssetView Server*** interface and how to navigate the pages available for the field devices.

ASSETVIEW SERVER

The **Smar *AssetView Server*** runs transparently to the user. The ***AssetView Server*** monitors the devices, controls the number of devices monitored and grants permissions to users.

Before initializing the ***AssetView Server***, it is necessary to:

- Create the device configuration using ***Syscon***.
- Export the tags.
- Initialize the communication using ***Syscon*** to check if the settings are correct.
- Check if the **Online Characterization** window shows the parameter values in ***Syscon***.

It is not necessary to keep the ***Syscon*** window open while executing the ***AssetView Server***. Remember that ***Syscon*** and ***AssetView*** can be installed separately, on different computers.

Starting the AssetView Server

Using *System302* Version 6.1

To open the ***AssetView Server*** window, click **Start > Programs > System302 > AssetView > AssetView Server**:

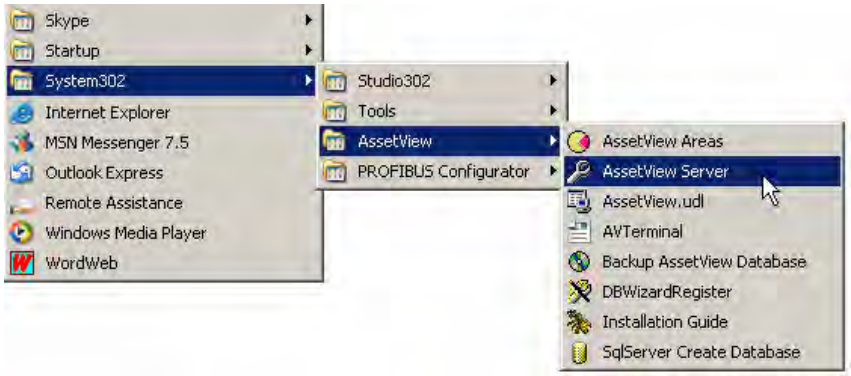


Figure 2.1. Initializing the AssetView Server

Using *System302* Version 7.0

From the **Start** menu, select **Programs > System302 > Studio302** and click on **Studio302**, as indicated below:

Figure 2.2. Starting Studio302

Click the button on the ***Studio302*** toolbar and the following dialog box will open:

Figure 2.3. Initializing the AssetView Server

Click the option ***AssetView Server*** to execute this application. The following figure shows the ***AssetView Server*** window:

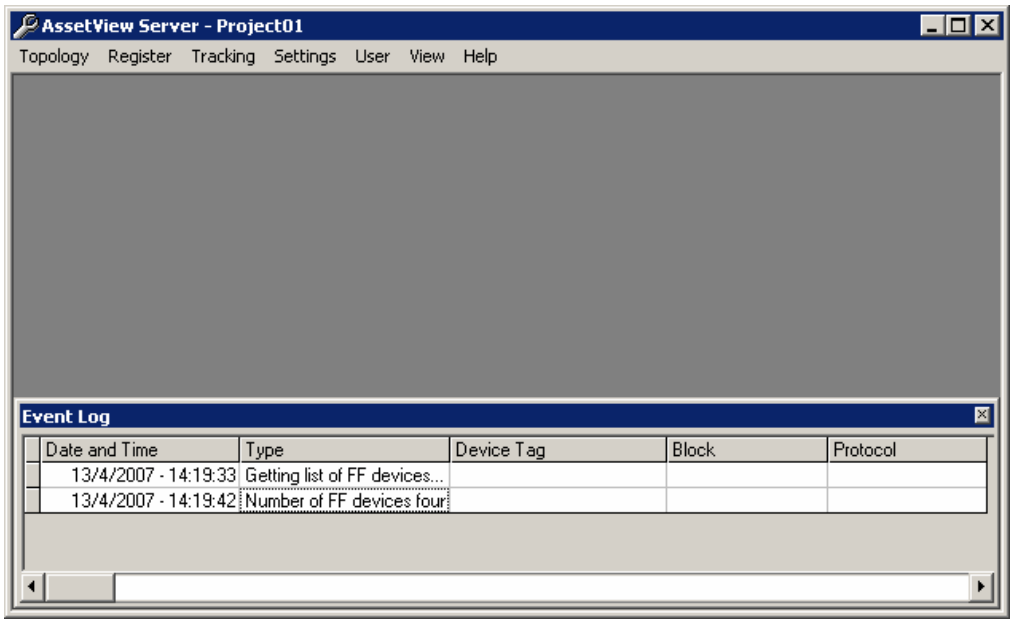


Figure 2.4. AssetView Server Interface

Selecting the Topology

The **Topology** menu allows the user to select the topology configuration to be used by the ***AssetView Server***.

To read the configuration saved on a ***Syscon*** file, go to the **Topology** menu and click the option **From Syscon Configuration File**:

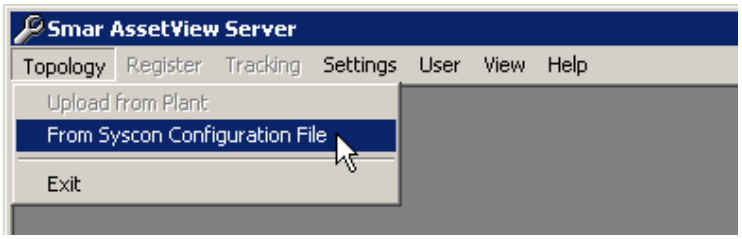


Figure 2.5. Reading the configuration from a Syscon file

The **Import Syscon Configuration** dialog box will open. Browse the directories to locate the project configuration file (file with the extension ***.ffp***). Select the project file icon and clique **Open** to conclude.

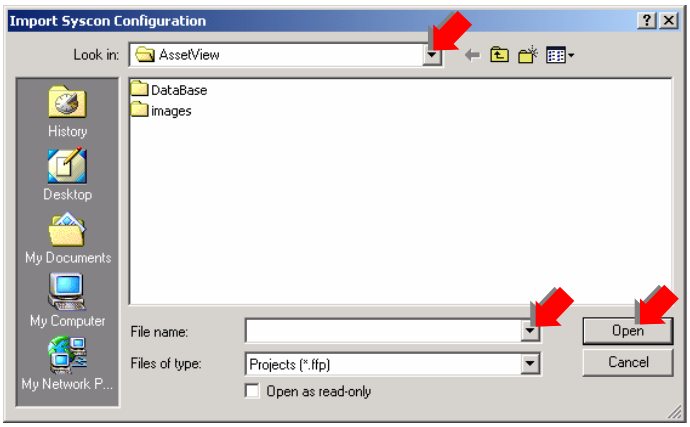


Figure 2.6. Selecting the configuration file

The plant configuration will be imported to the ***AssetView Server***. During this procedure, a progress dialog box will indicate the information from the blocks and devices that are being read from the configuration file and from the communication network, in case the configuration has HART devices.

Configuring the Communication

The communication should have been configured before executing the ***AssetView Server*** for the first time, clicking the link **OPC Server** in the **Welcome Screen**.

If the communication interface has not been configured yet, go to the **Settings** menu and select **Communication**. The configuration dialog box will open:

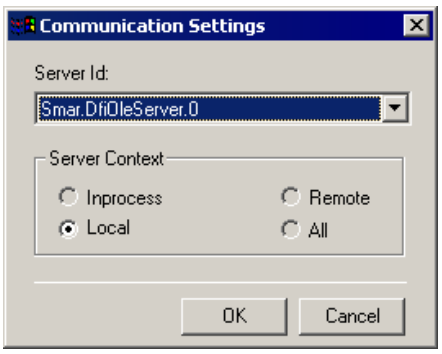


Figure 2.7. Configuring the Communication Interface

Select the communication server from the list of servers available. Click **Ok** to conclude.

Registering Devices

Registering a device implies that the parameter values from this device will be read and stored in the database.

NOTE
When executing the *AssetView Server* for the first time, it will be necessary to register the devices in the database.

On the main menu, click the option **Register**:

Figure 2.8. Registering Devices

The **List of Devices** window will open.

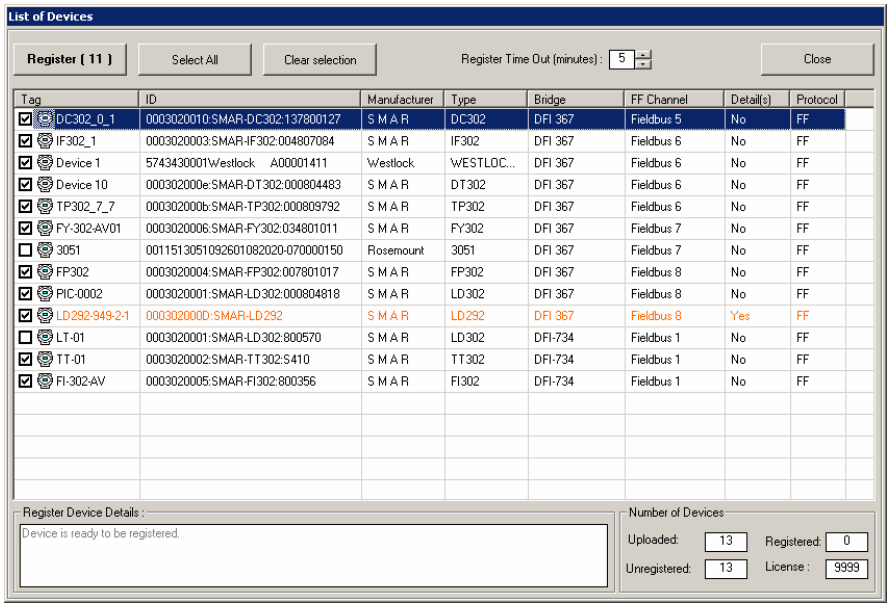


Figure 2.9. List of Devices Dialog Box

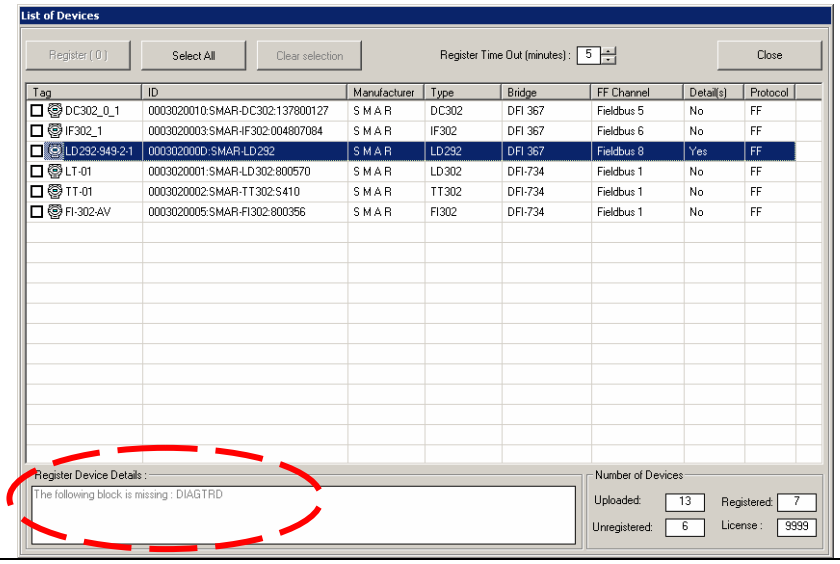
Mark the devices to be registered in the database. To select all devices, click the button **Select All**. To unmark all devices, click the button **Clear Selection**.

The procedure to register the devices has a time limit variable and its default value is 5 minutes. This value can be edited in the **Register Time Out** box. When the idle time interval defined by the user expires, the register procedure for the instrument being registered is aborted.

Click **Register** to start registering the selected instruments in the database.

IMPORTANT

For Smar's Fieldbus devices, it is recommended to use the firmware version 3.46. Some parameters and methods may not be available for devices with other firmware versions. The List of Devices dialog box indicates the functionalities missing in the selected device:



NOTE

***AssetView* can monitor HART devices using the Smar HI302 - HART/Foundation Fieldbus Interface. It is necessary to update the firmware version to 0301 (3.15 or higher) and create the blocks configuration for the HI302. Please refer to the *HI302 User's Manual* (Chapter 3) for further information.**

The current *AssetView* version supports the devices FY301, LD301, TT301, DT301 and TP301.

Others HART devices will use a generic page, as well as the devices from other manufacturers. The *DBWizard Register* application cannot register templates of HART devices.

If an instrument selected to be registered doesn't have all blocks required, or has an old firmware revision, the device will be registered in the database but some functionalities, such as calibration and diagnostic methods, may not be available.

The example on the figure below shows the dialog box that will appear while the instruments are being registered:

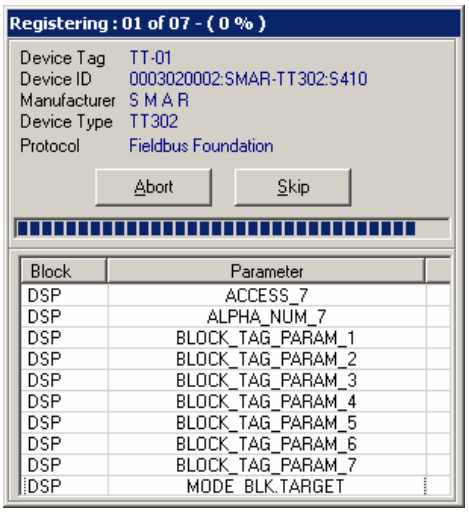


Figure 2.10. Registering devices

If the selected instruments have *Maintenance Templates*, the ***AssetView Server*** will register these maintenances after registering the blocks. See section **Maintenances Templates** for details about the ***AssetView Maintenance Wizard***.

The **Register Report** window will open indicating if the instruments were registered with success:

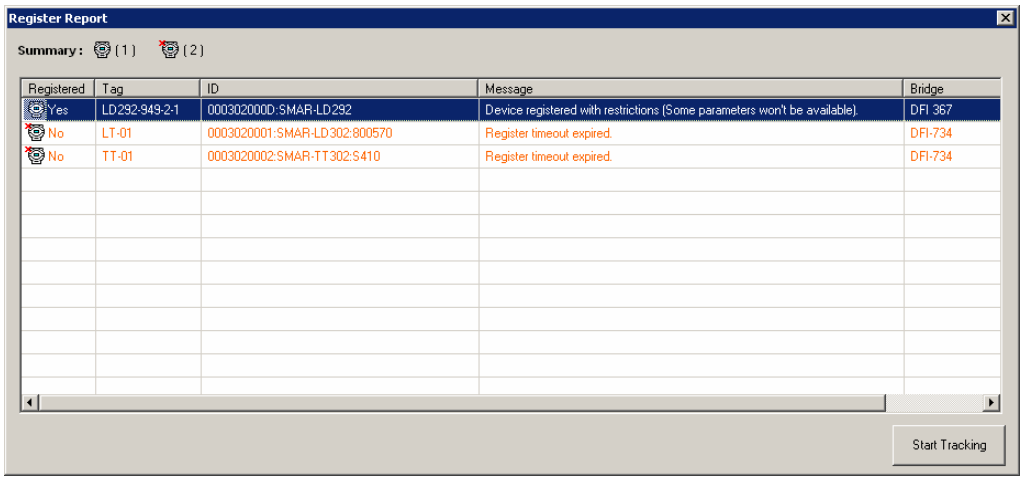


Figure 2.11. Details Window

Click the button **Start Tracking** to start monitoring and tracking the devices. Refer to the section **Tracking** for further details.

Unregistering Devices

To delete the device register from the database, go to the **View** menu and click **Devices List**. The **Device List** window will open. Right-click the device icon and select **Unregister**:

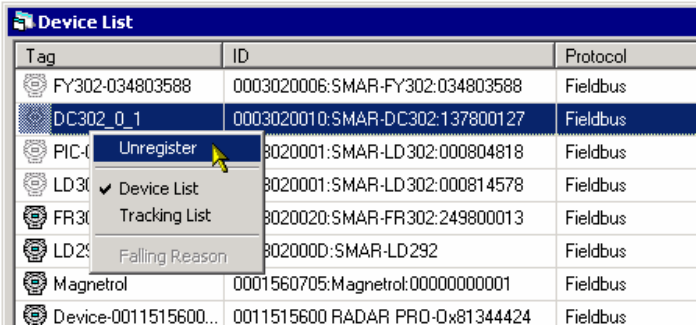


Figure 2.12. Unregistering a Device

The option **Unregister** is also available in the device popup menu, in the **Tracking** window.

A message will appear confirming the operation. Click **Yes** to remove the device register from the database or click **No** to cancel.

Tracking

The **Tracking** option initializes the monitoring of the devices registered in the database, storing the changes of the parameter values in the historical information.

On the main menu, click the option **Tracking**:

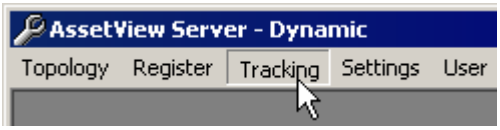


Figure 2.13. Tracking devices

The ***AssetView Server*** starts monitoring the information from the Fieldbus network and the **Tracking** window displays the information about the devices being monitored.

The devices that will be monitored must be registered in the database and online on the Fieldbus network.

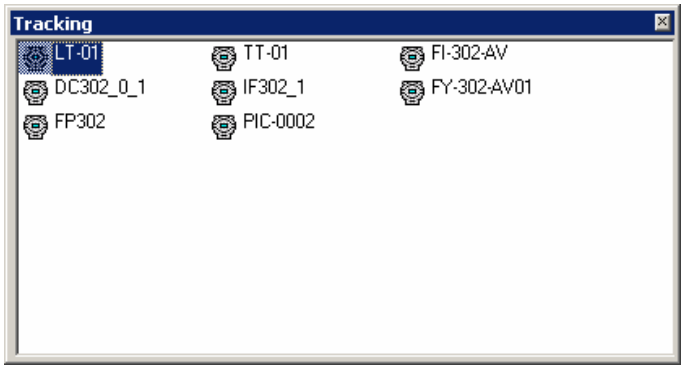


Figure 2.14. Tracking results

Tracking Failings

If a device is displayed in the **Tracking** window with a red ***X*** on its icon, it means that the device is not being monitored because of a failure in the communication. A typical example of a communication failure occurs when the device goes offline and returns to online mode after a short period of time.

The system automatically detects when the instrument starts communicating again. The monitoring process is restarted and the device icon in the **Tracking** window is restored to its normal state.

Right-click the device icon and select **Failing Reason** to see the details about the tracking fail. This option is also available in the device popup menu, in the **Device List** window.

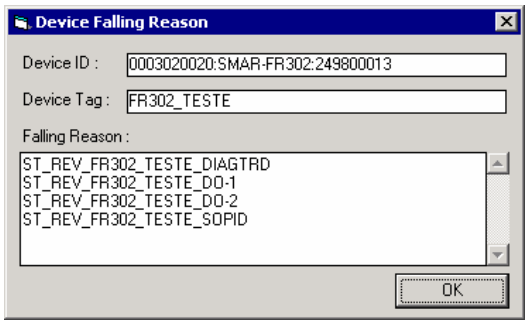


Figure 2.15. Failing Reasons

NOTE
To stop tracking the devices, it is necessary to close the *AssetView Server*. In the Topology menu, click Exit.

Managing devices in the database

The user can check the list of devices from the ***Syscon*** configuration, the devices registered in the database or remove a device register from the database.

On the **View** menu, click **Devices List**:

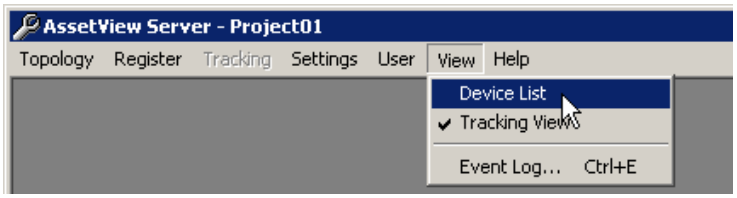
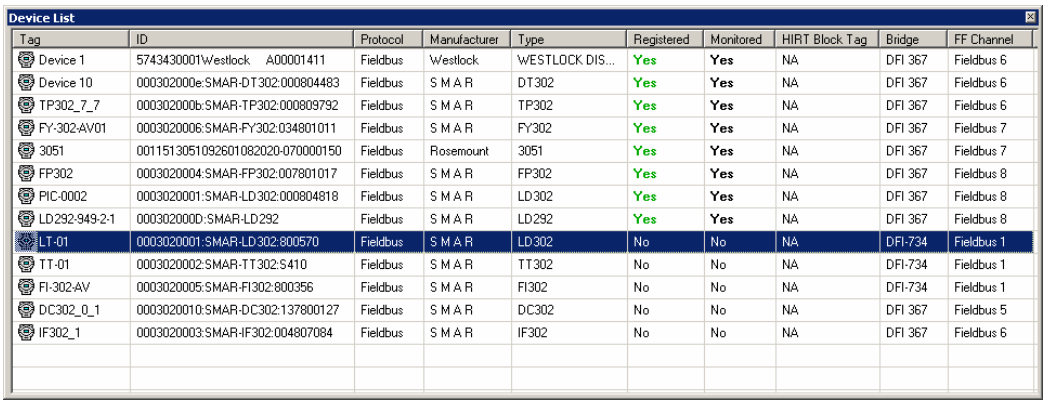


Figure 2.16. Opening the Device List

The **Device List** window will open:



Device List

Tag	ID	Protocol	Manufacturer	Type	Registered	Monitored	HIRT Block Tag	Bridge	FF Channel
Device 1	5743430001Westlock A00001411	Fieldbus	Westlock	WESTLOCK DIS...	Yes	Yes	NA	DFI 367	Fieldbus 6
Device 10	000302000e:SMAR-DT302:000804483	Fieldbus	S M A R	DT302	Yes	Yes	NA	DFI 367	Fieldbus 6
TP302_7_7	000302000b:SMAR-TP302:000809792	Fieldbus	S M A R	TP302	Yes	Yes	NA	DFI 367	Fieldbus 6
FY-302-AV01	0003020006:SMAR-FY302:034801011	Fieldbus	S M A R	FY302	Yes	Yes	NA	DFI 367	Fieldbus 7
3051	0011513051092601082020-070000150	Fieldbus	Rosemount	3051	Yes	Yes	NA	DFI 367	Fieldbus 7
FP302	0003020004:SMAR-FP302:007801017	Fieldbus	S M A R	FP302	Yes	Yes	NA	DFI 367	Fieldbus 8
PIC-0002	0003020001:SMAR-LD302:000804818	Fieldbus	S M A R	LD302	Yes	Yes	NA	DFI 367	Fieldbus 8
LD292-949-2-1	000302000D:SMAR-LD292	Fieldbus	S M A R	LD292	Yes	Yes	NA	DFI 367	Fieldbus 8
LT-01	0003020001:SMAR-LD302:800570	Fieldbus	S M A R	LD302	No	No	NA	DFI-734	Fieldbus 1
TT-01	0003020002:SMAR-TT302:S410	Fieldbus	S M A R	TT302	No	No	NA	DFI-734	Fieldbus 1
FI-302-AV	0003020005:SMAR-FI302:800356	Fieldbus	S M A R	FI302	No	No	NA	DFI-734	Fieldbus 1
DC302_0_1	0003020010:SMAR-DC302:137800127	Fieldbus	S M A R	DC302	No	No	NA	DFI 367	Fieldbus 5
IF302_1	0003020003:SMAR-IF302:004807084	Fieldbus	S M A R	IF302	No	No	NA	DFI 367	Fieldbus 6

Figure 2.17. Device List Window

The devices displayed in this dialog box are configured in the ***Syscon*** file. The **Tracking** procedure reads the information related to these devices from the database and from the Fieldbus Network. (See the section **Tracking** for further information about monitoring a device.)

Click the column header to sort the list of devices, toggling between ascendant and descendent sorting.

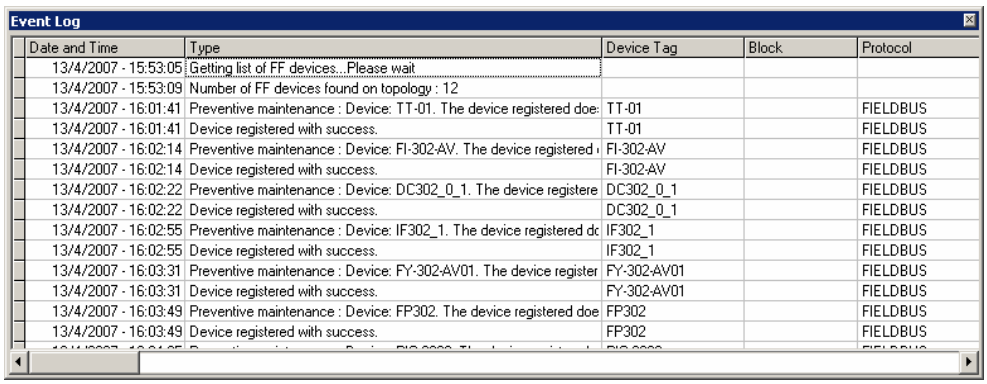
The user can manage the devices while they are removed or added to the database, according to the number of devices allowed by the *License Key* to be included in the topology.

The **Device List** window will display the information about the devices, such as the manufacturer, the device type and the protocol.

Event Log

The user can display the log with the events executed in the ***AssetView Server***.

On the **View** menu, select the option **Event Log**. The **Event Log** window will appear at the bottom of the ***AssetView Server*** window.

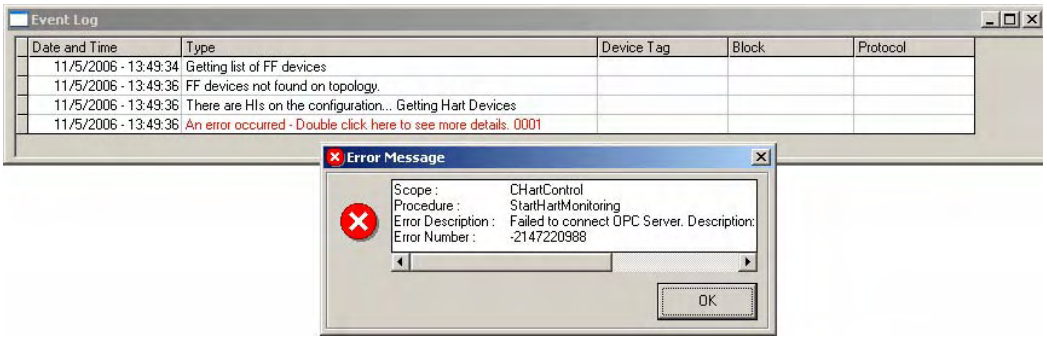


Event Log

Date and Time	Type	Device Tag	Block	Protocol
13/4/2007 - 15:53:05	Getting list of FF devices...Please wait			
13/4/2007 - 15:53:09	Number of FF devices found on topology : 12			
13/4/2007 - 16:01:41	Preventive maintenance : Device: TT-01. The device registered doe:	TT-01		FIELDBUS
13/4/2007 - 16:01:41	Device registered with success.	TT-01		FIELDBUS
13/4/2007 - 16:02:14	Preventive maintenance : Device: FI-302-AV. The device registered	FI-302-AV		FIELDBUS
13/4/2007 - 16:02:14	Device registered with success.	FI-302-AV		FIELDBUS
13/4/2007 - 16:02:22	Preventive maintenance : Device: DC302_0_1. The device registere	DC302_0_1		FIELDBUS
13/4/2007 - 16:02:22	Device registered with success.	DC302_0_1		FIELDBUS
13/4/2007 - 16:02:55	Preventive maintenance : Device: IF302_1. The device registered dc	IF302_1		FIELDBUS
13/4/2007 - 16:02:55	Device registered with success.	IF302_1		FIELDBUS
13/4/2007 - 16:03:31	Preventive maintenance : Device: FY-302-AV01. The device register	FY-302-AV01		FIELDBUS
13/4/2007 - 16:03:31	Device registered with success.	FY-302-AV01		FIELDBUS
13/4/2007 - 16:03:49	Preventive maintenance : Device: FP302. The device registered doe	FP302		FIELDBUS
13/4/2007 - 16:03:49	Device registered with success.	FP302		FIELDBUS

Figure 2.18. Event Log window

In case an error occurred, double-click the corresponding row in the **Event Log** window to open the **Error Message** that provides information about the error.



Event Log

Date and Time	Type	Device Tag	Block	Protocol
11/5/2006 - 13:49:34	Getting list of FF devices			
11/5/2006 - 13:49:36	FF devices not found on topology.			
11/5/2006 - 13:49:36	There are HIs on the configuration... Getting Hart Devices			
11/5/2006 - 13:49:36	An error occurred - Double click here to see more details. 0001			

Error Message

Scope : CHartControl
Procedure : StartHartMonitoring
Error Description : Failed to connect OPC Server. Description:
Error Number : -2147220988

OK

Figure 2.19. Error Details

Resetting the Event Log

Right-click the **Event Log** window and select the option **Clear Event Log**.

A message will appear confirming the operation. Click **Yes** to delete all the information in the **Event Log** window or click **No** to cancel.

User Management

The *Administrator* must grant permissions for other users to access the ***AssetView Server***.

Click **User** on the main menu:

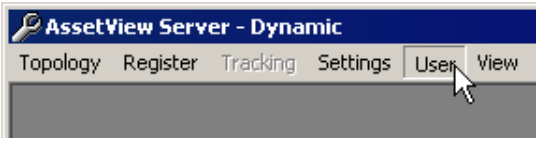


Figure 2.20. Managing Users

The **Users** dialog box will open:

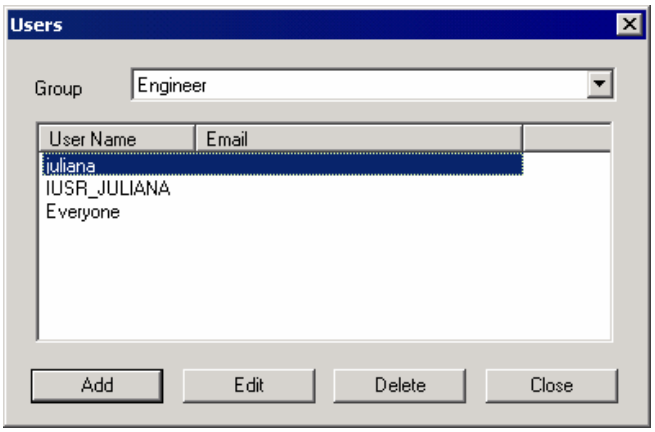


Figure 2.21. Users dialog box

Adding Users

Click the **Add** button to add a new user. The **Add Users** dialog box will open:

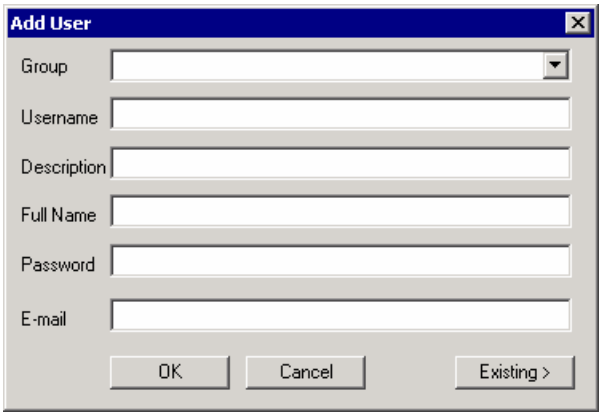


Figure 2.22. Adding Users

1. Select the group to which the user will be added: *Engineers* or *AssetViewGuest*.
2. Type the user name.
3. Type a brief description for the user.
4. Type the user's full name.
5. Choose a password for the user.
6. Type the user's e-mail.
7. Click **Ok**.

Users added to the *Engineers Group* will have permission for writing and reading information from the server. Users added to the *AssetViewGuest Group* will only have permission to read information from the server.

Adding Existing Users

In the **Add Users** dialog box, click **Existing** to open the list of users for the local machine:

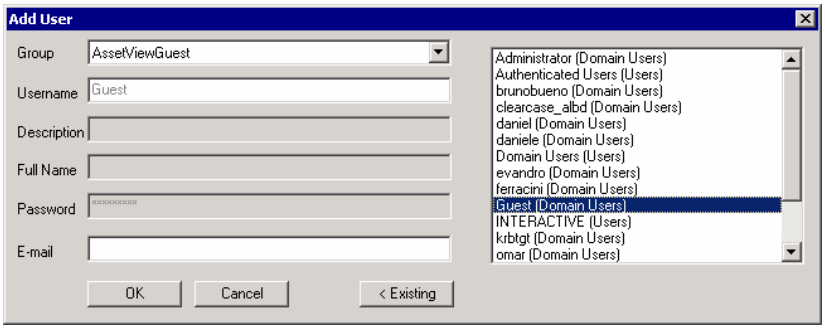


Figure 2.23. Existing Users

1. Select the user name from the list of existing users.
2. Select the group to which the user will be added: *Engineers* or *AssetViewGuest*.
3. Type the user's e-mail.
4. Click **Ok**.

Editing User's Attributes

Click the icon of the user in the **Users** dialog box and click **Edit**.

Only the e-mail text box will be enabled for edition.

Removing a User

Click the icon of the user in the **Users** dialog box and click **Delete**.

A message box will appear to confirm the operation. Click **Yes** to remove the user.

Configuring the Mail Service

The mail service should have been configured before executing the ***AssetView Server*** for the first time, clicking the link **Email Server** in the **Welcome Screen**.

If the mail service has not been configured yet, go to the **Settings** menu and select the option **Mail**. The **Mail** dialog box will open:

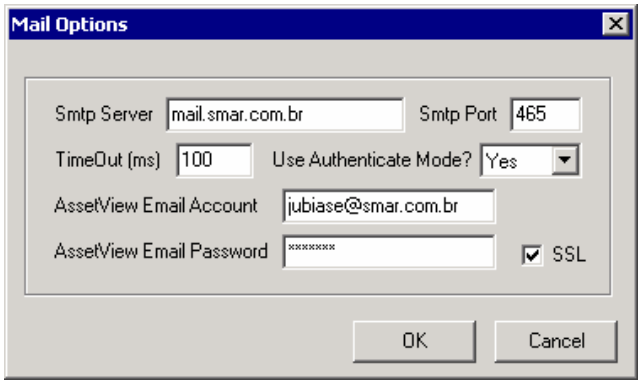


Figure 2.24. E-mail options

1. Type the name or the IP address of the e-mail server in the **SMTP Server** text box.
2. Configure the maximum idle time, in milliseconds, for the communication with the e-mail server in the **TimeOut** box. It is recommended to use a value 10 times bigger than the server's response time.
3. Configure the e-mail account for ***AssetView***.
4. If the e-mail server requires authentication, select **Yes** in the **Use Authenticate Mode** box and type the password for the e-mail address in ***AssetView***.
5. If the e-mail server uses the SSL protocol, check the option **SSL** and type the corresponding number for the SMTP port, on the **SMTP Port** box.
6. Click **Ok** to save the changes and close this dialog box.

ASSETVIEW AREAS

For many reasons, a large plant is usually divided into several areas. From the ***AssetView*** point of view, each area is represented by one particular ***AssetView Server***, which will be in charge of registering all devices and keeping track of them.

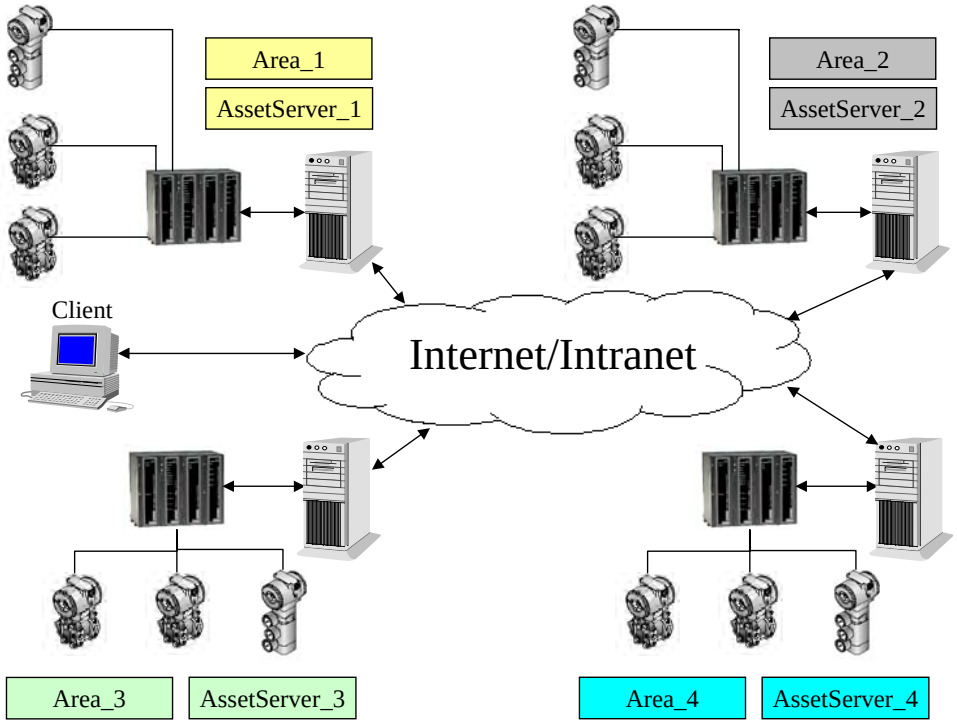


Figure 3.1. Managing different areas

AssetView provides a Web page with links to all these areas, so the user can easily navigate through these areas just by clicking a link. This Web page can be opened from any of the ***AssetView Server*** machines as well as any other client computer (intranet/internet) that has a browser installed. To achieve this functionality, follow the steps below to configure the ***AssetView*** areas.

To open the **AssetView Areas** window, go to the **Start** menu and select **Programs > System302 > AssetView > AssetView Areas**, as indicated below:

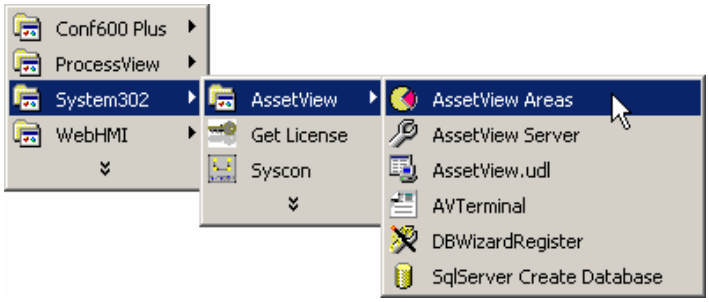


Figure 3.2. Initializing the AssetView Areas

The **AssetView Areas** window will open:

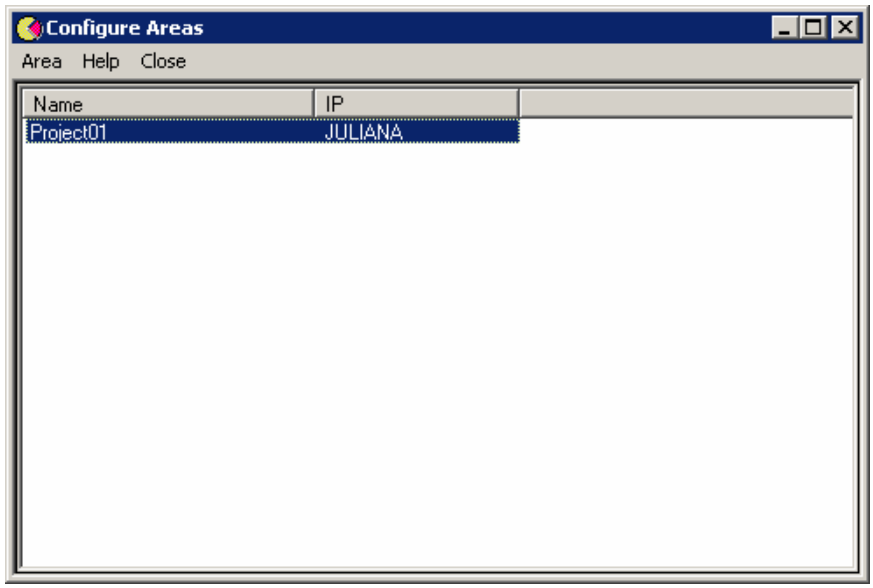


Figure 3.3. Configuring Areas

Changing Areas Attributes

1. Select the area icon from the list of areas. On the main menu, select **Area** and click **Change Attributes**.
2. The **Change Attributes** dialog box will open. At the **AssetServer IP address** text box, type the new IP address or the network machine name where the devices from this area have been registered.
3. Click **Change** to conclude.

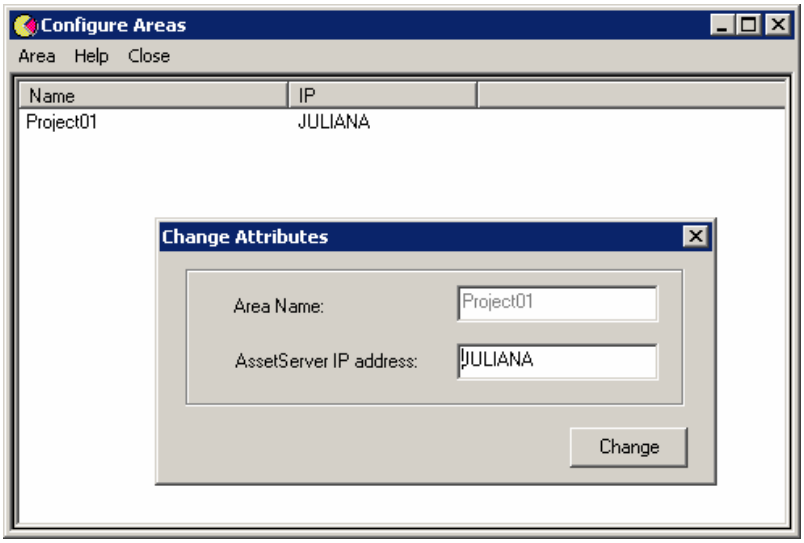


Figure 3.4. Changing Areas Attributes

Repeat the steps described above to change the attributes from other areas.

Opening the Areas Topology

1. Open the Web browser and type the **Areas** page address:

```
http://<server address>/assetview/area.htm
```

IMPORTANT
The Areas page must be opened in the browser using the server address (name of the server machine) where the areas were configured with the *AssetView Areas*, as in the figure above.

2. Click the expansion sign next to the plant icon to expand the tree and see the links to the areas:

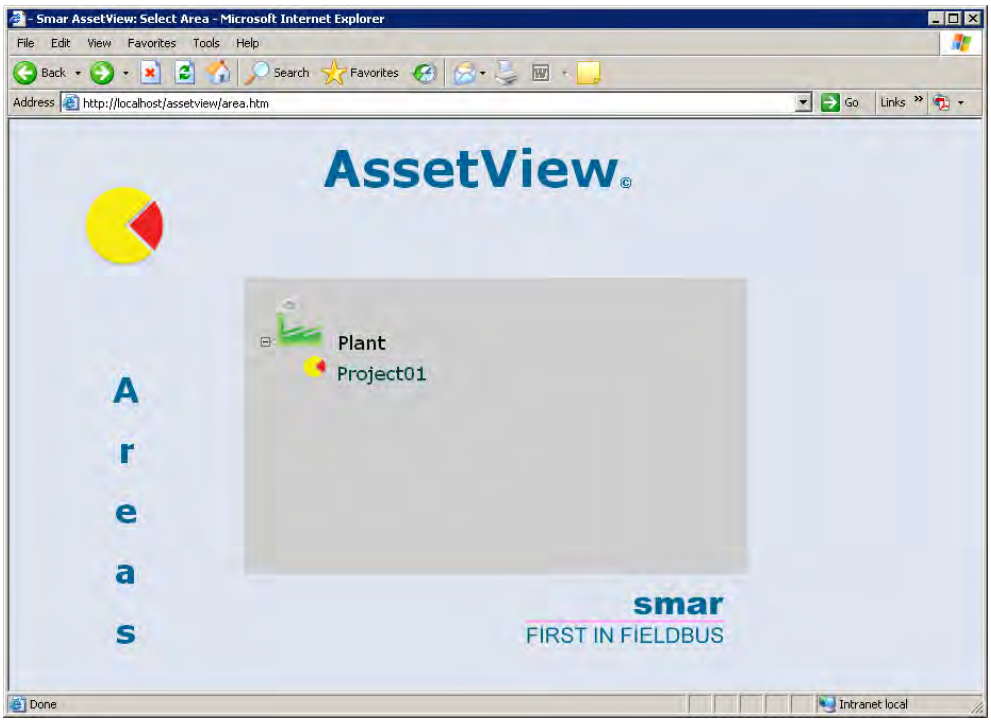


Figure 3.5. Areas topology

3. Clicking a link to an area will open the ***AssetView*** page from the respective machine, identified by the IP address configured previously by the ***AssetView Areas*** application.

4. On the ***AssetView*** page, the user must type the login and password to open the configuration topology tree and access the ***AssetView*** functionalities.

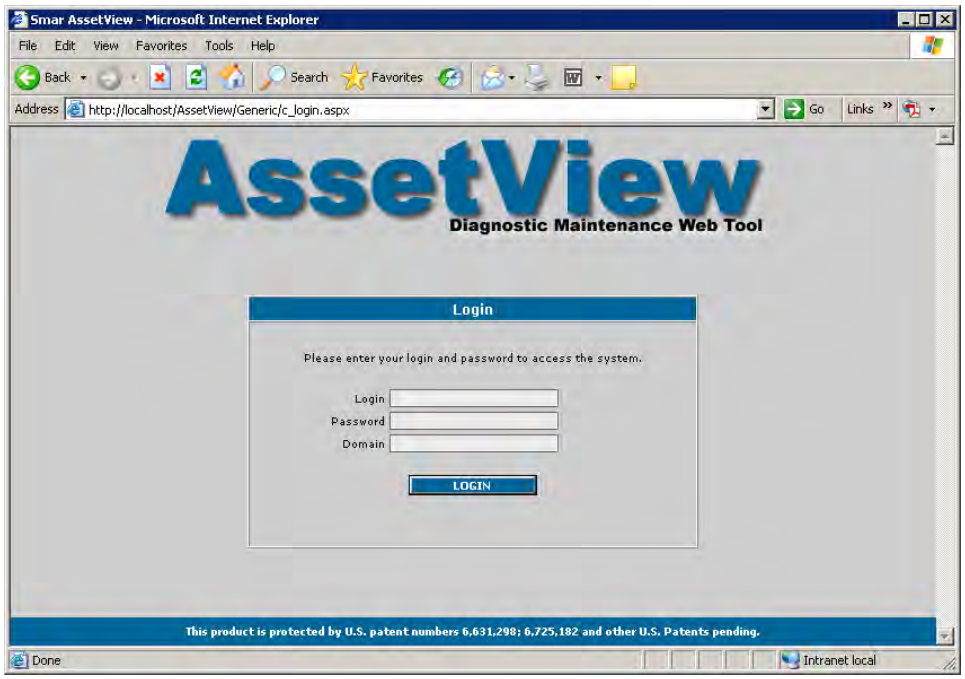


Figure 3.6. User Authentication

5. Once the user name and the password are correct, the ***AssetView*** topology will open on the browser, as illustrated below:

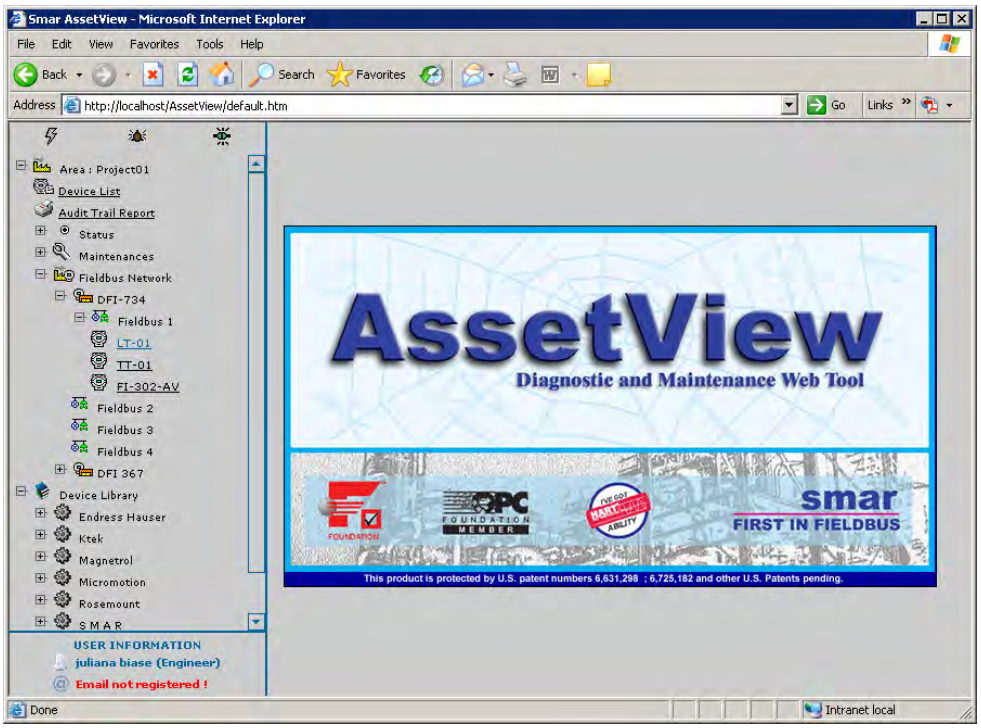


Figure 3.7. Loading the topology

ASSETVIEW

Loading the Configuration

To start ***AssetView***, open the *Internet Explorer* and type:

```
http://machine name/assetview (local or remote access)
   or
http://localhost/assetview (local access)
   or
http://machine IP_number/assetview (local or remote access)
```

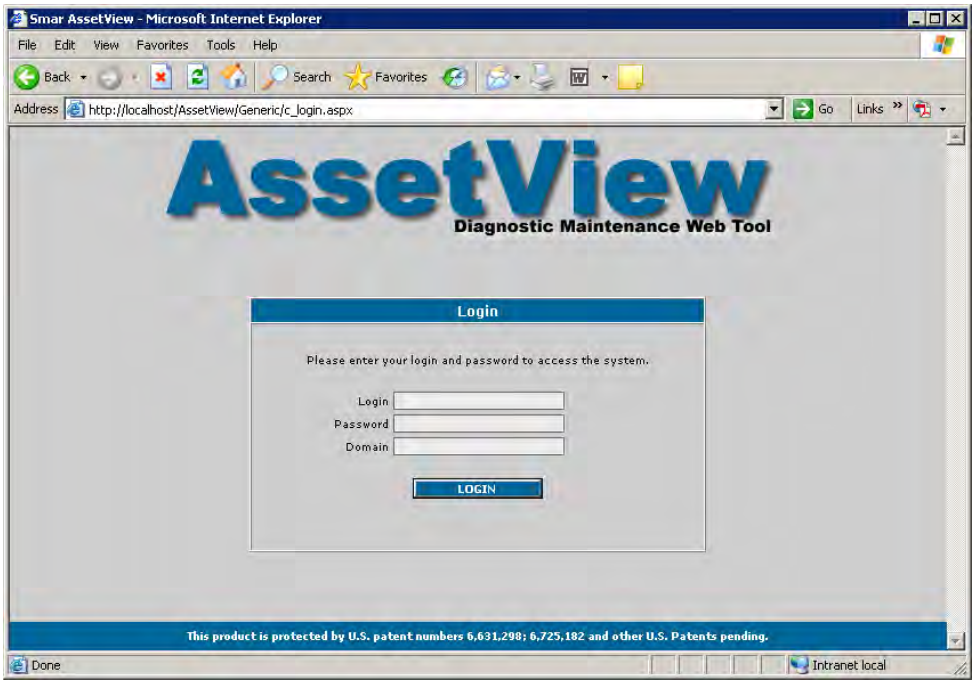


Figure 4.1. AssetView Home Page

On the ***AssetView*** main page, the user will have to type the login and password to access the configuration topology tree and the ***AssetView*** functionalities.

AssetView reads the network topology from the ***Syscon*** configuration file. The user can browse the operational devices at different plant locations using ***AssetView***.

The frame on the left side of the browser window will display the plant topology. Click the expansion sign to expand the *Fieldbus Network* and its segments.

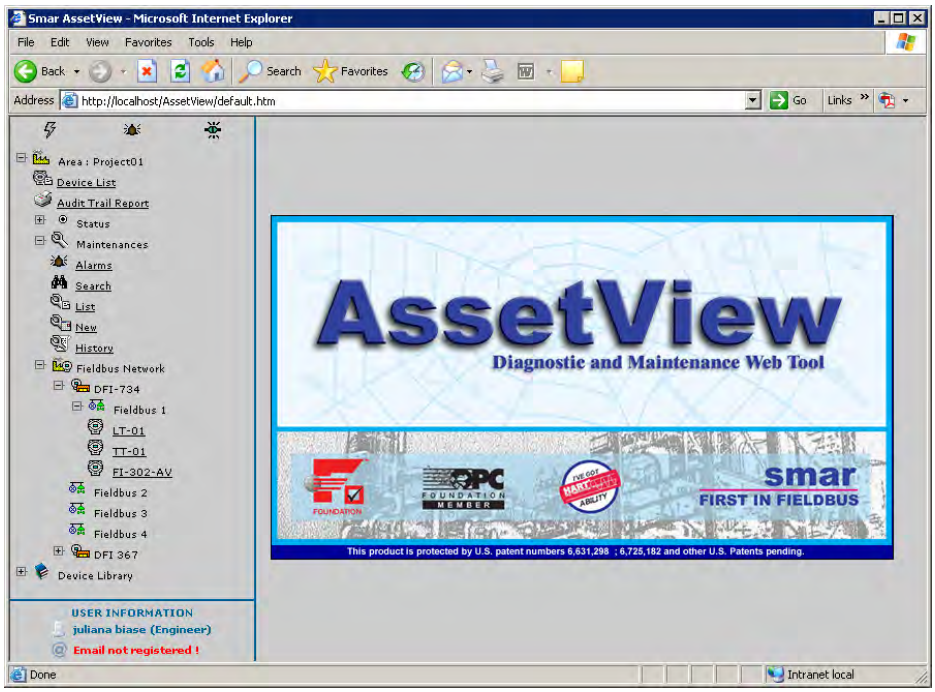


Figure 4.2. Browsing the Topology

Opening the Device Home Page

Each device type has a standard home page layout. Every device in a plant location has a home page from where the user can proceed with the calibration, configuration, identification, diagnostics or reconciliation of the device configuration.

Navigating through the topology tree, click on any device icon to display its home page. The figure below shows the home page of the **FY302** with the tag name FY-302-AV01:

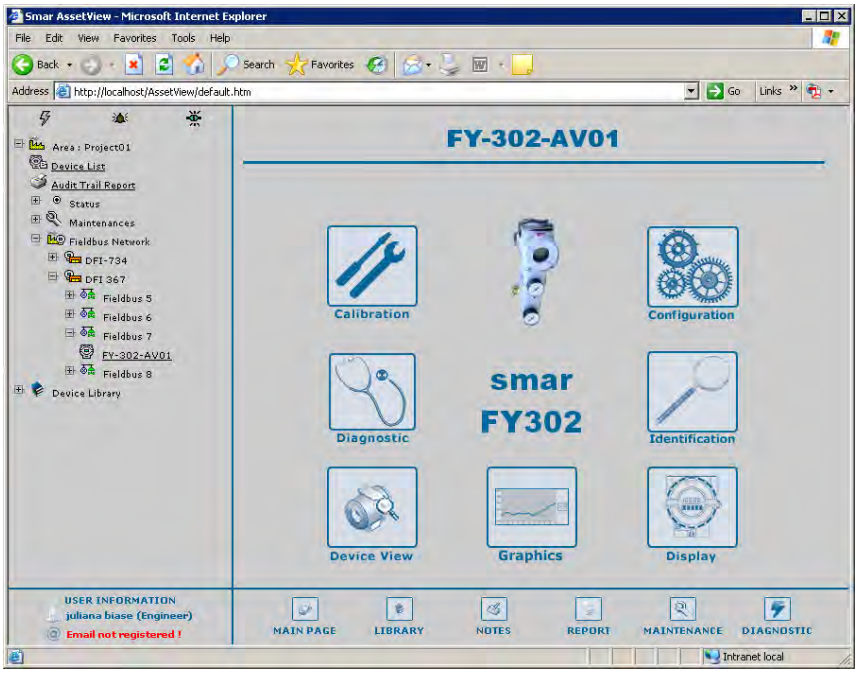


Figure 4.3. Device Home Page

According to each device type, the main page may have the following links:

Calibration

Calibration is the correction of sensor reading and physical outputs. During this process messages are displayed to the user indicating the status of this condition. There are specific calibration methods for each device based on scripts defined by the manufacturers.

Configuration

In the Configuration page, the user can read and write the parameter values of the devices. From this page, the user can also access the Reconciliation page and compare the current configurations to previous configurations of the devices stored in the database. (Refer to the section ***Reconciliation***.)

Diagnostics

Simple diagnostics are displayed to the user. Comprehensive tests can be done from time to time using several charts to check the condition of the field device. Because of the diagnostic it is possible to first remotely check the device if there really is a failure before going into the field. And yet, because of the detailed information about the Network and device operation provided by the diagnostics, the user knows exactly where the problem is.

Identification

The Identification page provides all the information relevant to maintenance of the device, such as its manufacturer, device type, tag, serial number, and its versions. Materials of construction for wetted parts are also indicated.

Device View

The Device View page monitors the instrument data, such as temperature or pressure values read from the instrument.

Display

In the Display page, the user can configure the device's display, viewing and modifying parameters such as device mnemonics.

Reconciliation

Reconciliation allows comparison of current device settings with past configurations stored in the database.

On the right side of the screen, it is possible to see the changes made previously selected by the user. On the left side, the user can see the changes made on the same items displayed on the right side, but from the moment of the last change executed in the device. The last change is called "Current Device Parameterization".

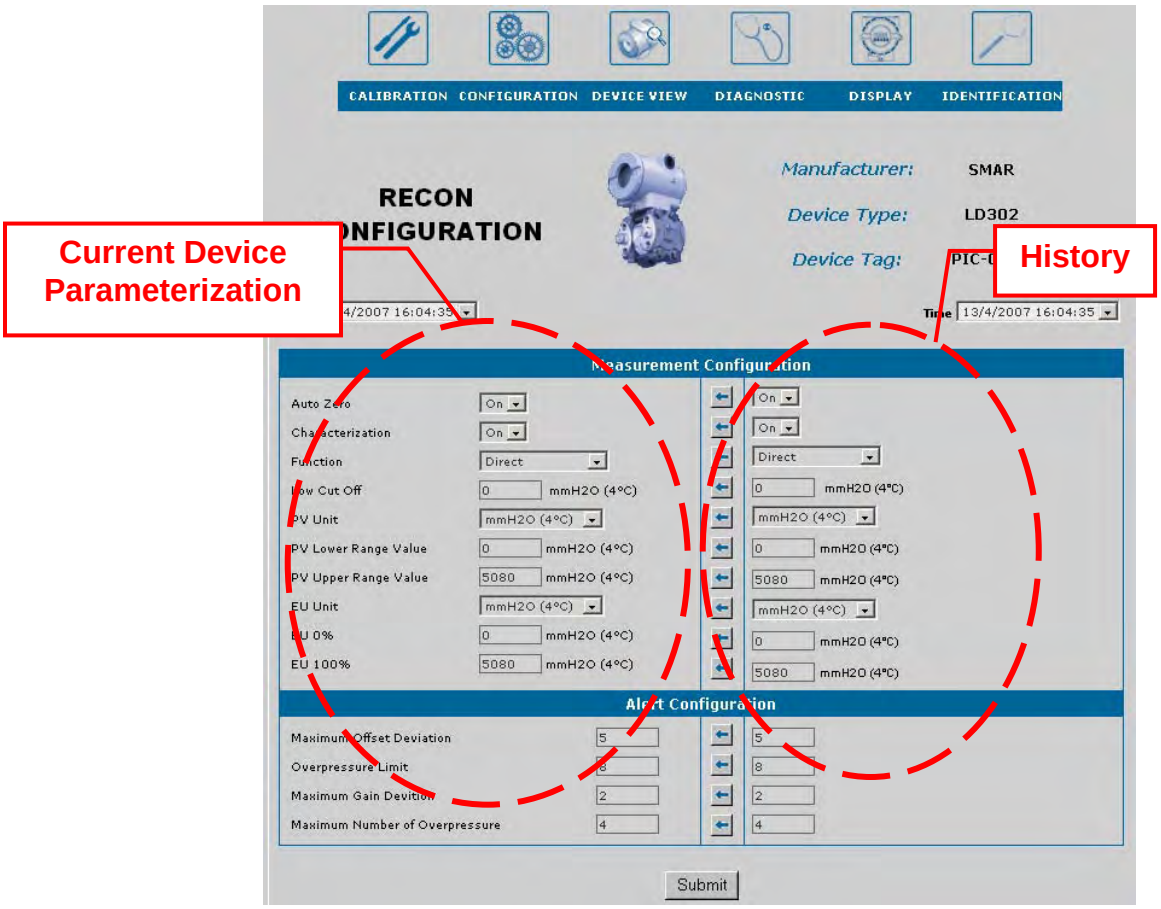


Figure 4.4. Reconciliation Page

If a moment different from the *Current Device Parameterization* is displayed on the left side and any previous moment is displayed on the right side, the user will only be able to compare the configurations. The arrows will be disabled and it will not be possible to transfer values.

If the *Current Device Parameterization* is displayed on the left side and any previous moment is displayed on the right side, the user can transfer the values from the previous moment to the device, clicking on the respective arrows. Click **Submit** to apply the values to the device.

Integrating Devices

Fieldbus Devices

Use the ***DBWizard Register*** application to integrate **Smar** or third-party devices that were not installed in the **Device Support** folder, in the installation directory "`Program Files\Smar\AssetView\Web Pages\`".

Click the **Start** menu, point to **Programs > System302 > AssetView** and click **DBWizardRegister**:

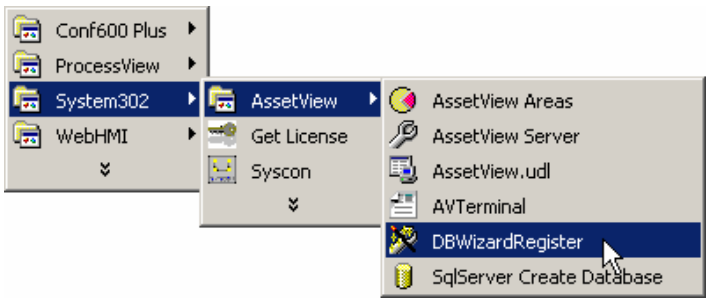


Figure 4.5. Starting the DBWizard Register Application

The **DB Wizard Register** window will open. On the **Register** menu, click **Database**:

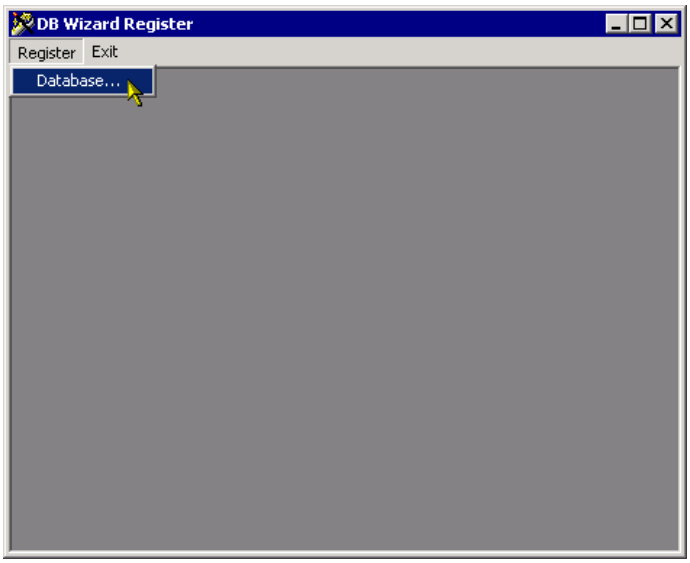


Figure 4.6. Registering the Database

The **Register Database** dialog box will open.

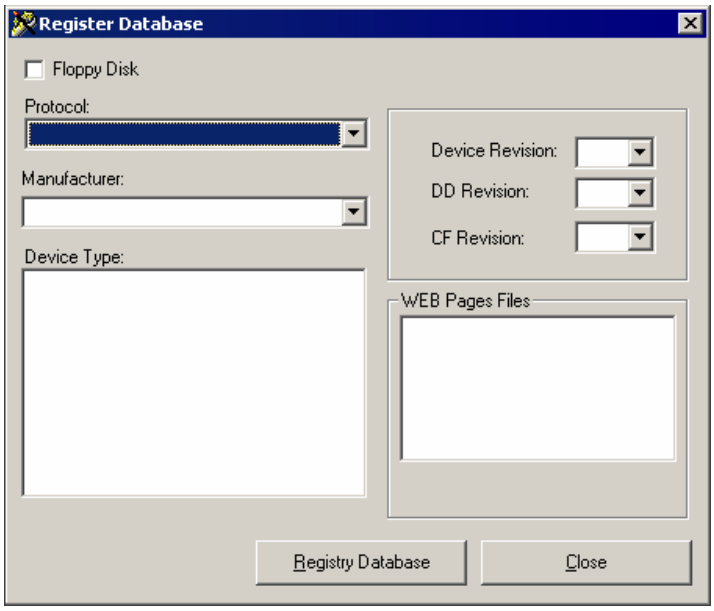


Figure 4.7. Register Database Dialog Box

Follow these steps to register a device:

1. Select the protocol from the **Protocol** list box.
2. Select the device manufacturer from the **Manufacturer** list box.
3. The list of devices will be displayed in the **Device Type** box. Click the target device to select it.
4. Select the revision of the selected device in the **Device Revision** list box.
5. Select the revision of the *Device Description* in the **DD Revision** list box.
6. Select the revision of the *Capability File* in the **CF Revision** list box.
7. Click **Registry Database**.

If the selected device doesn't exist in the database, the following message will open:

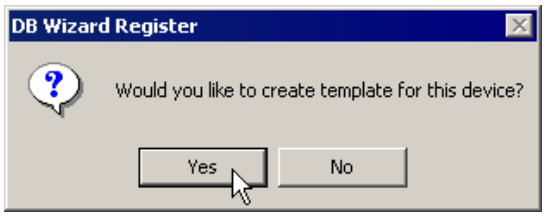


Figure 4.8. Creating the Device Template

Click **Yes** to create the device template in the database. The **Search in Capabilities Files** dialog box will open.

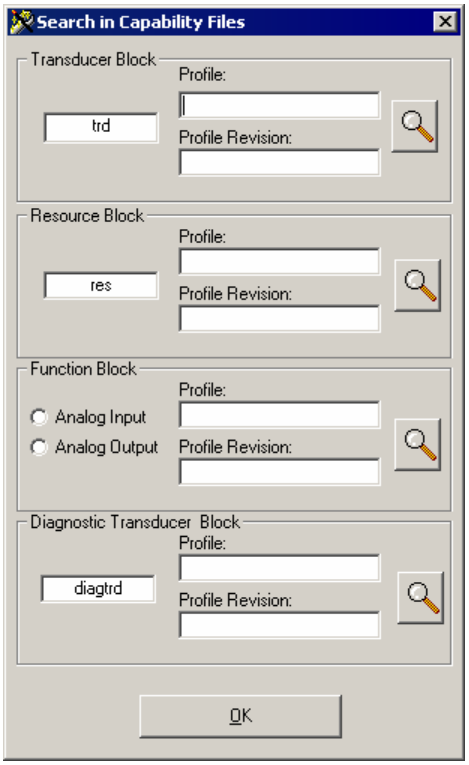


Figure 4.9. Configuring the Device

Type the **Profile** and **Profile Revision** numbers for the blocks. Observe that the numbers must be in the Hexadecimal format.

HINT
Open the *Capability File* (.cff*) of the device to locate the *Profile* and *Profile Revision* numbers.** **Or use *Syscon* to read the *Profile* and *Profile Revision* numbers, opening the *Block List* dialog box of the device. Please refer to the software manual for details.**

After typing the numbers, click the button  to validate them.

If the numbers do not match the *Profile* and *Profile Revision* in the *CFF* file, the button  will be displayed.

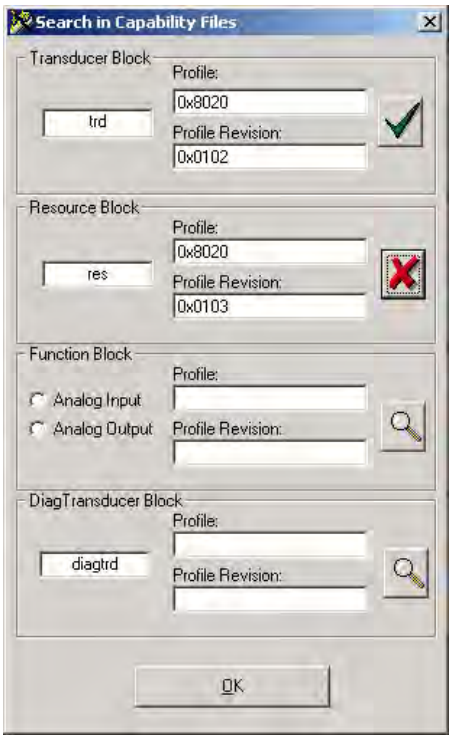


Figure 4.10. Checking the Information

Once all *Profile and Profile Revision* numbers are correct, the button is displayed.

IMPORTANT
The *Profile* and *Profile Revision* numbers of the *Resource* block and *Analog Input* (or *Analog Output block*) are required to register the device, because the parameters of these blocks are read by the device's generic pages.

Click **Ok** to register the device. If the template allows multiple instances of the *Transducer* block, the message below will open so the user can select the number of instances for the block.

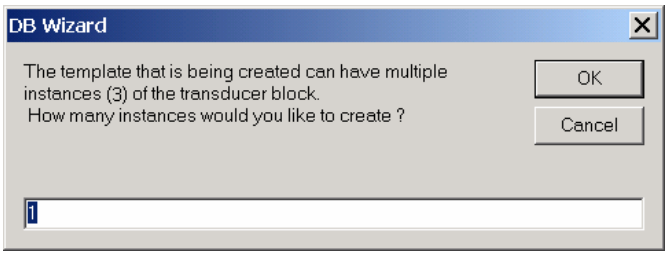


Figure 4.11. Selecting the Transducer Block Instances

After registering the template, the ***Wizard*** will verify if the pages were created for this type of device. See the message below:

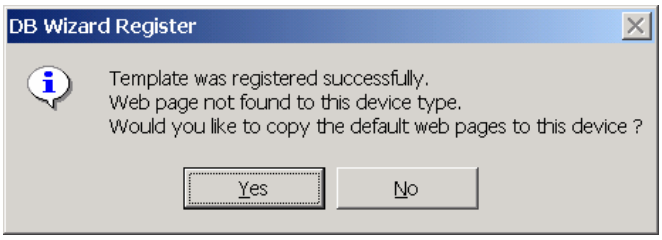


Figure 4.12. Selecting the Transducer Block Instances

Click **Yes** to copy the generic pages from the directory "`Program Files\Smar\Assetview\Web Pages\FF Generic`" to the device folder. The user can customize these pages by editing the files located in the corresponding folder in the **Device Support** directory. See the example below:

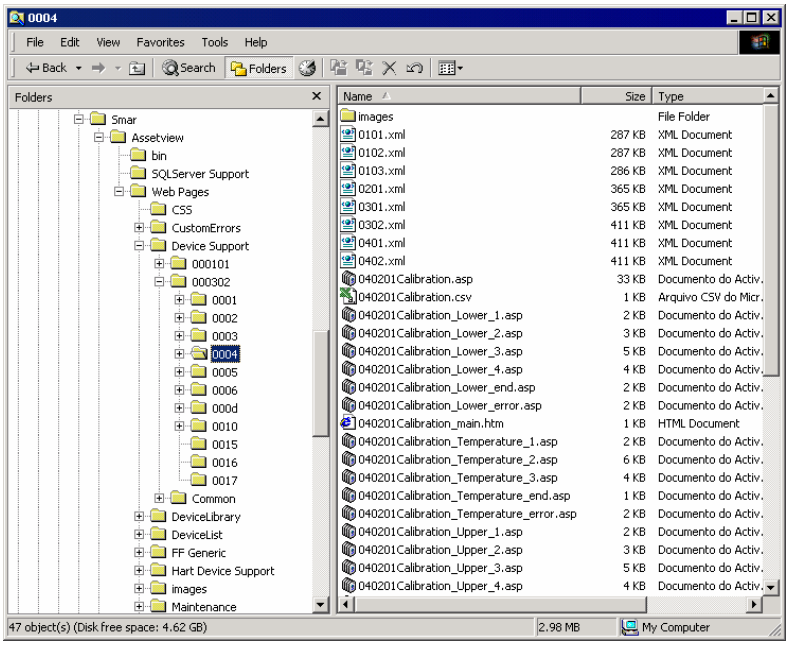


Figure 4.13. Editing the Device Pages

HART Devices

The ***DBWizard Register*** application cannot be used to register HART instruments. ***AssetView*** monitors HART instruments using the **Smar** HI302 (HART/Foundation Fieldbus Interface).

It is necessary to create the blocks configuration for the HI302 to represent the HART instruments installed in the plant. Please refer to the **HI302 User's Manual** (Chapter 3) for further information.

If the HART instrument being registered with the ***AssetView Server*** has not been registered in the database, this instrument will be registered as a generic instrument. The **List of Devices** dialog box will indicate the instrument is generic:

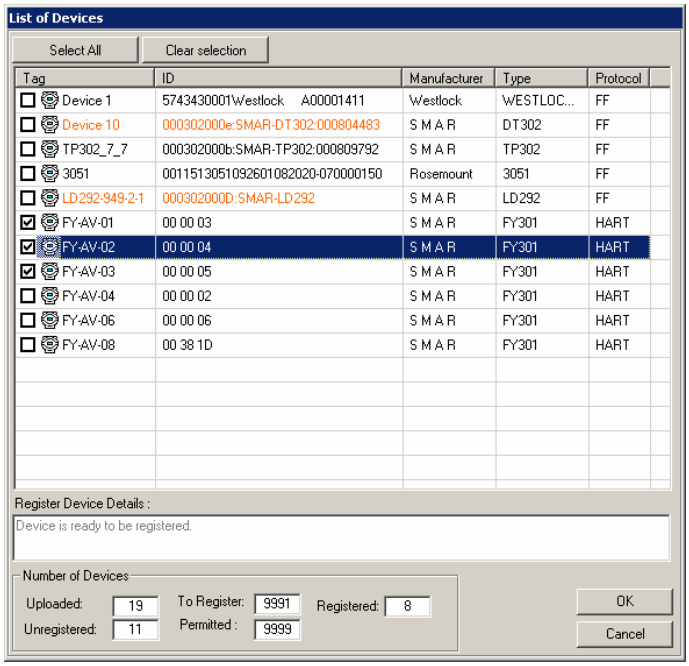


Figure 4.14. Generic HART Device

Select the HART instrument and the **Details** box will indicate the device is generic and it is ready to be registered.

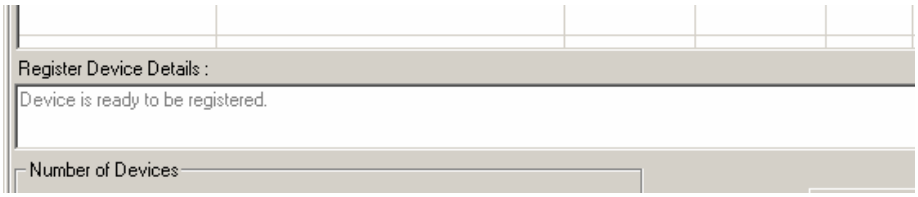


Figure 4.15. Registering a Generic Device

HART instruments from **Smar** or other manufacturers that don't have registered pages will use the generic pages located in the folder "`Web Pages\Hart Device Support\GenericHart`", inside the ***AssetView*** installation folder.

Observe the figure below:

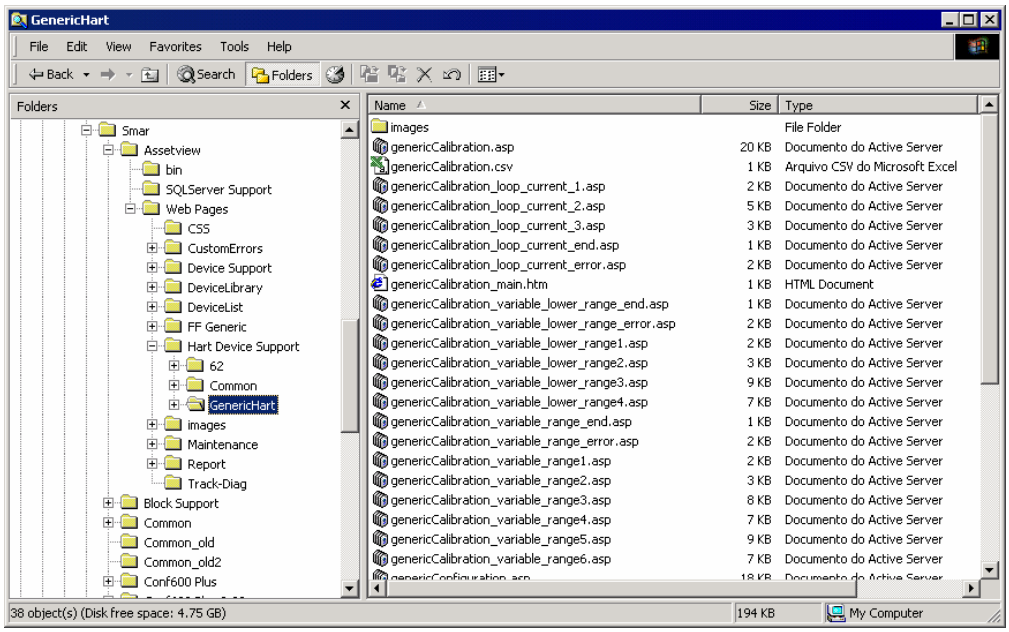


Figure 4.16. Generic Pages for HART Instruments

DEVICE LIST

Click the link **Device List** to open a page with the list of all devices:

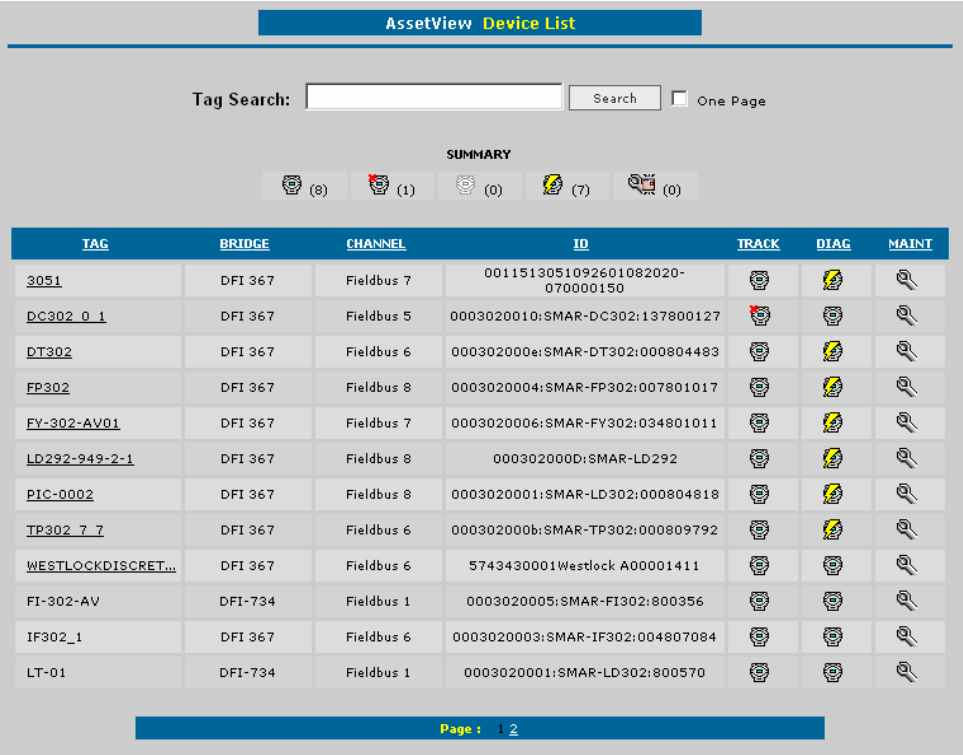


Figure 5.1. Device List Page

The user can search for a specific device tag:

Figure 5.2. Searching for a Device

1. Type the device tag.
2. Click the button **Search**.
3. The device will be highlighted in the **Device List**:

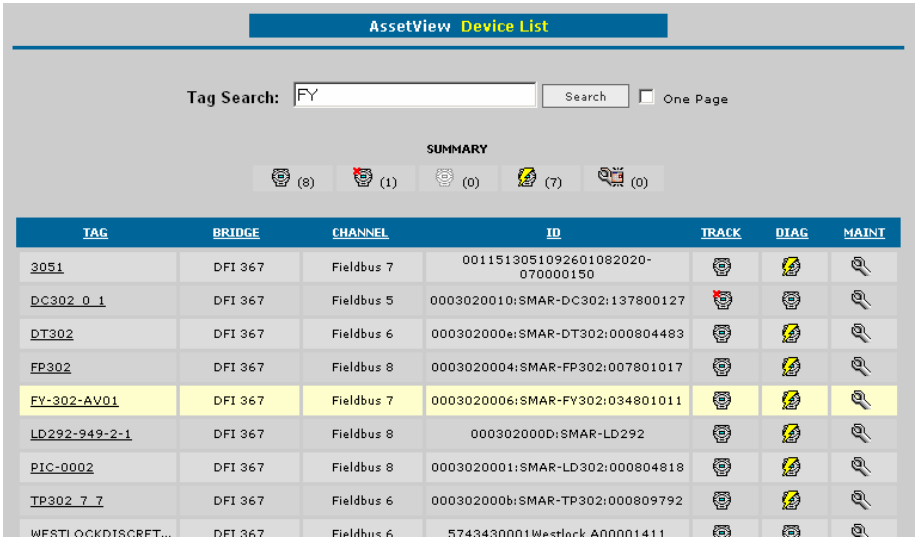


Figure 5.3. Search Results

To show all instruments in one single page, mark the option **One Page**:

Figure 5.4. Showing results in one page

The user can order the list of devices in alphabetical order, ascendant or descendent, clicking each column header.

In the **Tag** column, click the device tag to open the device home page.

The **Bridge** and **Channel** columns indicate, respectively, the tag of the controller and to which channel the instrument is connected.

In the **Track** column, the following icons indicate the device status:

 Indicates the device has communication problems.

 Indicates the device is operating in normal conditions.

 Indicates the device is off-line.

In the **Diag** column, the following icons indicate diagnostic events:

 Indicates that a diagnostic event has occurred.

 Indicates the device is operating in normal conditions.

In the **Maint** column, the following icons indicate the maintenance status for the device:

 Indicates there are no pending maintenances for the device.

 Indicates that maintenance should be executed in the device.

AUDIT TRAIL REPORTS

AssetView has different types of reports to be configured by the user.

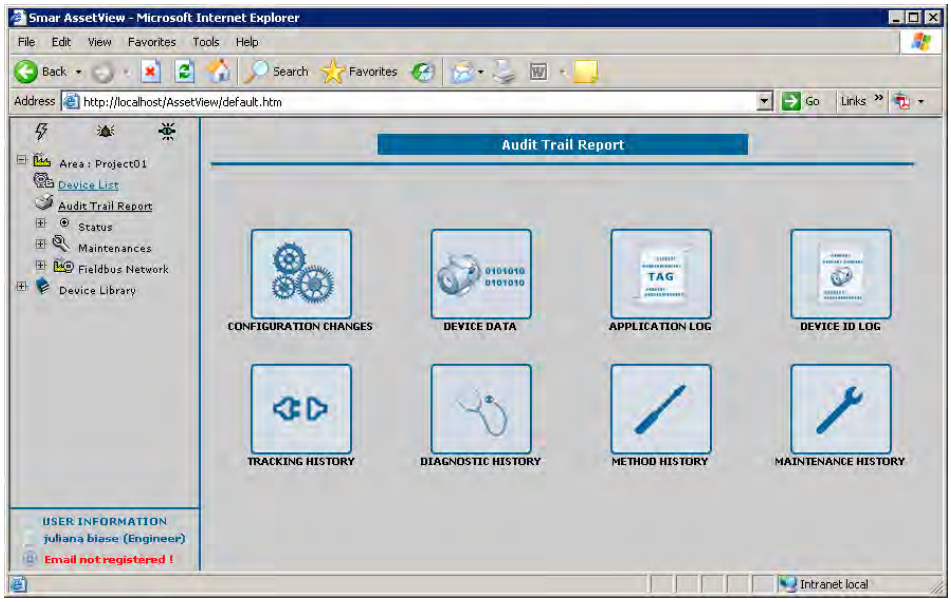


Figure 6.1. Audit Trail Reports in AssetView

The sections below describe the functionality of these reports and how to generate them.

For each report, the following filters will be available:

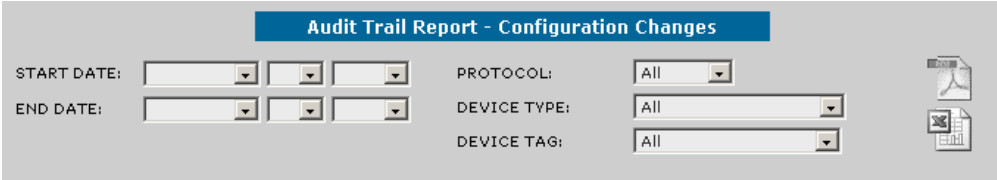


Figure 6.2. Filters for the Reports

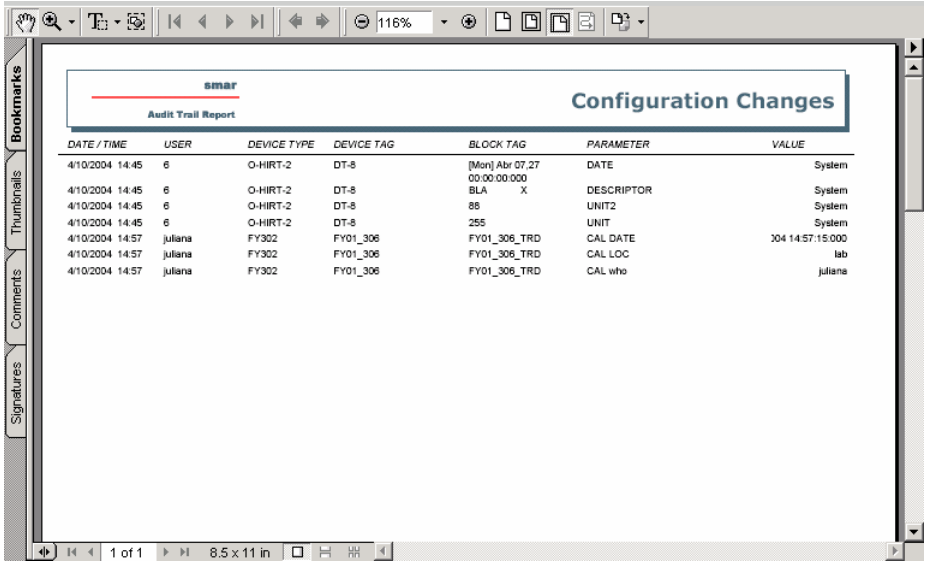
- **START DATE:** Select the initial date to search for the information to generate the report.
- **END DATE:** Select the final date to search for the information to generate the report.
- **PROTOCOL:** Select the devices of a specific communication protocol (HART or Fieldbus).
- **DEVICE TYPE:** Select the type of the device from the list of devices registered in the database.
- **DEVICE TAG:** This filter will display the list of tags from the devices registered in the database.

	Click this icon to generate the audit trail report in the **pdf** file format.
	Click this icon to generate the audit trail report in the **MS Excel** file format.

Configuration Changes Report

This report shows all changed parameters of the device in a specific period of time.

To generate this report, click the link **Configuration Changes** in the **Audit Trail Reports** page and configure the filters to generate the report in the **pdf** or **xls** file format. See the example below:



smar

Audit Trail Report

Configuration Changes

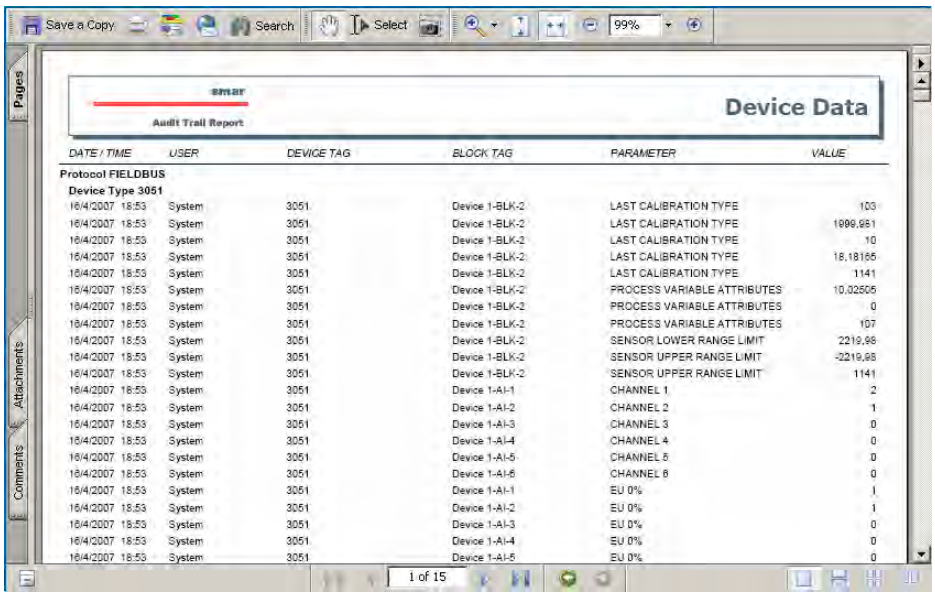
DATE / TIME	USER	DEVICE TYPE	DEVICE TAG	BLOCK TAG	PARAMETER	VALUE
4/10/2004 14:45	6	O-HIRT-2	DT-8	[Mon] Abr 07,27 00:00:00:000	DATE	System
4/10/2004 14:45	6	O-HIRT-2	DT-8	BLA X	DESCRIPTOR	System
4/10/2004 14:45	6	O-HIRT-2	DT-8	88	UNIT2	System
4/10/2004 14:45	6	O-HIRT-2	DT-8	255	UNIT	System
4/10/2004 14:57	juliana	FY302	FY01_306	FY01_306_TRD	CAL DATE	004 14:57:15:000
4/10/2004 14:57	juliana	FY302	FY01_306	FY01_306_TRD	CAL LOC	lab
4/10/2004 14:57	juliana	FY302	FY01_306	FY01_306_TRD	CAL who	juliana

Figure 6.3. Configuration Changes Report

Device Data Report

This report shows the current status of the device in a specific period of time, listing the last values of all parameters at the selected date.

To generate this report, click the link **Device Data** in the **Audit Trail Reports** page and configure the filters to generate the report in the **pdf** or **xls** file format.



smar

Audit Trail Report

Device Data

DATE / TIME	USER	DEVICE TAG	BLOCK TAG	PARAMETER	VALUE
Protocol FIELDBUS					
Device Type 3051					
16/4/2007 18:53	System	3051	Device 1-BLK-2	LAST CALIBRATION TYPE	103
16/4/2007 18:53	System	3051	Device 1-BLK-2	LAST CALIBRATION TYPE	1999,951
16/4/2007 18:53	System	3051	Device 1-BLK-2	LAST CALIBRATION TYPE	10
16/4/2007 18:53	System	3051	Device 1-BLK-2	LAST CALIBRATION TYPE	18,18166
16/4/2007 18:53	System	3051	Device 1-BLK-2	LAST CALIBRATION TYPE	1141
16/4/2007 18:53	System	3051	Device 1-BLK-2	PROCESS VARIABLE ATTRIBUTES	10,02506
16/4/2007 18:53	System	3051	Device 1-BLK-2	PROCESS VARIABLE ATTRIBUTES	0
16/4/2007 18:53	System	3051	Device 1-BLK-2	PROCESS VARIABLE ATTRIBUTES	107
16/4/2007 18:53	System	3051	Device 1-BLK-2	SENSOR LOWER RANGE LIMIT	2219,98
16/4/2007 18:53	System	3051	Device 1-BLK-2	SENSOR UPPER RANGE LIMIT	-2219,98
16/4/2007 18:53	System	3051	Device 1-BLK-2	SENSOR UPPER RANGE LIMIT	1141
16/4/2007 18:53	System	3051	Device 1-AI-1	CHANNEL 1	2
16/4/2007 18:53	System	3051	Device 1-AI-2	CHANNEL 2	1
16/4/2007 18:53	System	3051	Device 1-AI-3	CHANNEL 3	0
16/4/2007 18:53	System	3051	Device 1-AI-4	CHANNEL 4	0
16/4/2007 18:53	System	3051	Device 1-AI-5	CHANNEL 5	0
16/4/2007 18:53	System	3051	Device 1-AI-6	CHANNEL 6	0
16/4/2007 18:53	System	3051	Device 1-AI-1	EU 0%	1
16/4/2007 18:53	System	3051	Device 1-AI-2	EU 0%	1
16/4/2007 18:53	System	3051	Device 1-AI-3	EU 0%	0
16/4/2007 18:53	System	3051	Device 1-AI-4	EU 0%	0
16/4/2007 18:53	System	3051	Device 1-AI-5	EU 0%	0

Figure 6.4. Device Data Report

Application Log Report

AssetView stores the tags of the devices in the database. This report shows all devices to which a specific tag has been assigned.

To generate this report, click the link **Application Log** in the **Audit Trail Reports** page. After configuring the filters, select the file format to generate the **Application Log Report**.

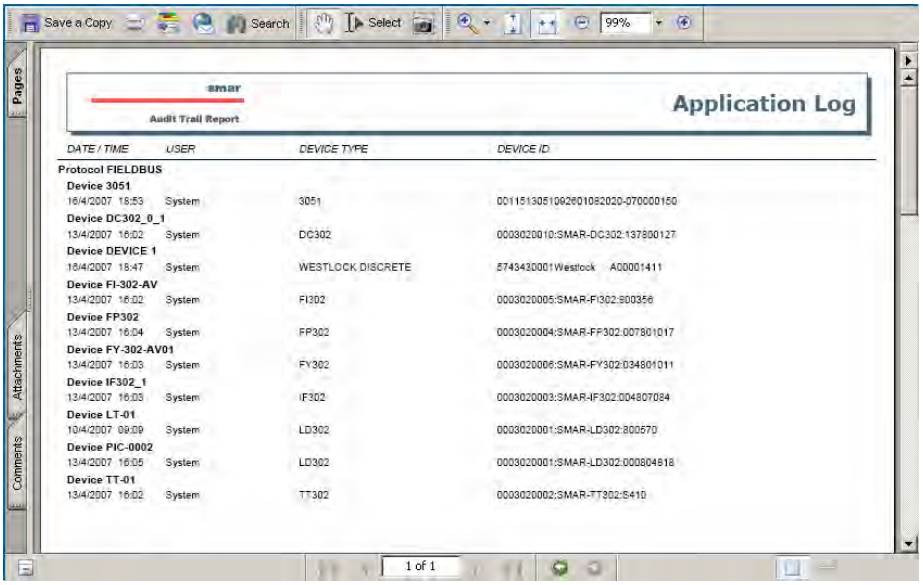


Figure 6.5. Application Log Report

Device ID Log Report

This report shows all tags that have been assigned to a specific device ID.

To generate this report, click the link **Device ID Log** in the **Audit Trail Reports** page. After configuring the filters, click the icon to select the file format and generate the **Device ID Log Report**:

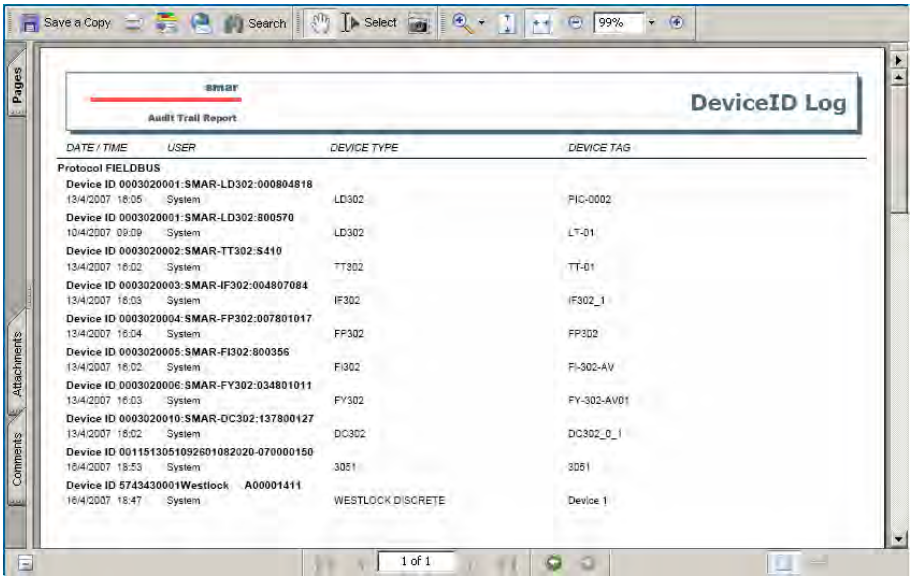


Figure 6.6. Device ID Log Report

Tracking History Report

This report shows the occurrences of communication failures.

To generate this report, click the link **Tracking** in the **Audit Trail Reports** page. After configuring the filters, click the icon to select the file format to generate the **Tracking History Report**.

IMPORTANT
While the fail event is not acknowledged by any user, the user name displayed on the report will be "*System*". Once a user acknowledges the event, the name displayed on the report will be updated with the login name of that user.

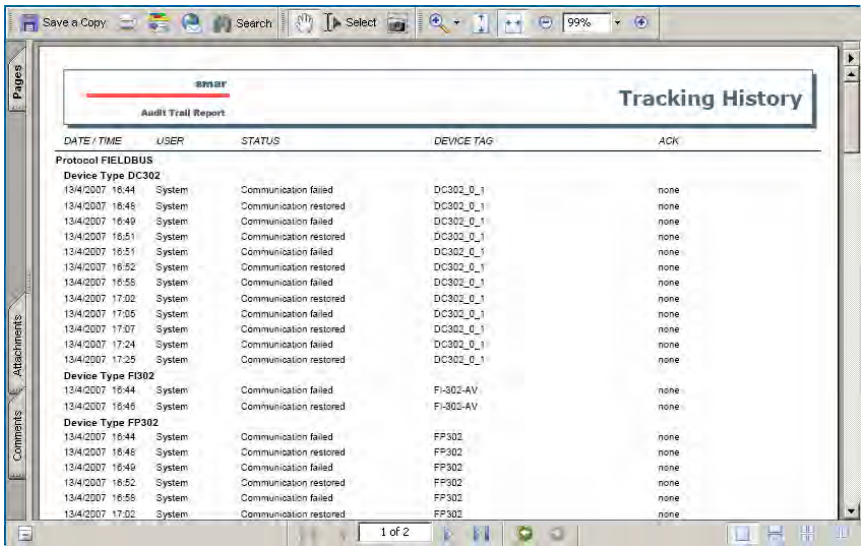


Figure 6.7. Tracking History Report

Diagnostic History Report

The diagnostic events indicate failures or operational conditions of the devices, and they are stored in the ***AssetView*** database.

To generate this report, click the link **Diagnostic History** in the **Audit Trail Reports** page and configure the filters for the report. Click the icon to select the report file format: **pdf** or **xls**.

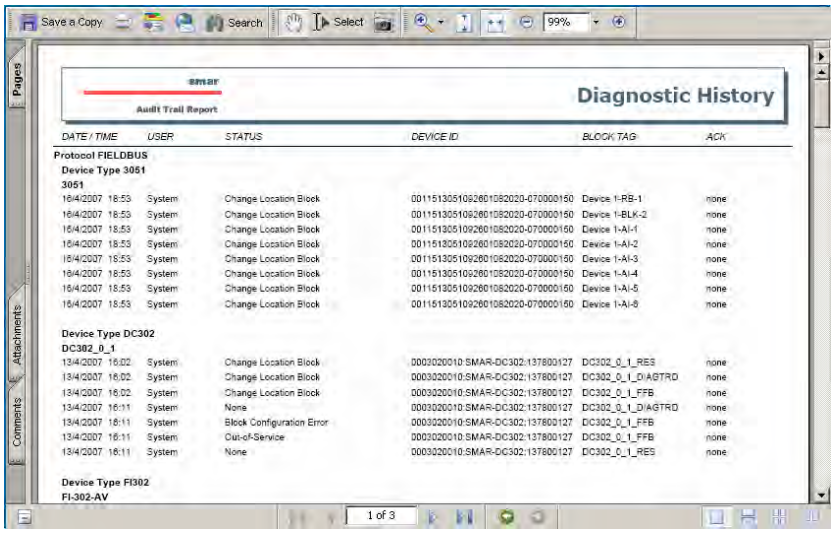


Figure 6.8. Diagnostic History Report

Method History Report

Methods are calibration procedures composed by a sequence of reading and writing in the device. The parameter values before writing and the values that were written in the parameters, static or dynamic, are stored in the database.

This report shows all methods performed and the parameters that have been changed.

To generate this report, click the link **Method History** in the **Audit Trail Reports** page.

After configuring the filters, select the file format to generate the **Method History Report**.

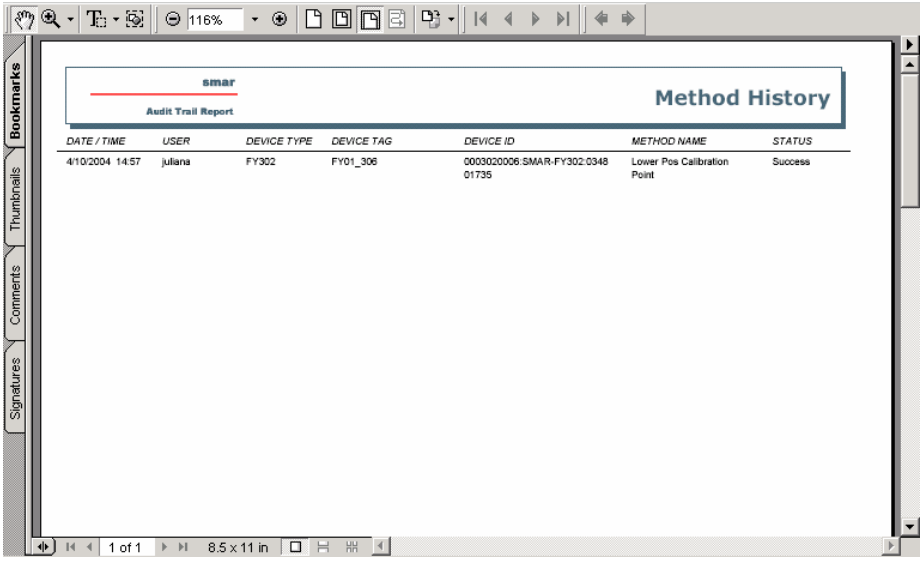


Figure 6.9. Method History Report

Maintenance Report

This report shows all maintenances scheduled and performed for each device.

To generate this report, click the link **Maintenance History** in the **Audit Trail Reports** page. The page with the filter options will be loaded.

After configuring the filters, select the file format to generate the **Maintenance Report**. See the example below:

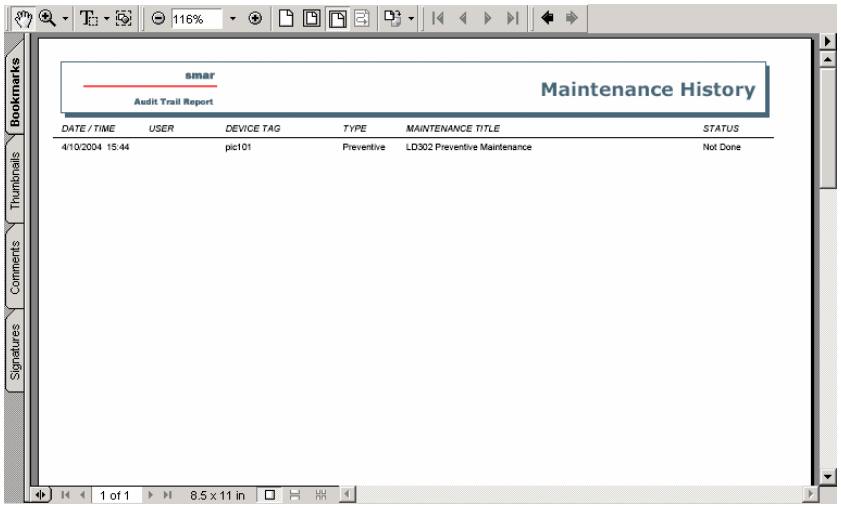


Figure 6.10. Maintenance Report

MONITORING THE DEVICE STATUS

The field devices notify the system when a communication failure or operational conditions occur.

To display the events reported to ***AssetView***, click the link **Status** in the topology to expand the monitoring options.

Status	Indicates normal condition, no communication problem occurred.
Status	Indicates that a diagnostic event or communication problem has occurred.

Tracking

The **Tracking View** page shows the status of the devices and their location.

Tracking	Indicates normal condition, no communication problem occurred.
Tracking	Indicates that a communication problem has occurred.

When the device is disconnected from the plant or has communication problems, it appears in the tracking list. Click the link **Status > Tracking** in the topology to open the **Tracking List**:

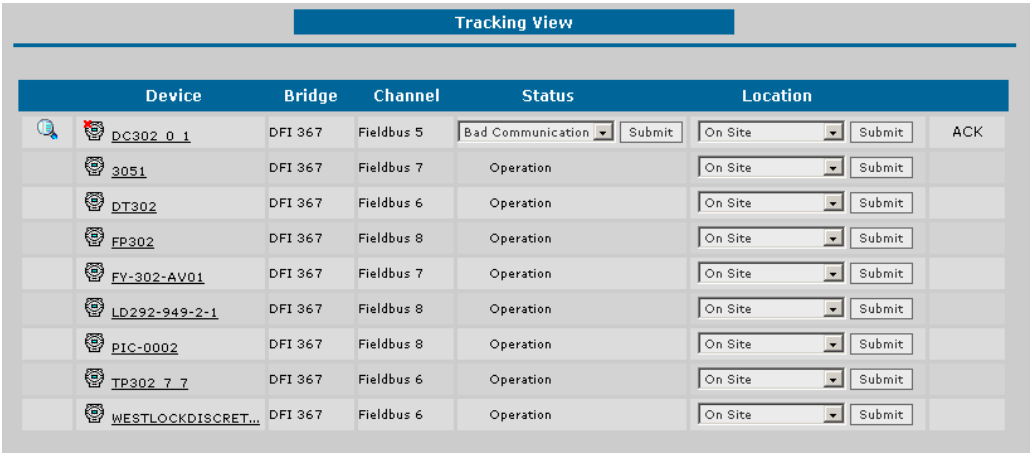


Figure 7.1. Tracking List

The **Bridge** and **Channel** columns indicate, respectively, the tag of the controller and to which channel the device is connected.

Click the magnifying glass icon to open a new window that shows detailed information about the device:

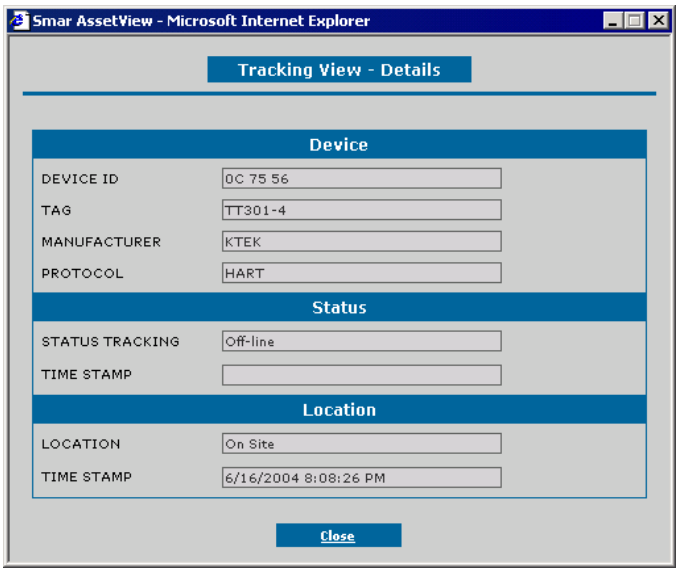


Figure 7.2. Device details

Defining the device status

To define the device status in the tracking list, click the list box in the **Status** column related to the device:

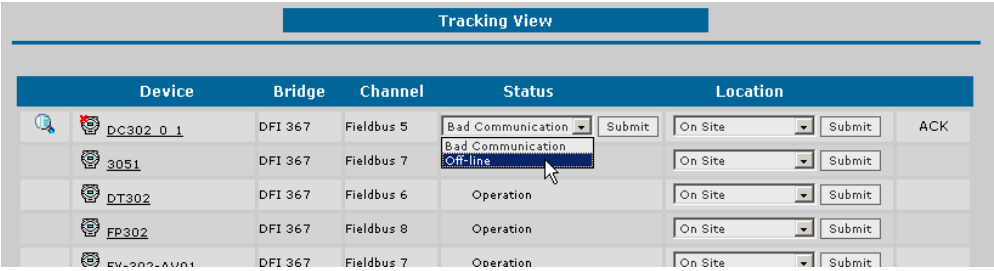


Figure 7.3. Device status

Select the option:

- **Off-line**: the device is not communicating because it was removed from the plant.
- **Bad Communication**: the device is connected to the plant but has communication problems.

Click the button **Submit** to apply the alterations to the device. The tracking event will be automatically acknowledged. See the example below:

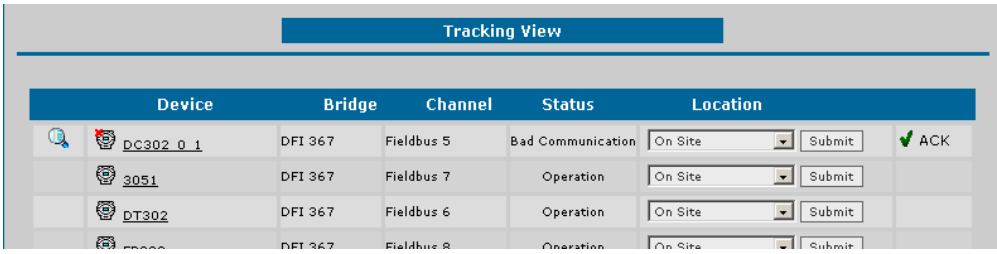


Figure 7.4. Defining the Device status

Defining the device location

To define the device's location in the tracking list, click the list box in the **Location** column related to the device:

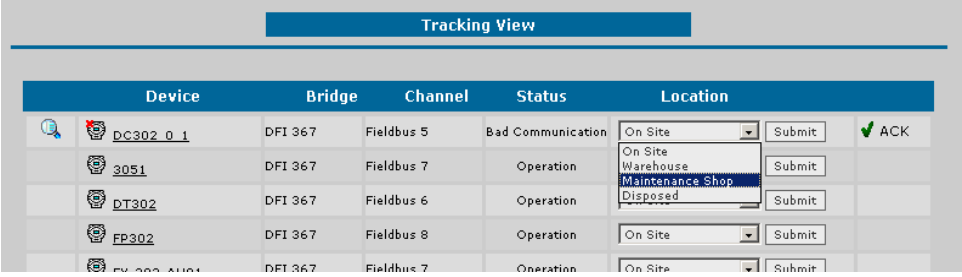


Figure 7.5. Device Location

Select the option:

- **On Site**: the device is operating in the plant.
- **Warehouse**: the device is stored in the warehouse.
- **Maintenance Shop**: the device was removed from the plant for maintenance.
- **Disposed**: the device was removed from the plant and discarded.

Click the button **Submit** to apply the alterations to the devices.

Acknowledging the Tracking Event

Click the link **ACK** in the **Tracking View** page to acknowledge the event.

NOTE
The tracking event is automatically acknowledged when the user defines the device status in the Tracking View page, clicking the list box in the Status column related to the device.

The **Acknowledge Tracking** window will open:

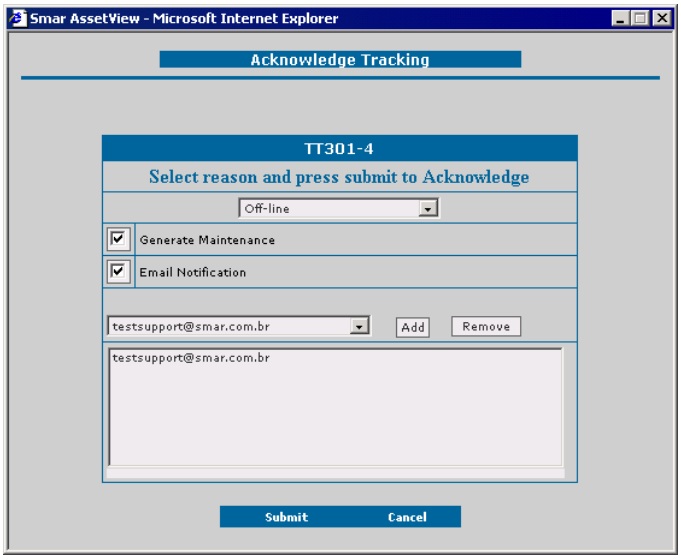


Figure 7.6. Acknowledge Window

- Select the cause of the tracking event: **Off-line** if the device was removed from the plant or **Bad Communication** if the device has communication problems.
- Select the option **Generate Maintenance** to schedule maintenance for the device, corrective or proactive. See section ***Scheduling Maintenances for an Event*** for details.
- Select the option **E-mail Notification** to send e-mails to the plant administrator and technicians.

Click the button **Submit** to acknowledge the tracking event.

NOTE
When acknowledging a tracking event, the user doesn't have to define maintenance for the device, or the e-mail address to be notified. **To create a maintenance related to an acknowledged event, or define an e-mail address, click the link ACK in the Tracking View page and the Acknowledge window will open.**

The **Tracking View** page will be updated and a check mark will appear in the column **ACK** for the events that have been acknowledged. Observe the figure below:

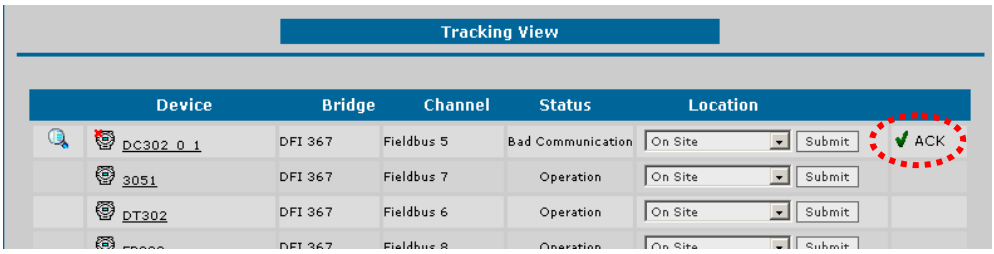


Figure 7.7. Event Acknowledged

Diagnostic

The **Diagnostic View** page shows the events caused by failure notifications or operational conditions programmed by the user to be monitored by the system.

Diagnostic	Indicates normal condition, no communication problem occurred.
Diagnostic	Indicates that a diagnostic event has occurred.

When a diagnostic event occurs, it appears in the **Diagnostic View**. Click the link **Status > Diagnostic** in the topology tree to open the list of diagnostic events:

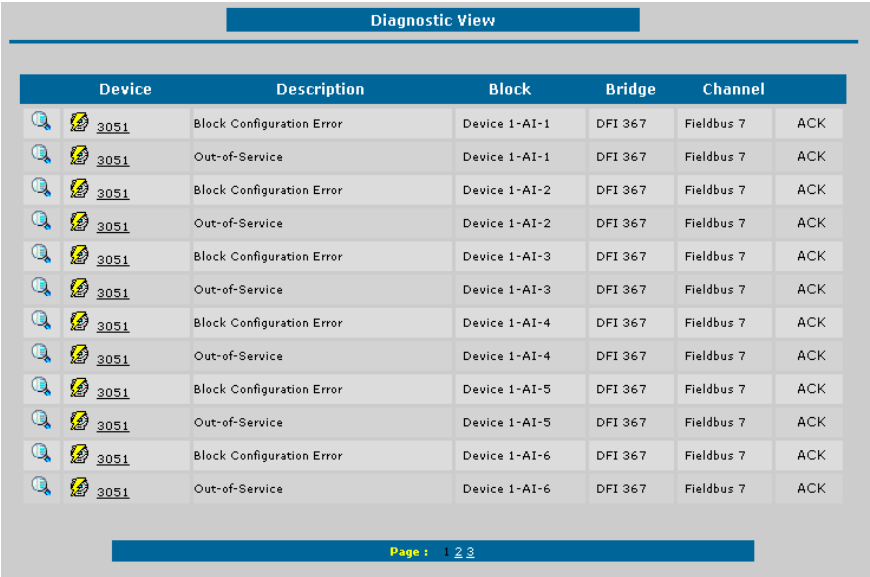


Figure 7.8. Diagnostic View

Click the device icon in the **Device** column to open the corresponding home page.

The **Block** column indicates the tag of the block where the diagnostic event occurred. The **Bridge** and **Channel** columns indicate, respectively, the tag of the controller and to which channel the instrument is connected.

Click the magnifying glass icon to open a new window that shows detailed information about the diagnostic related to the block of the device:

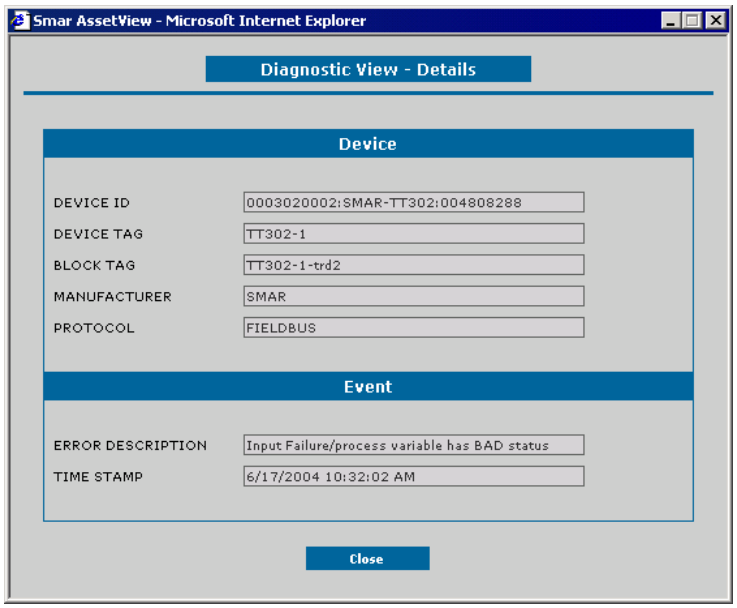


Figure 7.9. Device Details

Acknowledging the Diagnostic Event

Click the link **ACK** in the **Diagnostic View** page to acknowledge the event.

The **Acknowledge Diagnostic** window will open:

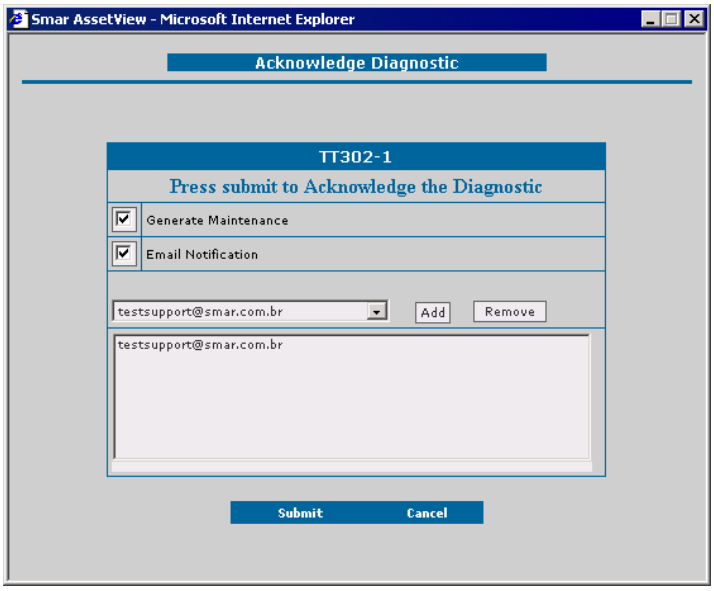


Figure 7.10. Acknowledging the Event

- Select the option **Generate Maintenance** to schedule maintenance for the device, corrective or proactive. See section ***Scheduling Maintenances for an Event*** for details.

- Select the option **E-mail Notification** to send e-mails to the plant administrator and technicians.

Click the button **Submit** to acknowledge the diagnostic event.

NOTE
When acknowledging a diagnostic event, the user doesn't have to define maintenance for the device, or the e-mail address to be notified. **To create maintenance for an acknowledged event, or define an e-mail address, click the link ACK in the Diagnostic View page and the Acknowledge window will open.**

The **Diagnostic View** will be updated and a check mark will appear in the column **ACK** for the events that have been acknowledged. Observe the figure below:

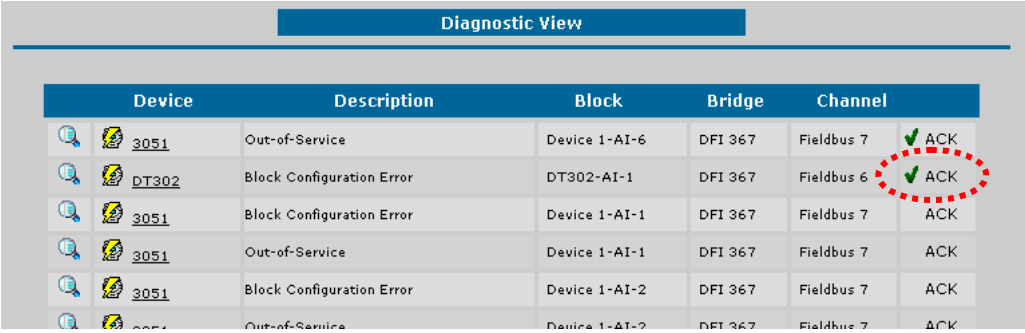


Figure 7.11. Event Acknowledged

Configuring Diagnostic Events

Click the link **Diagnostic > Configuration** on the topology tree, as indicated in the figure below, to open the list of events that can be selected for the instruments.

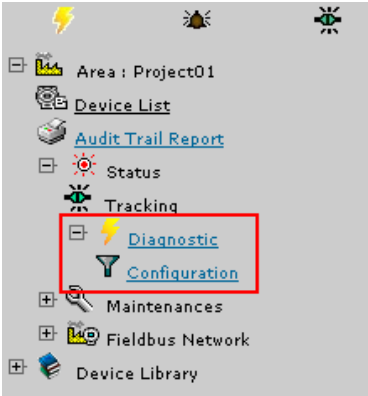


Figure 7.12. Configuring Diagnostic Events

The list shows all the events common to the instruments, even if an instrument is not listed in the plant configuration or not registered in the ***AssetView*** database. The instruments **FY301/302** and **LD301** have specific events that can be also configured in the list of events.

To activate a diagnostic event, mark the option in the corresponding column:

- **Show:** shows an event on the **Diagnostic View** page.
- **Show Report:** the selected diagnostic will be listed on the report.
- **Send E-mail:** sends an e-mail to the user, describing the diagnostic. Click the link **Configure** referring to a diagnostic to select the instruments from which the diagnostics will be send by email when the respective events occur.

DIAGNOSTIC CONFIGURATION

Diagnostics	Show	Show report	Send Email	Device Type
Base not Trimmed	☑	☑	CONFIGURE	FY301/302
Deviation Limit Exceeded	☑	☑	CONFIGURE	FY301/302
Device Fail Safe Set	☑	☑	CONFIGURE	FY301/302
Input Failure/process variable has BAD status	☑	☑	CONFIGURE	FY301/302
Magnetic not Centralized or not Detected	☑	☑	CONFIGURE	FY301/302
Output Module not Initialized or not Connected	☑	☑	CONFIGURE	FY301/302
Reversal Limit Exceeded	☑	☑	CONFIGURE	FY301/302
Temperature Out of Range	☑	☑	CONFIGURE	FY301/302
Travel Limit Exceeded	☑	☑	CONFIGURE	FY301/302
Incompatible Sensor	☑	☑	CONFIGURE	LD301
Local Buttons Failure	☑	☑	CONFIGURE	LD301
Algorithm Error	☑	☑	CONFIGURE	OTHER
Analog Output Saturated	☑	☑	CONFIGURE	OTHER
Block Configuration Error	☑	☑	CONFIGURE	OTHER
Calibration error	☑	☑	CONFIGURE	OTHER

Figure 7.13. List of Diagnostic Events

The example from the following figure shows the list of instruments for the diagnostic **DEVIATION LIMIT EXCEEDED**:

DEVIATION LIMIT EXCEEDED

BACK

DeviceTag	DeviceID	Send
3051	00115130510926010820 20-070000150	☐
DC302_0_1	0003020010:SMAR-DC302:137800127	☐
DT302	000302000e:SMAR-DT302:000804483	☐
FP302	0003020004:SMAR-FP302:007801017	☐
FY-302-AV01	0003020006:SMAR-FY302:034801011	☐
LD292-949-2-1	000302000D:SMAR-LD292	☐
PIC-0002	0003020001:SMAR-LD302:000804818	☐
TP302_7_7	000302000b:SMAR-TP302:000809792	☐
WESTLOCKDISCRETE	5743430001Westlock A00001411	☐

Figure 7.14. List of Instruments for a Diagnostic Event

The figure below shows an example of a notification e-mail related to a diagnostic.

De: eduardocorrea@smar.com.br [mailto:eduardocorrea@smar.com.br]
Enviada em: quarta-feira, 16 de maio de 2007 08:55
Para: eduardocorrea@smar.com.br
Assunto: Notification - Diagnostic - by AssetView Service Messenger

Smar AssetView Service Messenger

Notification from Smar AssetView

	DIAGNOSTIC NOTIFICATION
Device:	FY-302-AV01
Block:	FY-302-AV01-TRD
Diagnostic:	Out-of-Service

Figure 7.15. Notification of a Diagnostic Event

Scheduling Maintenances for an Event

At the **Acknowledge** window, for tracking and diagnostic events, select the option **Generate Maintenance** to schedule maintenance for the device. When the user clicks the button **Submit**, the window below will open:

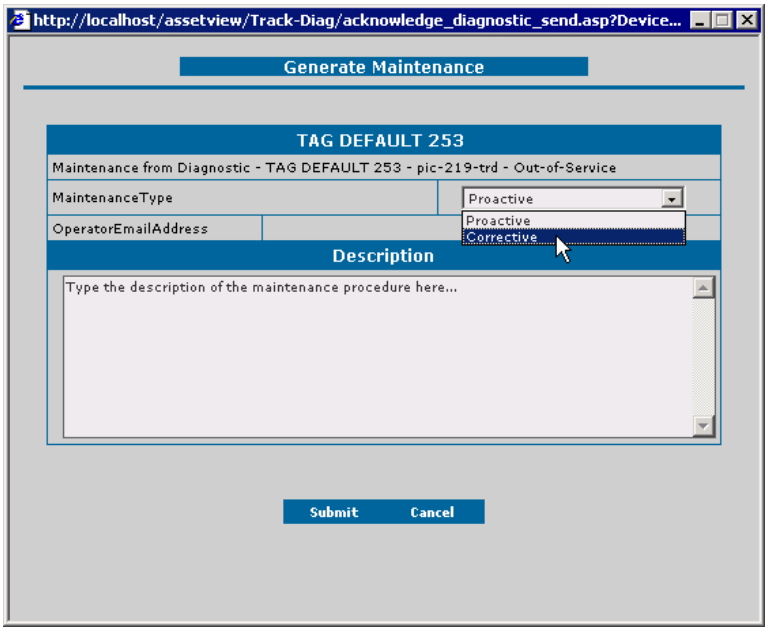


Figure 7.16. Generating Maintenance

1. Select the type for the maintenance: proactive or corrective.
2. In the field **Description**, describe the procedure for executing the maintenance.
3. Click the button **Submit** to conclude. The window below should appear confirming the maintenance was created:

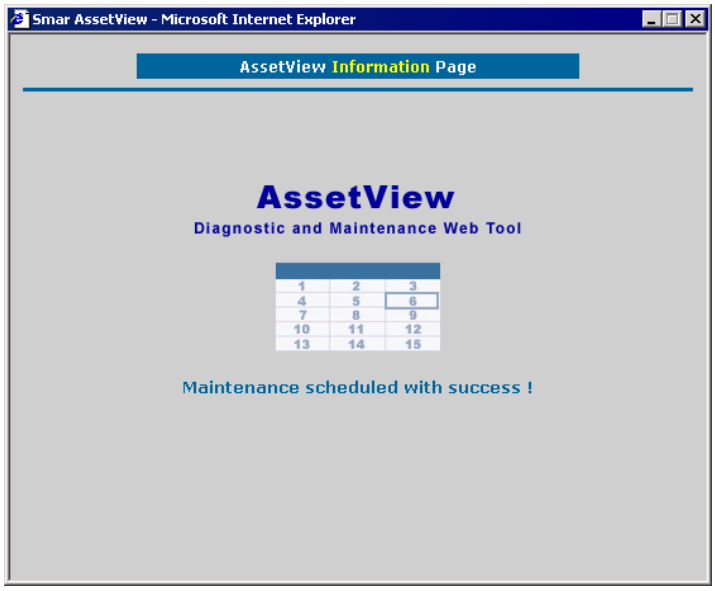


Figure 7.17. Confirming Maintenance

MANAGING DEVICE MAINTENANCES

Click the link **Maintenances > List** in the topology tree to open the list of scheduled maintenances:

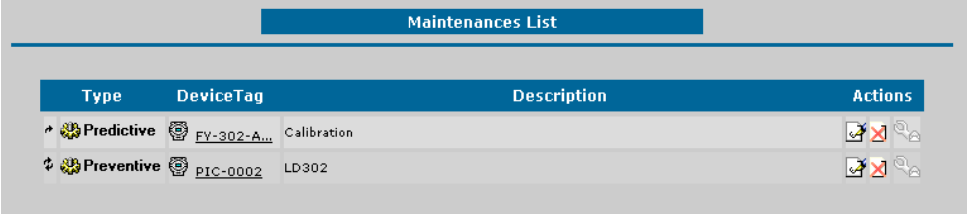


Figure 8.1. Maintenances List

The **Type** column indicates the type of the maintenance. The icon indicates that the maintenance is recurrent, while the icon indicates the maintenance should be executed only once.

Click the device icon in the **Device Tag** column to open the home page of the device.

Adding Preventive and Predictive Maintenances

To schedule maintenance for a specific device, click the link **Maintenances > New** in the topology tree. The **Maintenance Scheduling** page will be loaded:

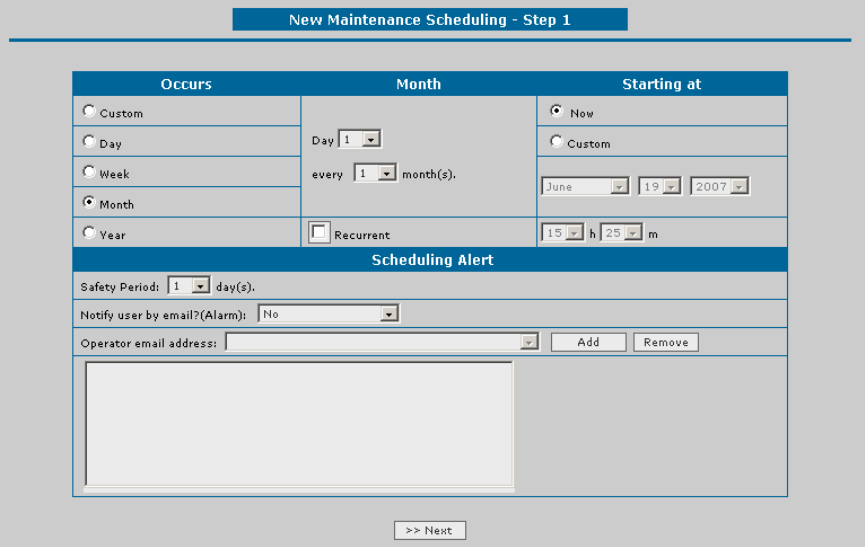


Figure 8.2. Adding Device Maintenances

1. In the field **Occurs**, select the maintenance occurrence: customized, daily, weekly, monthly or annual.
2. Select the option **Recurrent** in case the maintenance should occurs repeatedly.
3. In the field **Starting at**, select the date and the time that the maintenance should start. To customize the maintenance starting date, click the option **Custom**, select the maintenance date and the time.
4. Configure the maintenance alert in the field **Safety Period**, selecting the number of days that the user should be notified in advance.
5. In the field **Notify user by e-mail**, select **Yes** in the options list to send e-mails to the users, and add the e-mail address of the user that will be notified about the maintenance.
6. Click the button **Next** to proceed describing the maintenance details:

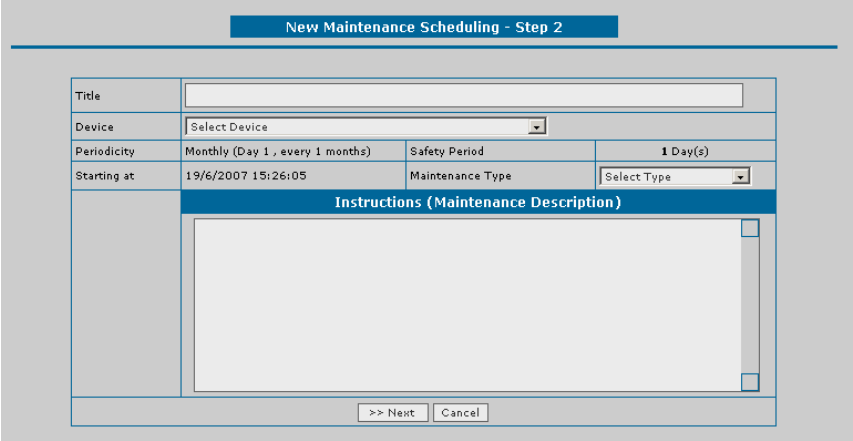


Figure 8.3. Maintenance Details

7. Type the title of the maintenance.
8. Select the device.
9. Select the type of the maintenance: preventive or predictive.
10. Type the instructions to perform the maintenance.
11. Click **Next** to conclude and update the **Maintenances List**.

Editing the Maintenance

In the topology tree, click the link **Maintenances > List** to open the list of scheduled maintenances.

In the column **Action**, click the edit icon, , related to the device, to open the **Maintenance Edit** window.

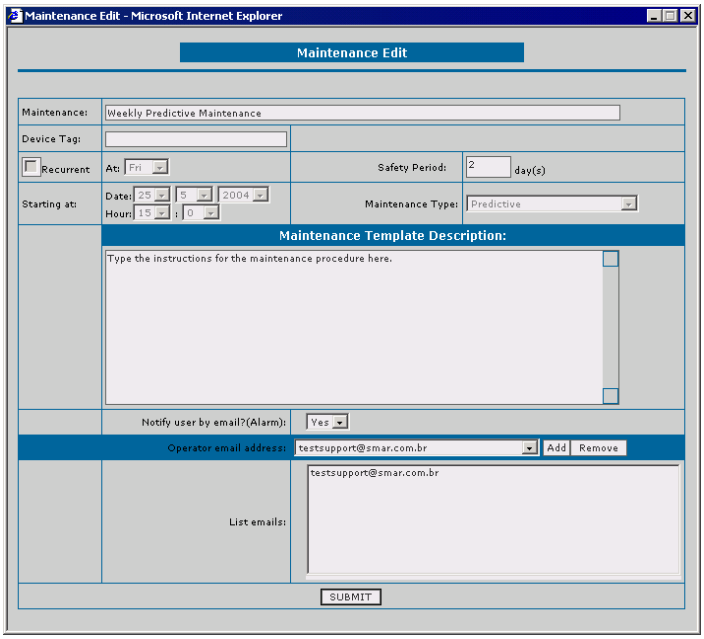


Figure 8.4. Editing the Maintenance

Edit the necessary information and click the button **Submit** to apply the alterations.

Removing a Maintenance

In the topology tree, click the link **Maintenances > List** to open the list of scheduled maintenances.

In the column **Action**, click the delete icon, , related to the device.

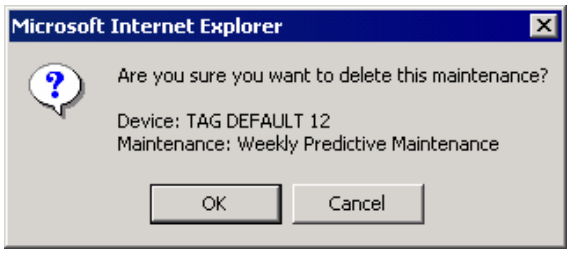


Figure 8.5. Removing a Maintenance

Click **Ok** to confirm the operation and remove the selected maintenance.

Sending Service Orders

In the topology tree, click the link **Maintenances > List** to open the list of scheduled maintenances.

In the column **Action**, click the send service order icon, , related to the device. This icon will only be available if any e-mail address was assigned to the maintenance.

The window to edit the service order will open:

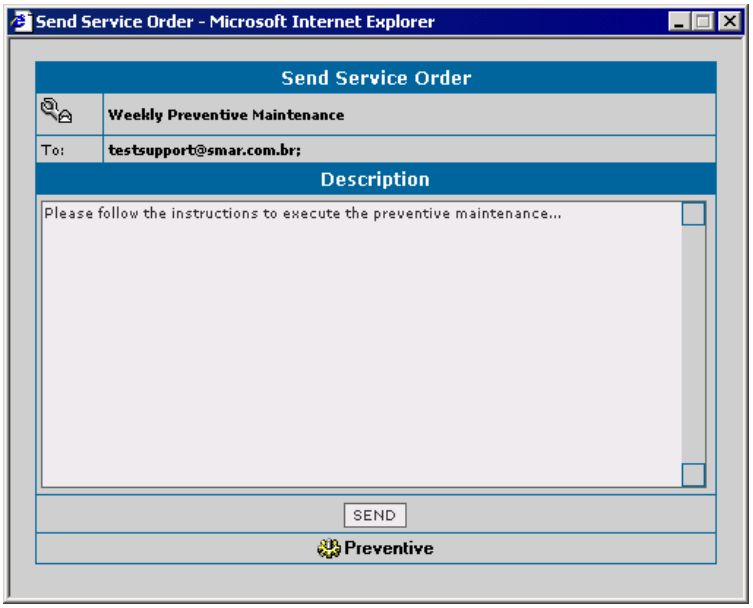


Figure 8.6. Sending a Service Order

Type the instructions to be sent to the user and click the button **Send** to send the e-mail. The figure below should appear confirming that an e-mail has been sent:

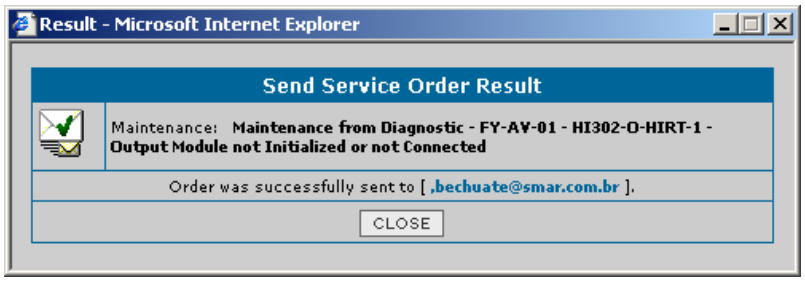


Figure 8.7. Confirming the Service Order

Searching for Maintenances

To search for a specific maintenance, click the link **Maintenances > Search** in the topology tree.

Searching a period

The default **Maintenance Search** page is shown in the figure below:

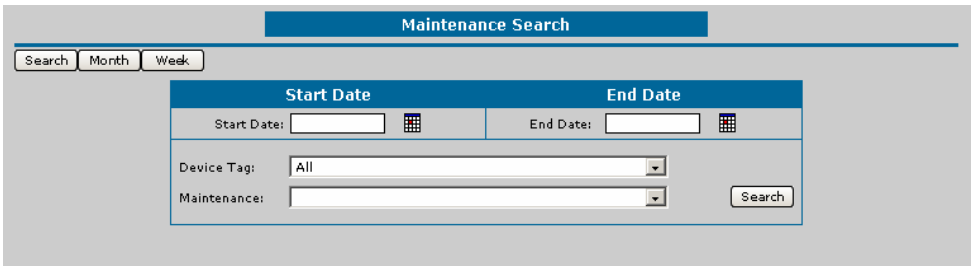


Figure 8.8. Searching for Maintenances

1. Select the beginning of the search in the field **Start Date** and the end of the search in the field **End Date**, clicking the icon to open the **Calendar** dialog box.

Figure 8.9. Calendar

2. In the field **Device Tag**, filter the tag of a specific device;
3. In the field **Maintenance**, filter the name of the maintenance defined by the user.
4. Click the button **Search** to view the results.

The page with the search results will be loaded. Click the link of the device name to view the information about the maintenance.

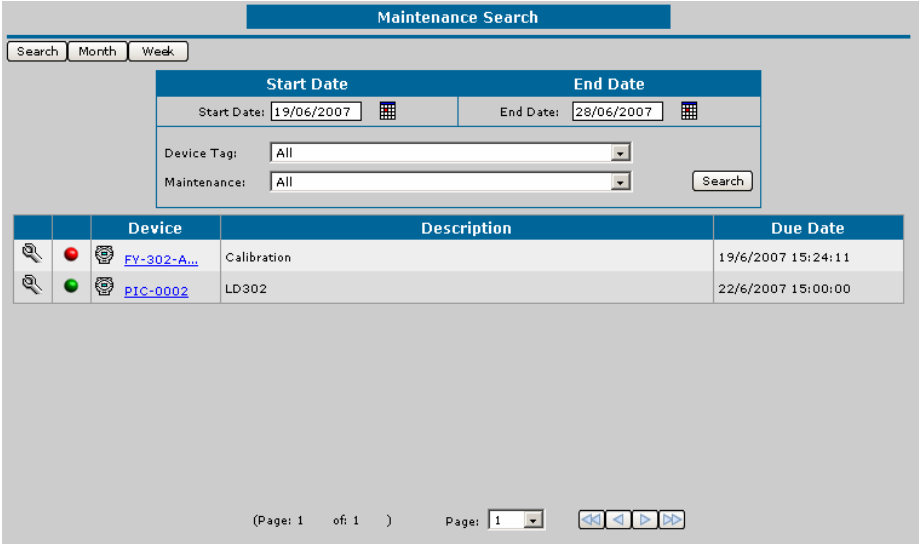


Figure 8.10. Search Results

Searching maintenance during the month

Click the button **Month** to view the maintenances scheduled for the month:

Figure 8.11. Month Calendar

Click the link of the maintenance name to view the instructions related to the maintenance.

Searching maintenance during the week

Click the button **Week** to view the maintenances scheduled for a selected week:

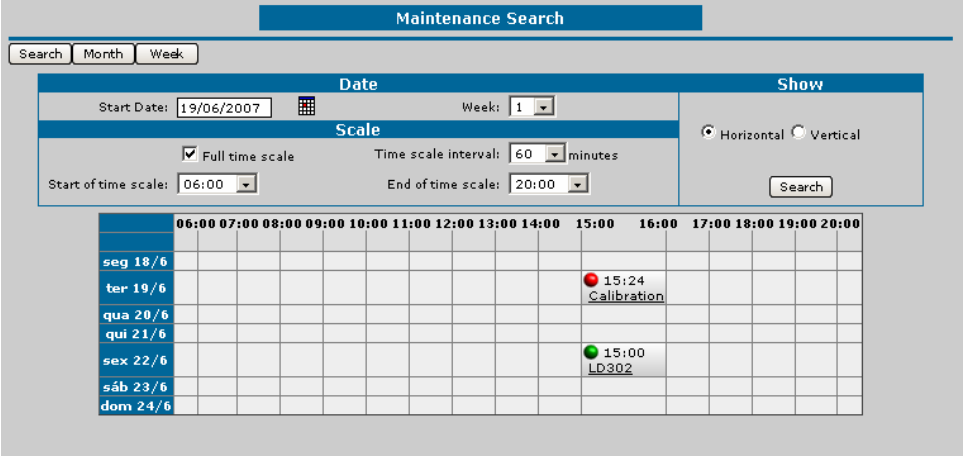


Figure 8.12. Week Calendar

1. Select the beginning of the search in the field **Start Date** clicking the icon to open the **Calendar** dialog box.
2. Select the number of weeks from the **Week** menu.
3. Select the time interval in the **Scale** area.
4. Select the view mode for the week: horizontal or vertical.
5. Click the link of the maintenance name to view the instructions related to the maintenance.

Opening the Maintenances History

To list the maintenances that have been executed, click the link **Maintenances > History** in the topology tree. The **History Search** page will be loaded:

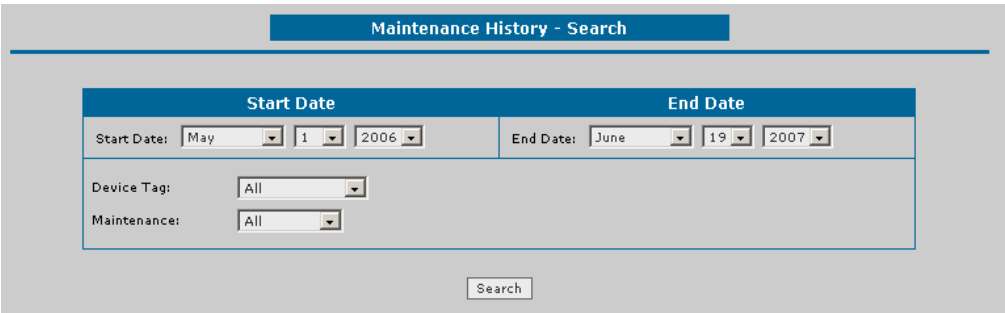
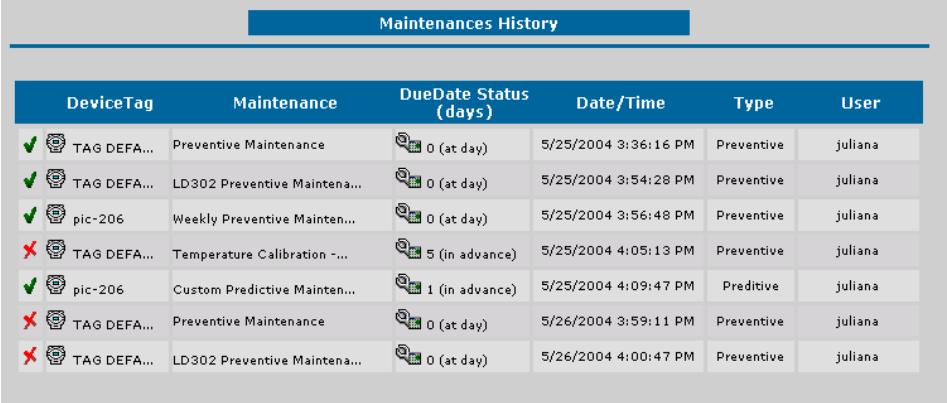


Figure 8.13. Searching for the maintenances executed

1. Select the starting date for the search in the field **Start Date**.
2. Select the ending date for the search in the field **End Date**.
3. In the field **Device Tag**, filter the tag of a specific device.
4. In the field **Maintenance**, filter the name of the maintenance defined by the user.
5. Click the button **Search** to view the results.

The page with the results for the search will be loaded:



Maintenances History

DeviceTag	Maintenance	DueDate Status (days)	Date/Time	Type	User
TAG DEFA...	Preventive Maintenance	0 (at day)	5/25/2004 3:36:16 PM	Preventive	juliana
TAG DEFA...	LD302 Preventive Maintena...	0 (at day)	5/25/2004 3:54:28 PM	Preventive	juliana
pic-206	Weekly Preventive Mainten...	0 (at day)	5/25/2004 3:56:48 PM	Preventive	juliana
TAG DEFA...	Temperature Calibration -...	5 (in advance)	5/25/2004 4:05:13 PM	Preventive	juliana
pic-206	Custom Predictive Mainten...	1 (in advance)	5/25/2004 4:09:47 PM	Preditive	juliana
TAG DEFA...	Preventive Maintenance	0 (at day)	5/26/2004 3:59:11 PM	Preventive	juliana
TAG DEFA...	LD302 Preventive Maintena...	0 (at day)	5/26/2004 4:00:47 PM	Preventive	juliana

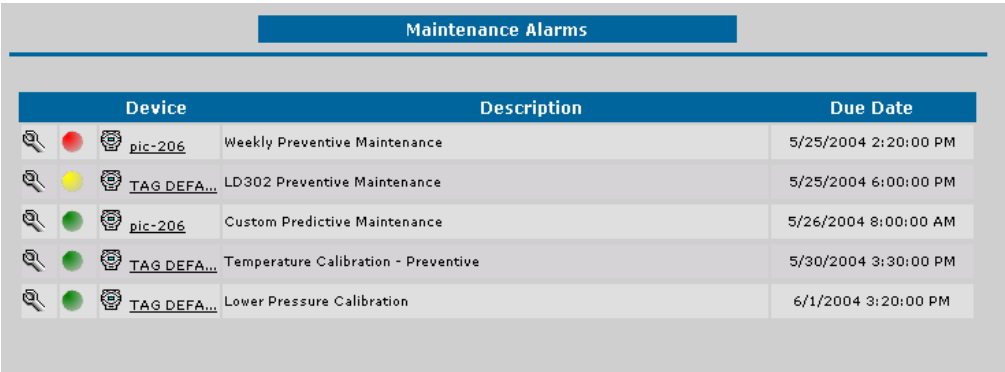
Figure 8.14. Maintenances History

The icon in the first column indicates that the maintenance has been executed.

The icon indicates that the maintenance has been removed.

Opening the Alarms List

To list the alarms that indicate the status of the scheduled maintenances, click the link **Maintenances > Alarms** in the topology tree. The page with the alarms list will be loaded:



Maintenance Alarms

Device	Description	Due Date
pic-206	Weekly Preventive Maintenance	5/25/2004 2:20:00 PM
TAG DEFA...	LD302 Preventive Maintenance	5/25/2004 6:00:00 PM
pic-206	Custom Predictive Maintenance	5/26/2004 8:00:00 AM
TAG DEFA...	Temperature Calibration - Preventive	5/30/2004 3:30:00 PM
TAG DEFA...	Lower Pressure Calibration	6/1/2004 3:20:00 PM

Figure 8.15. Maintenance Alarms

The color indicates the severity of the alarm:

- Indicates the maintenance should be executed in the near future.
- Indicates the deadline for the maintenance to be executed.
- Indicates the date of the maintenance has expired.

To register the maintenance, click the icon . The **Maintenance Registration** window will open:

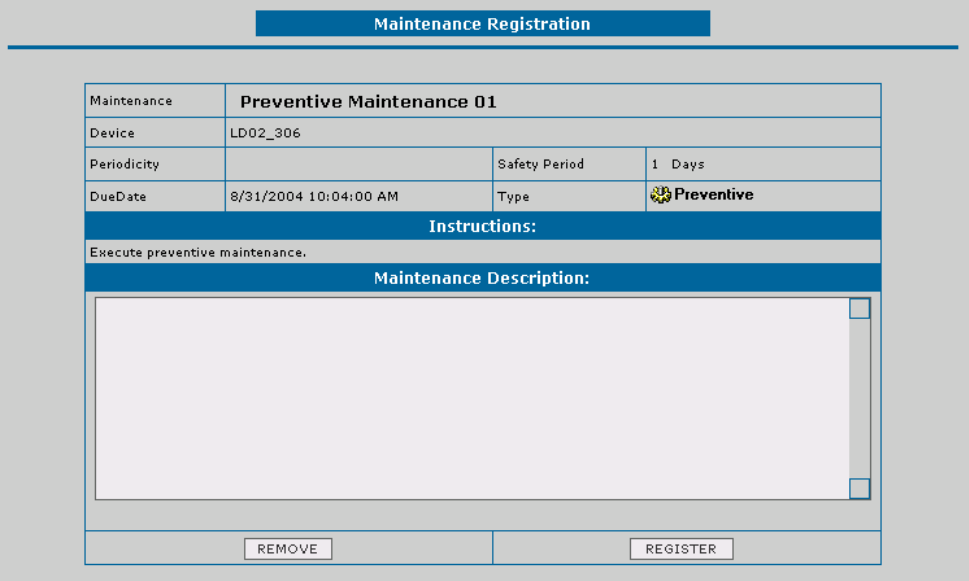


Figure 8.16. Registering the Maintenance

Type the description of the executed maintenance procedure and click the button **Register** to confirm that the maintenance has been executed.

A message box will open confirming the procedure. Click **Ok** to conclude.

To remove the scheduled maintenance, click the icon  related to the maintenance and, in the **Maintenance Registration** window, type a brief explanation about canceling the maintenance and click the button **Remove**. A message box will open confirming the procedure. Click **Ok** to conclude.

Maintenance Templates: Using the AssetView Maintenance Wizard

The user can create templates for the preventive maintenance of a device, and register these maintenances in the ***AssetView*** database. When the device is registered by the ***AssetView Server***, the maintenances are automatically added to the **List of Programmed Maintenances**.

Maintenances templates are created using the ***AssetView Maintenance Wizard***. To run this application, go to the **Start** menu and select **Programs > System302 > AssetView > AV Maintenance Wizard**.

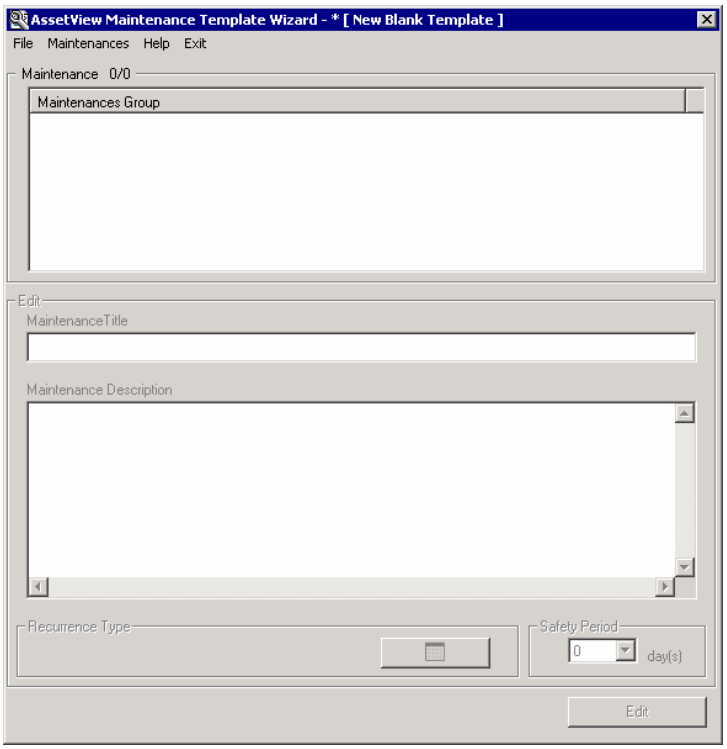


Figure 8.17. AssetView Maintenance Wizard

Creating Maintenance Templates

Go to the **File** menu and click **New Template**. Then, on the **Maintenances** menu, select the option **New Maintenance Wizard**. The **Maintenance Template Wizard** dialog box will open:

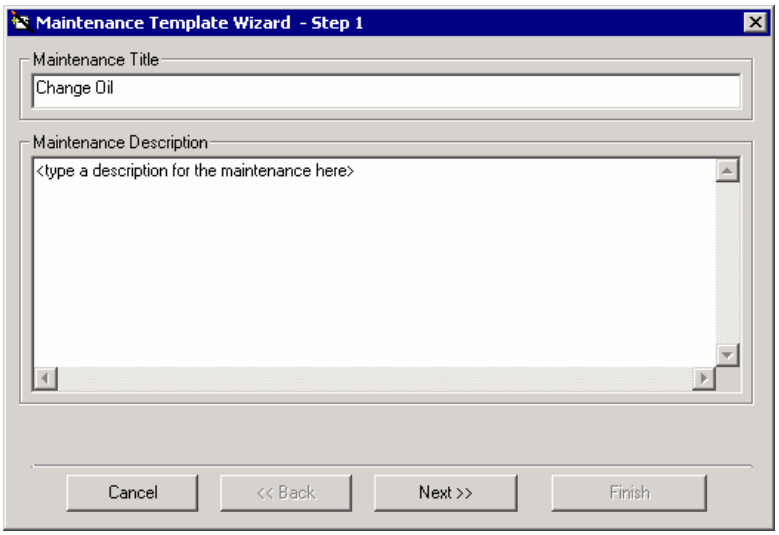


Figure 8.18. Creating Maintenance Templates

Type the name for the maintenance template and describe the maintenance procedure that should be executed. Click **Next** to continue.

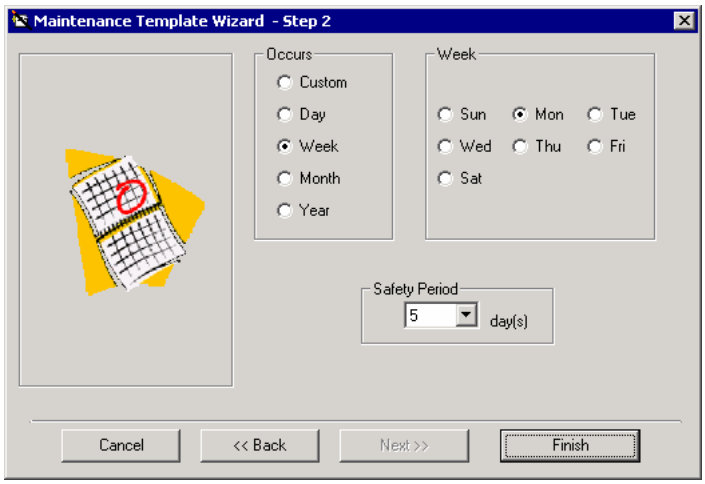


Figure 8.19. Defining the Schedule

In the field **Occurs**, select the maintenance occurrence: customized, daily, weekly, monthly or annual. According to this selection, define the hour, the day of the week, the day of the month or the day of the year that the maintenance should be executed or repeated.

Configure the maintenance alert in the field **Safety Period**, selecting the number of days that the user should be notified in advance about the maintenance. Click **Finish** to conclude.

Saving Maintenance Templates

On the **File** menu, click **Save**. The **Save Maintenance Template** dialog box will open:

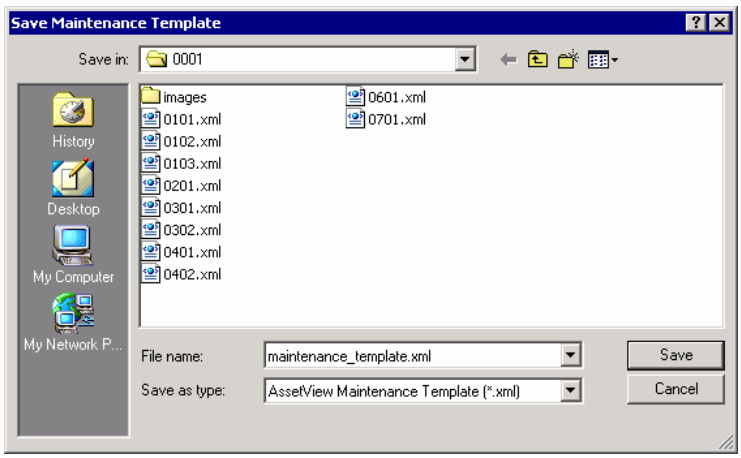


Figure 8.20. Saving the Maintenance Template

Type the name for the file and click **Save** to conclude.

IMPORTANT
The maintenance template file must be saved on the *AssetView* folder, following the default Web pages structure on the Device Support folder. The default path is: **`C:\Program Files\Smar\Assetview\Web Pages\Device Support\<manufacturer code>\<device type code>`** **For example, if the user creates a maintenance template for Smar's FY302, the file must be saved at:** **`C:\Program Files\Smar\Assetview\Web Pages\Device Support\000302\0006`.**

Opening Maintenance Templates

On the **File** menu, click **Open Template**. The **Open Maintenance Template** dialog box will open:

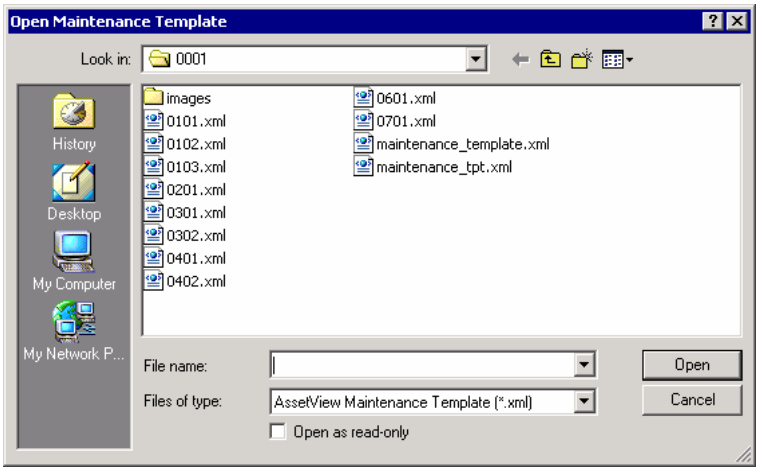


Figure 8.21. Opening the Maintenance Template

Select the icon of the maintenance file and click **Open**.

Editing Maintenance Templates

In the field **Maintenances Group**, select the icon of the maintenance to be edited and click **Edit**, at the bottom of the ***AssetView Maintenance Wizard*** window. Or go to the **Maintenances** menu and click **New Maintenance Wizard**.

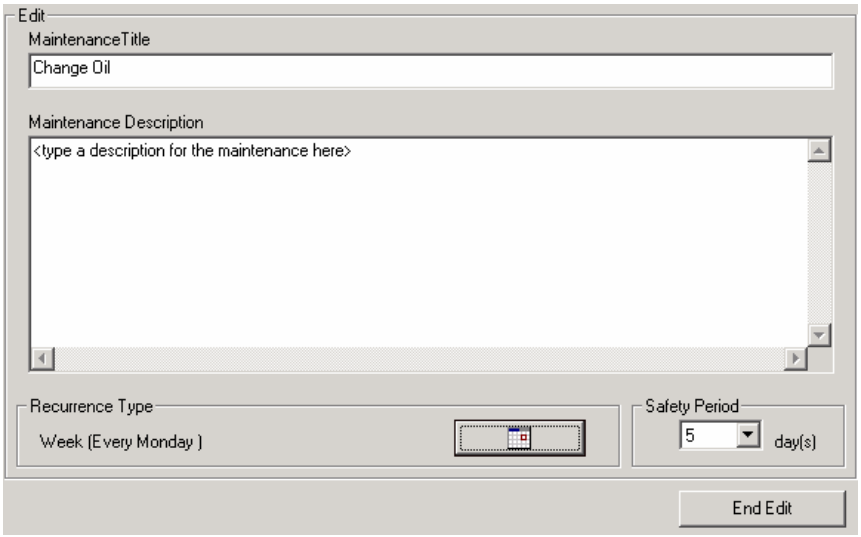


Figure 8.22. Editing a Maintenance

The user can change the title of the maintenance and its description.

To edit the scheduling, click the button at the **Recurrence Type** field. The **Recurrence Type** dialog box will open:

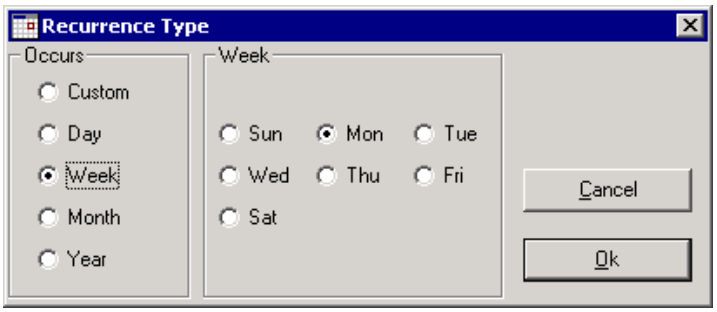


Figure 8.23. Editing the Scheduling

Select the recurrence type for the maintenance, define the recurrence period and click **Ok**.

It is also possible to edit the period that the user should be notified in advance about the maintenance. Select the number of days in the **Safety Period** box.

To conclude the edition, click **End Edit**, at the bottom of the ***AssetView Maintenance Wizard*** window.

Removing Maintenance Templates

To remove a maintenance template, select its icon on the **Maintenances Group** box. On the **Maintenances** menu, select the option **Remove Maintenance**.

The message box below will open to confirm the operation:

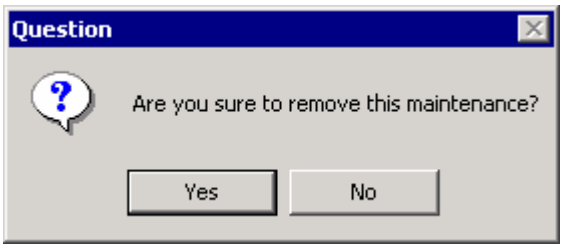


Figure 8.24. Removing a Maintenance

Click **Yes** to confirm the operation or click **No** to cancel.

DEVICE LIBRARY

The **Device Library** is a set of information provided by manufacturers related to the devices, such as user's manuals, calibration procedures, preventive maintenance items, device-related diagrams and images, and notes.

Observe the example below:

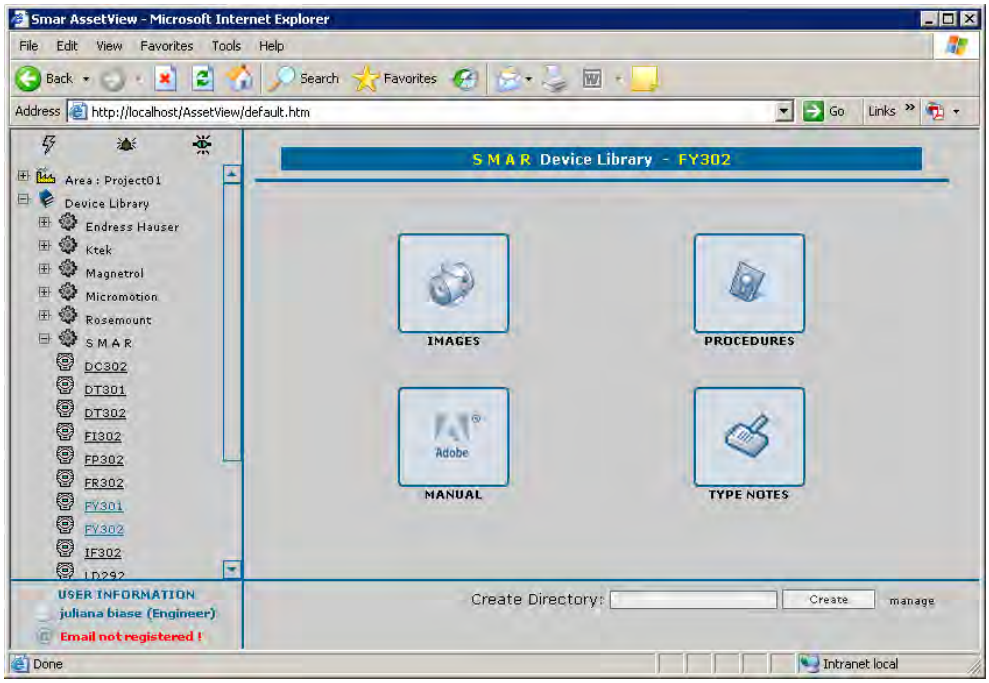


Figure 9.1. Device Library Page

Device Images

Click the **Images** icon to open the page that contains links to the diagrams and images related to the device.

The example of the following figure shows a list of image files referring to the device **LD302** from **Smar**:

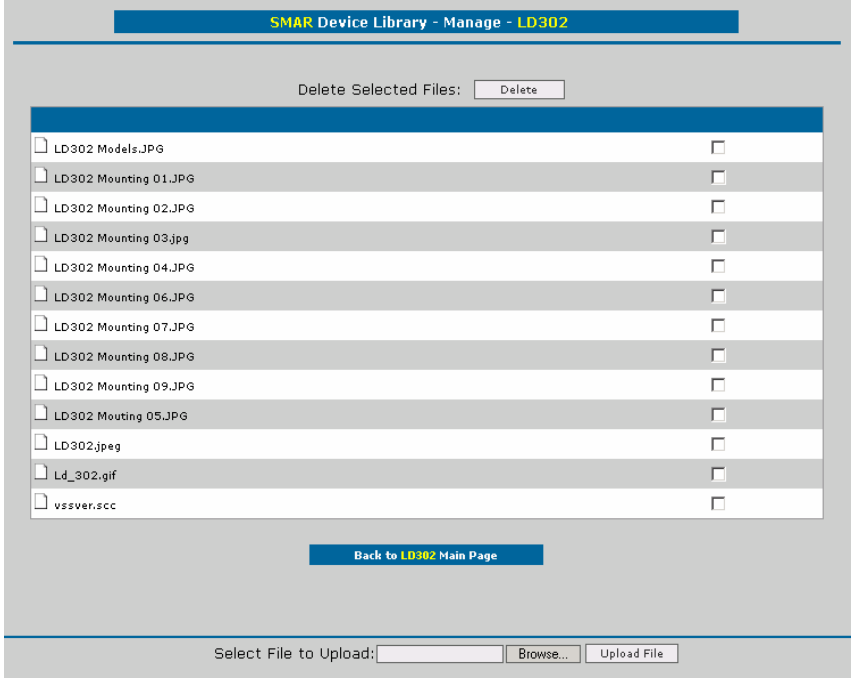


Figure 9.2. Example of Device Images

Adding Images

To include an image related to the device, type the name of the file or click **Browse** to locate the file, at the page footer:

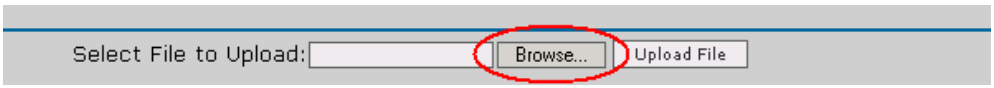


Figure 9.3. Adding Images

The dialog box to locate the file will open:

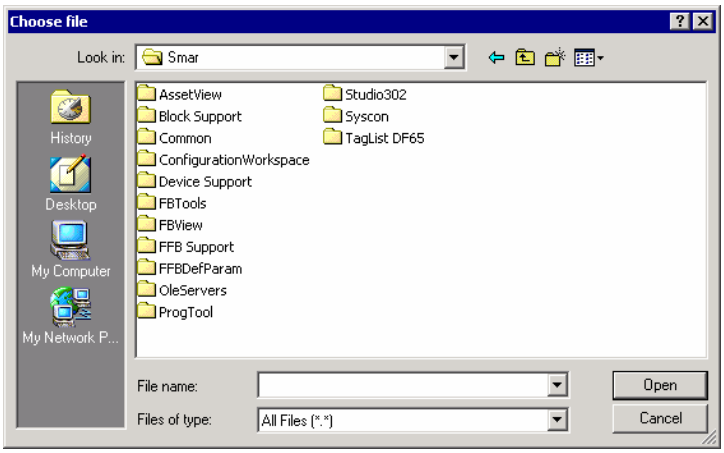


Figure 9.4. Locating the File

Select the file of the image and click **Open**. At the device library page, click **Upload File**. The link to the new image will be created in the Image page and a copy of the original file will be created in the device's folder, in the device's manufacturer directory located at "**`AssetView\Web Pages\DeviceLibrary\MANUFACTURERS\`**", at the default ***System302*** installation directory.

Removing Images

At the device's images page, mark the link(s) related to the image(s) that will be deleted and click **Delete**.

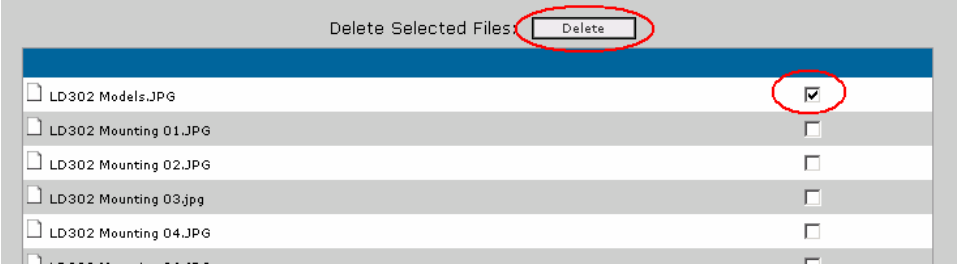


Figure 9.5. Removing Images

The link to the image will be deleted and the file will be removed from the related device's folder, in the manufacturer directory at the default installation path "**`\AssetView\Web Pages\DeviceLibrary\ MANUFACTURERS\`**", at the default ***System302*** installation directory.

Device Manuals

Click the **Manual** icon to open the page that contains links to the documentation of the device:

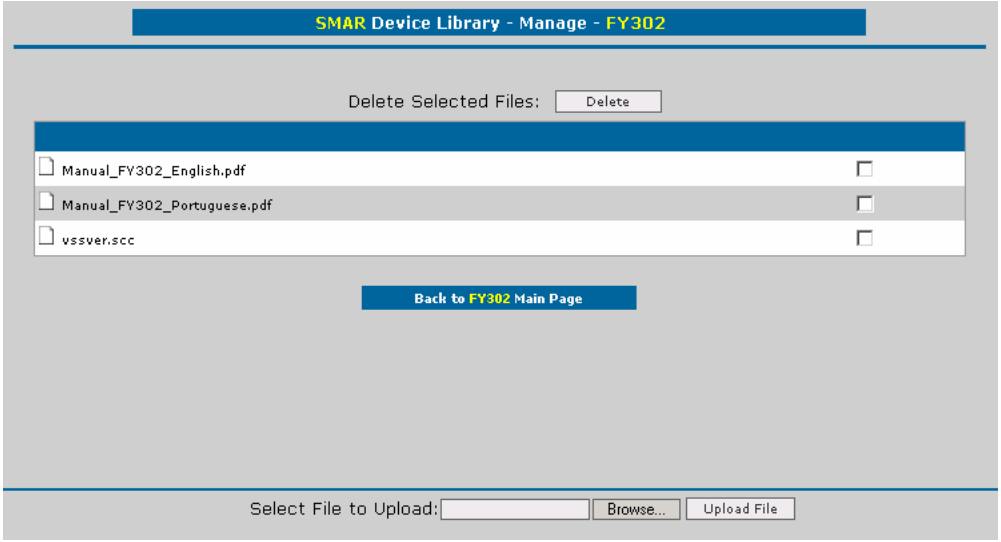


Figure 9.6. Links to Manuals

Adding Manuals

To include a manual related to the device, type the name of the file or click **Browse** to locate the file, at the page footer:

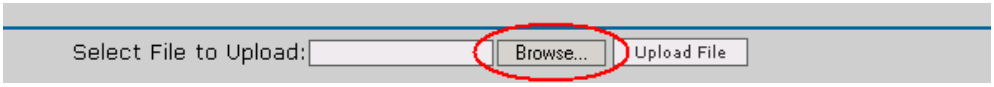


Figure 9.7. Adding a Manual

The dialog box to locate the file will open:

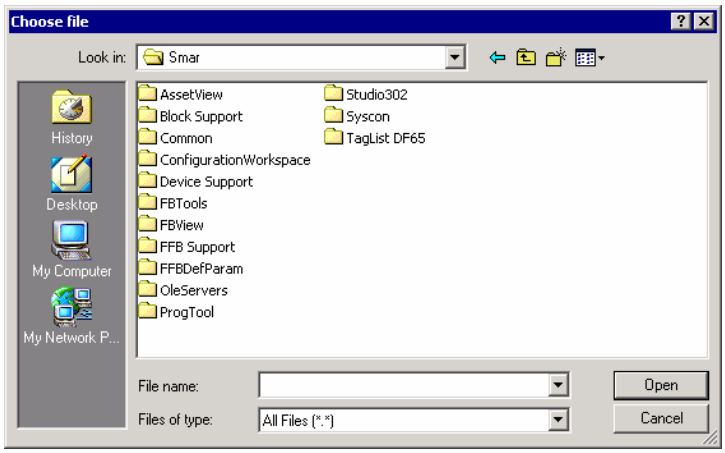


Figure 9.8. Locating the File

Select the manual file and click **Open**. At the device library page, click **Upload File**. The link to the new manual will be created in the Manuals page and a copy of the original file will be created in the device's folder, in the device's manufacturer directory located at "**`AssetView\Web Pages\DeviceLibrary\MANUFACTURERS\`**".

For example, if a manual was added to **Smar FY302**, the copy of the file will be created in the default installation directory: "**`C:\Program Files\Smar\AssetView\Web Pages\DeviceLibrary\MANUFACTURERS\SMAR\FY302\manual`**".

Removing Manuals

At the device's manuals page, mark the link(s) related to the manual(s) that will be deleted and click **Delete**.

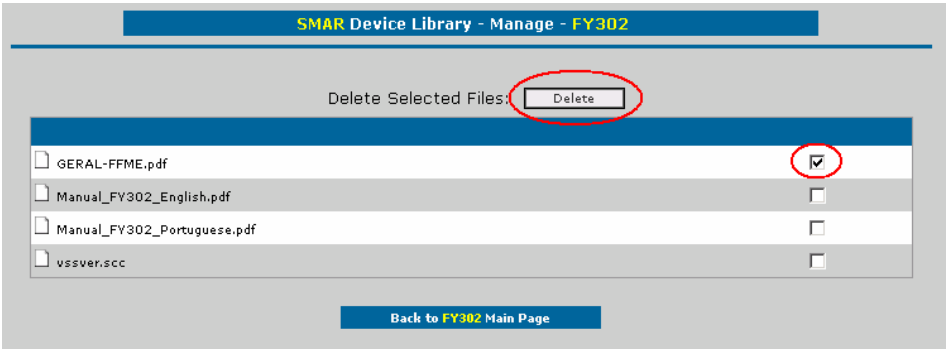


Figure 9.9. Removing Manuals

The link to the manual will be deleted and the file will be removed from the related device's folder, in the manufacturer directory at the default installation path "**`\AssetView\Web Pages\DeviceLibrary\ MANUFACTURERS\`**".

Device Procedures

Click the icon **Procedures** to open the page that contains links to the documents related to the device:

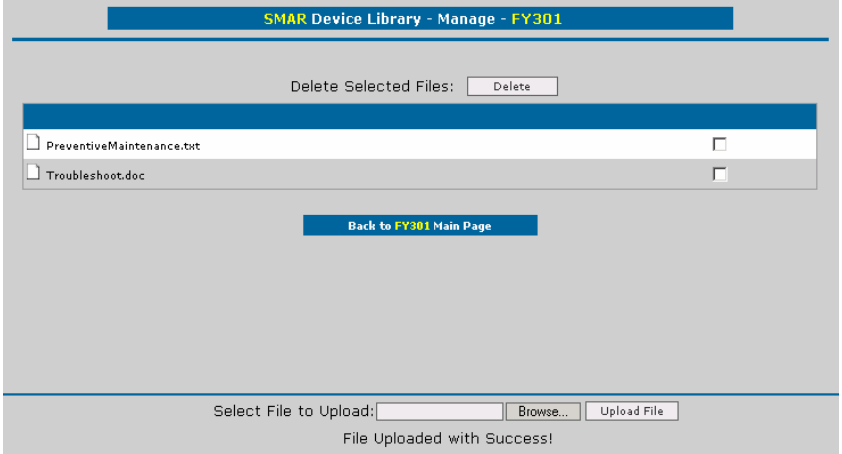


Figure 9.10. Links to Procedures

Adding Procedures

To include a procedure related to the device, type the name of the file or click **Browse** to locate the file, at the page footer:

Figure 9.11. Adding a Procedure

The dialog box to locate the file will open:

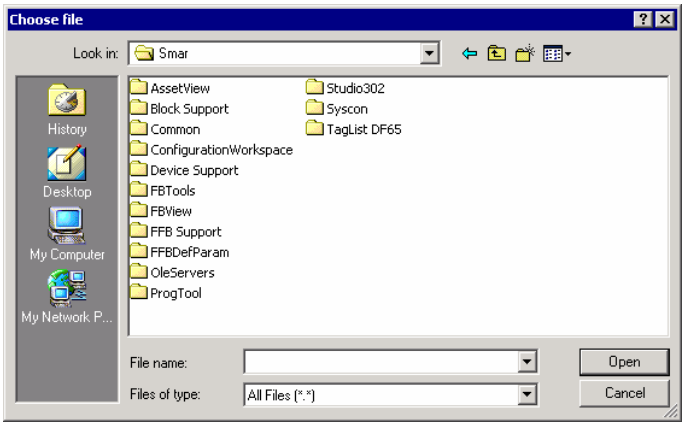


Figure 9.12. Locating the File

Select the procedure and click **Open**. At the device library page, click **Upload File**. The link to the new procedure will be created in the Procedures page and a copy of the original file will be created in the device's folder, in the device's manufacturer directory located at "**`AssetView\Web Pages\DeviceLibrary\MANUFACTURERS\`**".

Removing Procedures

At the device's procedures page, mark the link(s) related to the file(s) that will be deleted and click **Delete**.

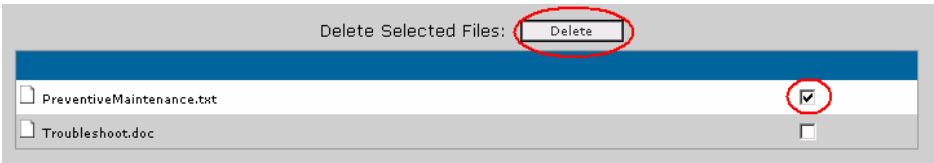


Figure 9.13. Removing Links to Procedures

The link to the procedure will be deleted and the file will be removed from the related device's folder, in the manufacturer directory at the default installation path "**`\AssetView\Web Pages\DeviceLibrary\ MANUFACTURERS\`**".

Managing Device Notes

Navigate through the **Device Library** tree, browsing the manufactures and devices. Click a device icon to open the related library page.

Click the icon **Type Notes** to open the list of notes related to the device.

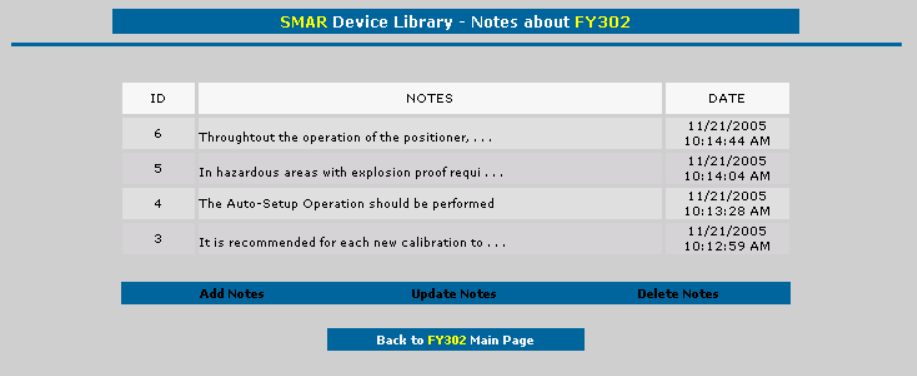


Figure 9.14. Example of Notes for the FY302

Adding Notes

To add a note to a device, click the link **Add Notes** and the page below will open.

Figure 9.15. Adding Notes

Type the text and click the button **Add Notes**.

Click the number related to the note in the **ID** column to open a new window with the complete note text:

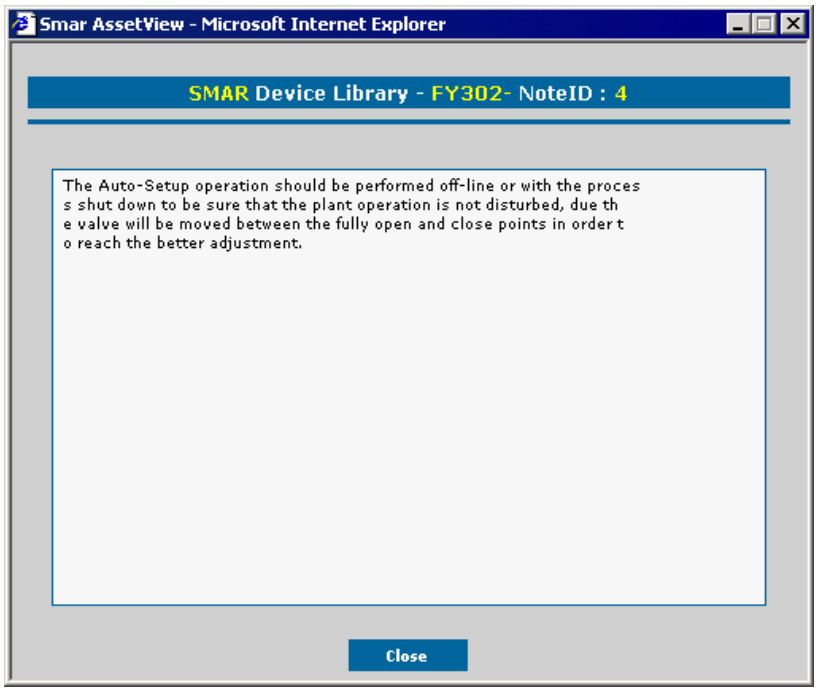


Figure 9.16. Device Note

Updating a Note

To update a note, click the link **Update Notes**. Select the note to be edited and click the button **Change**.

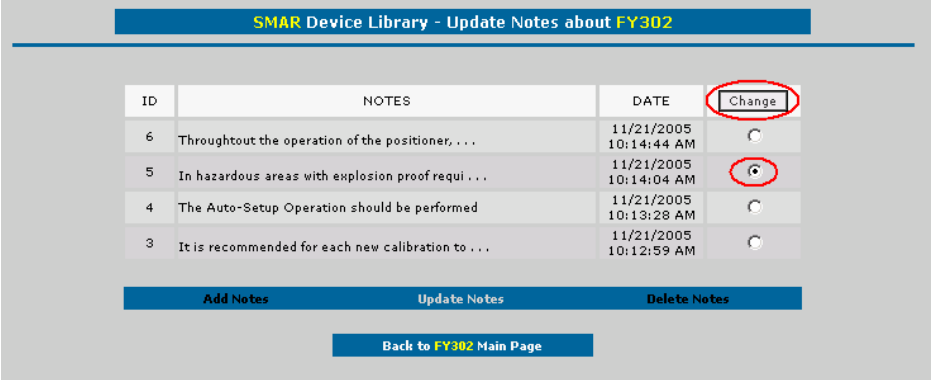


Figure 9.17. Updating a Note

The following page will open:

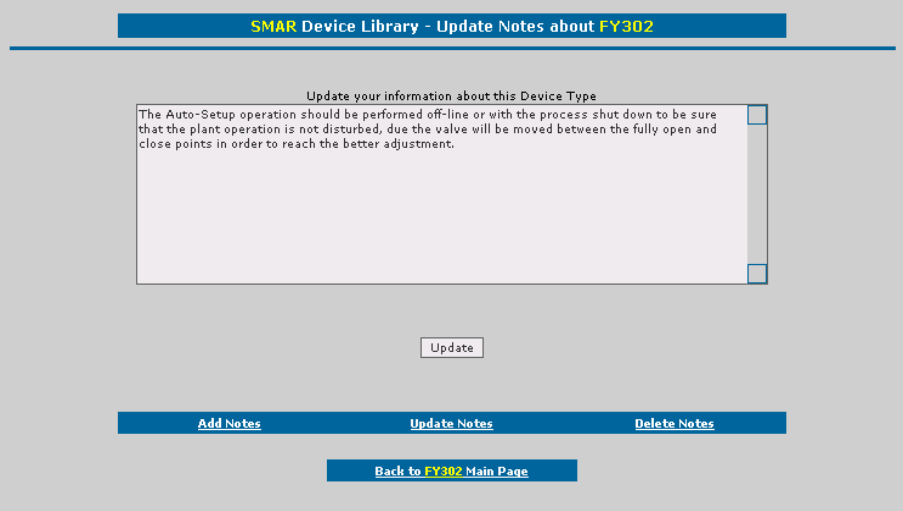


Figure 9.18. Editing a Note

Edit the text and click the button **Update** to apply the alterations.

Removing Notes

To remove a note, click the link **Delete Notes**. Select the note to be removed and click the button **Delete**.

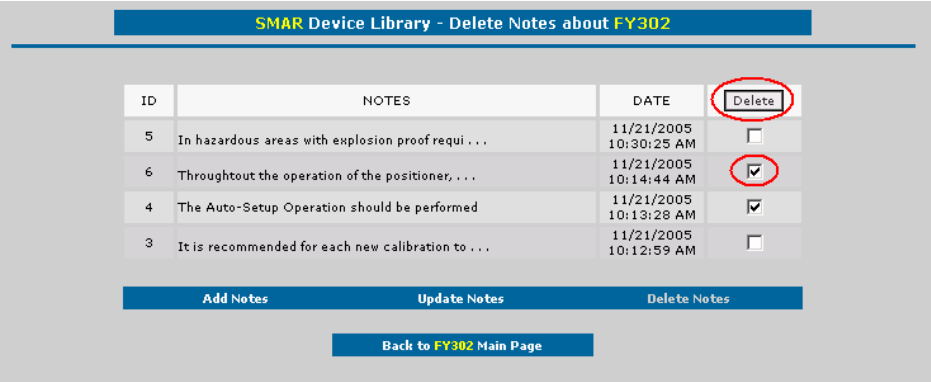


Figure 9.19. Deleting Notes

The user can select one or more notes to be deleted at the same time, checking the box in the **Delete** column related to the notes.

Creating Custom Folders

To create a custom folder for a specific device, open the device's library main page. At the page footer, type the name of the new folder and click **Create**.

Figure 9.20. Custom Folder in the Device Library

The user can also create custom folders on the directory manager page following this procedure. Type the folder name at the **Create Directory** text box and click **Create**.

Managing Folders

Click **Manage** at the main page footer to manage the folders created in the device library.

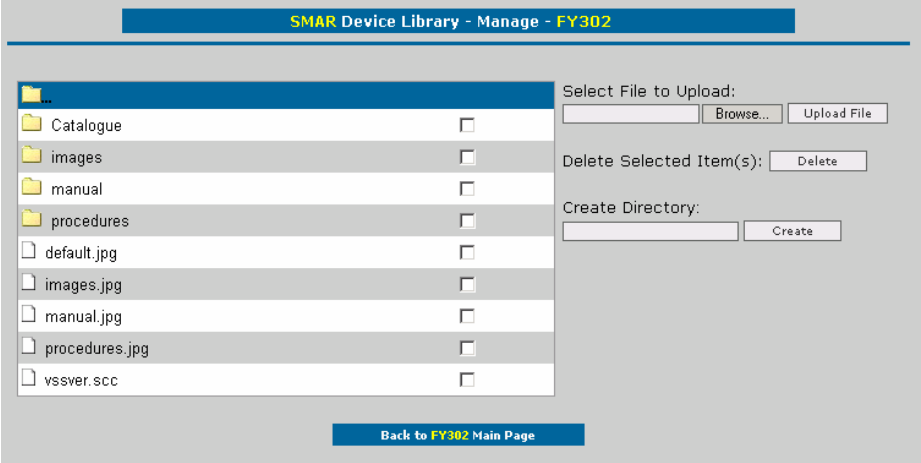


Figure 9.21. Managing Folders

Defining an Icon for a Folder

To define an image as the icon of the custom folder, type the file name of the figure or click **Browse** to locate the file. Then, click **Upload File**.

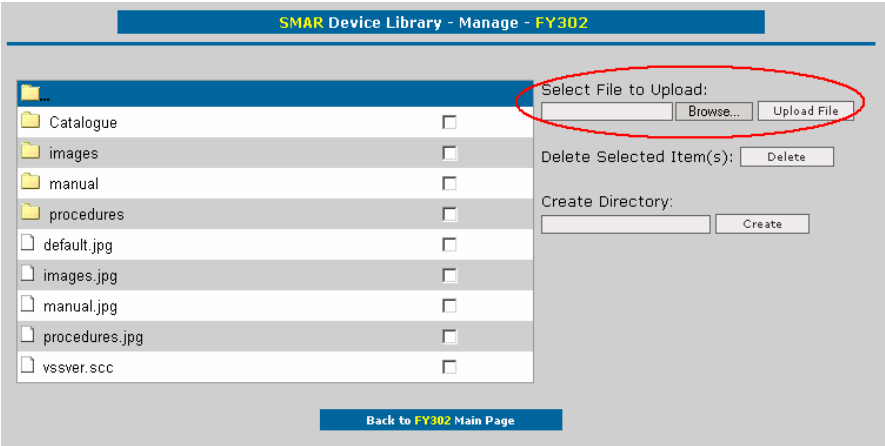


Figure 9.22. Defining an icon for a folder

The image must be in **jpg** format and must also be named as the folder created. For example, if the user creates the folder "**Catalogue**", the file name of the image must be "**Catalogue.jpg**".

NOTE
If the user doesn't create a custom image for the new folder, the image *default.jpg* will be used as the icon of this new folder in the device library page.

Removing Files and Folders

To remove a file or folder from the device library page, mark the line(s) related to the item(s) to be removed and click **Delete**.

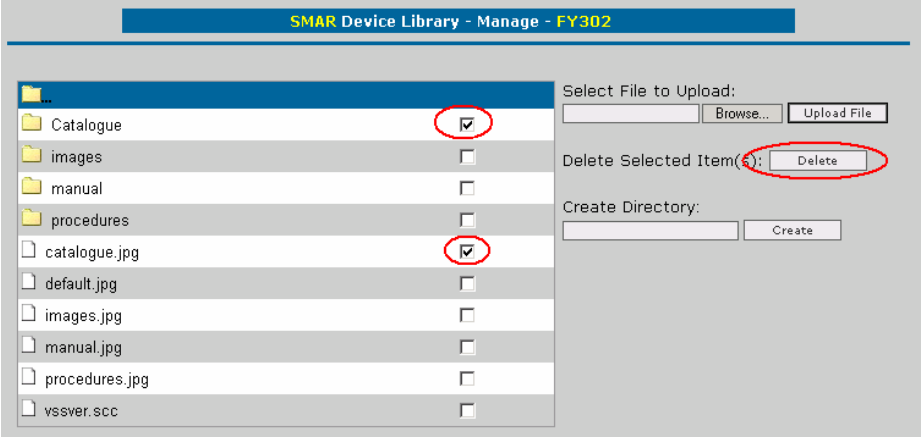


Figure 9.23. Removing Files and Folders

TROUBLESHOOT

1. *AssetView Server is monitoring the changes of the parameters (Tracking Activated). An online Web page from AssetView is requested and all fields in the page are blank, instead of showing the values. At the same time, the monitoring procedure (Tracking) stops.*

Run the **dcomcnfg** application, select the application **Smar OPC & Conf Server for DFI302** and click **Properties**. At the **Identity** tab, select the option **The Interactive User**. Click **Ok** to conclude.

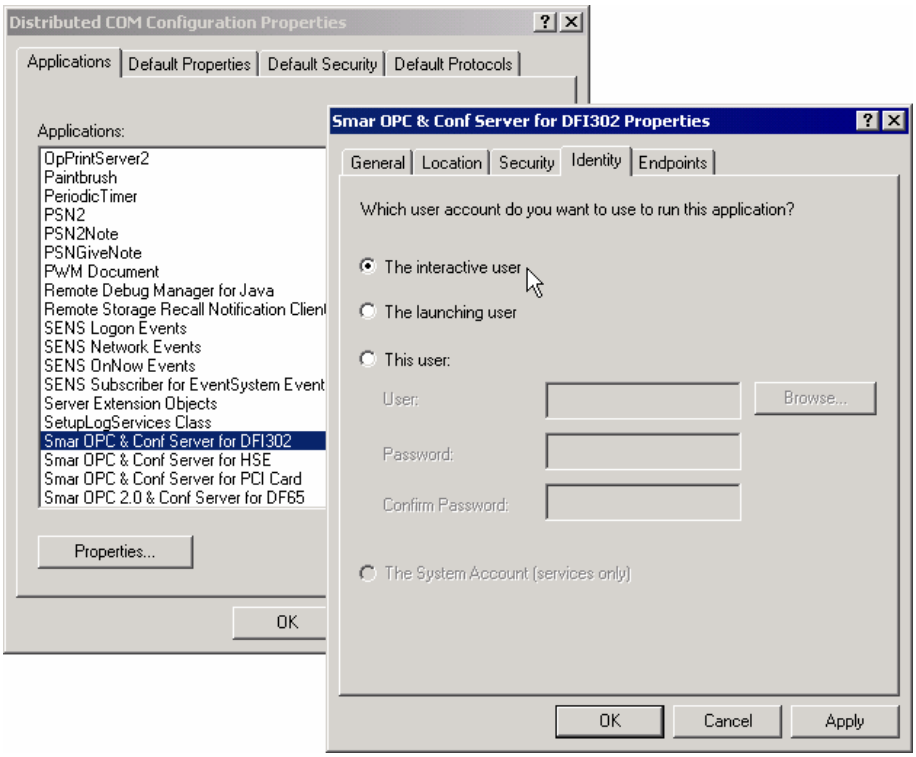


Figure 10.1. Configuring the DCOM Properties

2. ***When trying to execute an operation in the page, the following error message appears:***

Figure 10.2. Error Message

The user logged probably doesn't belong to the *Engineers* group. Refer to the section ***User Permission*** on ***Section 1***, in this manual.

IMPORTANT! If the user belongs to a **domain**, the group *Engineers* must exist in the domain server and the user must be added to this group to perform specific operations.

3. *When trying to start the AssetView Server after the installation, the following error message appears:*

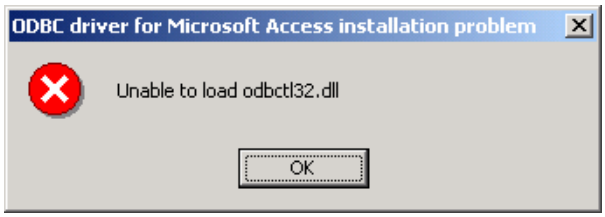


Figure 10.3. Database Installation Error

This message occurs if Windows is not installed in drive C and the ***System302*** version is prior to version 6.1.3.3.

- If the user is running the ***AssetView Server*** with **Windows 2000**, click **Start > Settings > Control Panel > Administrative Tools > Data Sources (ODBC)**.
- If the user is running the ***AssetView Server*** with **Windows NT**, click **Start > Settings > Control Panel > ODBC**.

The **ODBC Data Source Administrator** dialog box will open. Click the **System DSN** tab and double-click the ***AssetView*** data source name to open the dialog box. Click **Select** and locate the file **AssetView.mdb** in the folder "`<System302 Installation Path>\AssetView\Database\`".

Click **Ok** and close the **ODBC Data Source Administrator** dialog box.

4. *When trying to open the AssetView main page, the following error message appears: "The page cannot be found".*

The *Virtual Directories* of ***AssetView*** might not have been created correctly during the installation.

Refer to the **Appendix A** for specific information about the *Virtual Directories*.

5. *The Device icon in the Tracking window doesn't have its normal state recovered after the communication is restored.*

Close the **Tracking** window and open it again by clicking **View > Tracking View**.

6. *The MSDE database was not installed during the SYSTEM302 Installation.*

If the MSDE database was not installed on the computer, run the file **Install_msde.bat** located on the ***AssetView*** Installation folder:

   a. Open the Windows Explorer and locate the ***AssetView*** folder. The default path is `C:\Program Files\Smar\AssetView\SQLServer Support\MSDE2000A`.

   b. Double-click the file **Install_msde.bat** to execute it.

   c. Follow the instruction on the dialog box to complete the database installation.

7. *IIS and .NET Framework installation: AssetView pages are not shown in the browser.*

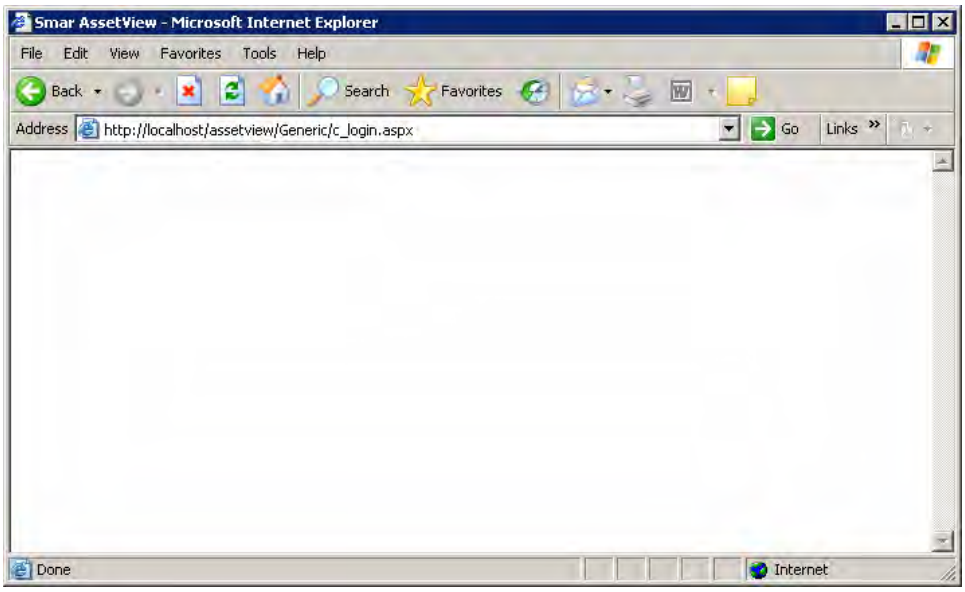


Figure 10.4. *AssetView* Pages Blank

The **Internet Information Services** must always be installed before the **.NET Framework**.

In case the installation order is inverted, follow the procedure below:

a. On the **Start** menu, select **Run** and type **cmd**. The command interpreter window will open.

b. Execute the file **aspnet_regiis.exe** located on the default directory "`C:\WINDOWS\Microsoft.NET\Framework\v1.1.4322\`". On the command line, type:

C:\WINDOWS\Microsoft.NET\Framework\v1.1.4322\aspnet_regiis.exe -i

c. The **Internet Information Services** will be configured. Wait a few seconds until the procedure is concluded and close the command interpreter window.

See the example below:

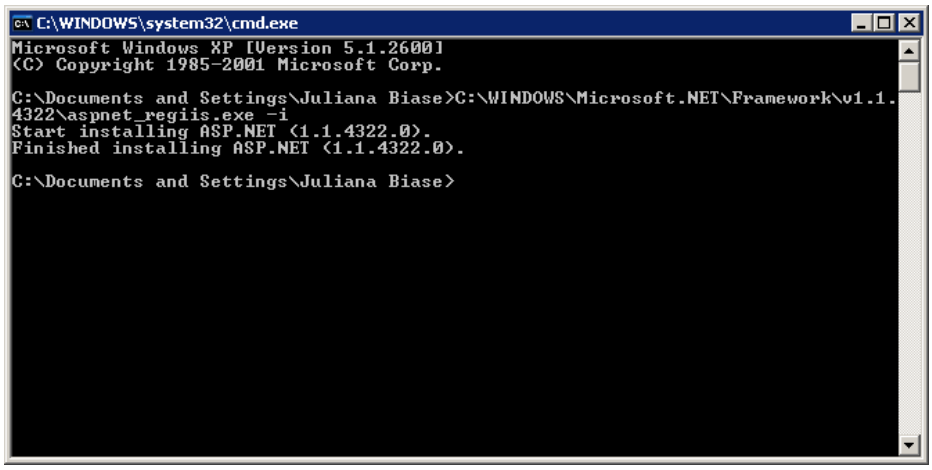


Figure 10.5. Command Window

Appendix A

ASSETVIEW VIRTUAL DIRECTORIES

Configuring IIS 5.0 on Windows XP and Windows 2000

Creating the Virtual Directories

If the virtual directories were not created during the ***System302*** installation, it will be necessary to create them according to the procedure described below.

Click **Start > Settings > Control Panel** and double-click **Administrative Tools**. Start the **Internet Services Manager**. The **Internet Information Services Manager** window will open.

Expand the directory tree of the server machine and right-click the **Default Web Site** directory. Select **New > Virtual Directory**.

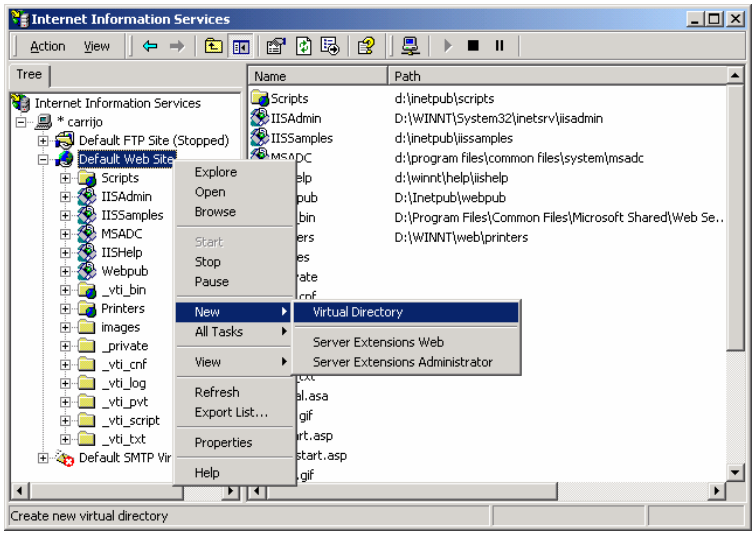


Figure A.1. IIS Manager

The **Virtual Directory Creation Wizard** dialog box will open. Click **Next** and type the name ***AssetView*** to create the virtual directory. Click **Next**.

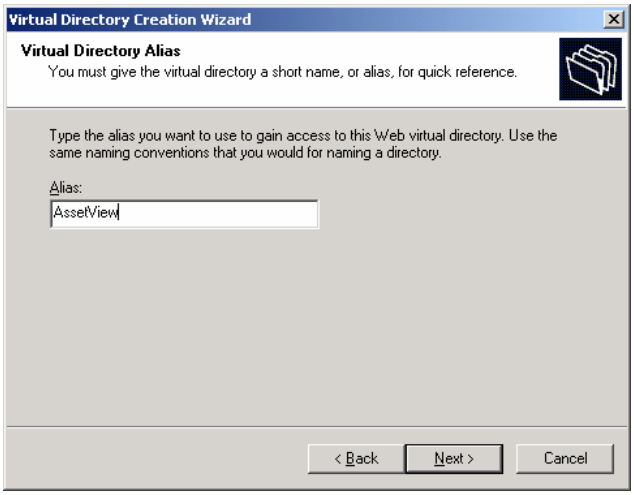


Figure A.2. Creating the Virtual Directory

Select the path of the new virtual directory. The default installation path is "`C:\Program Files\Smar\AssetView\Web Pages`". Or click **Browse** and select the **AssetView Web Pages** directory.

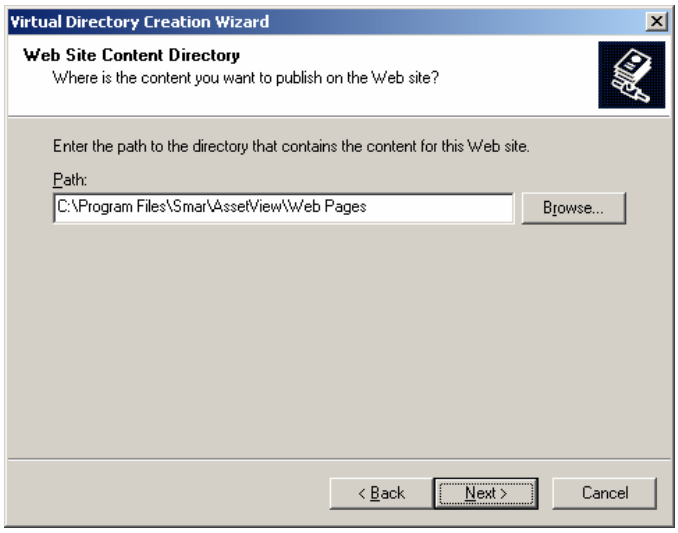


Figure A.3. Locating the *AssetView* Directory

Click **Next**. On the following dialog box, select the options **Read and Run scripts (such as ASP)**.

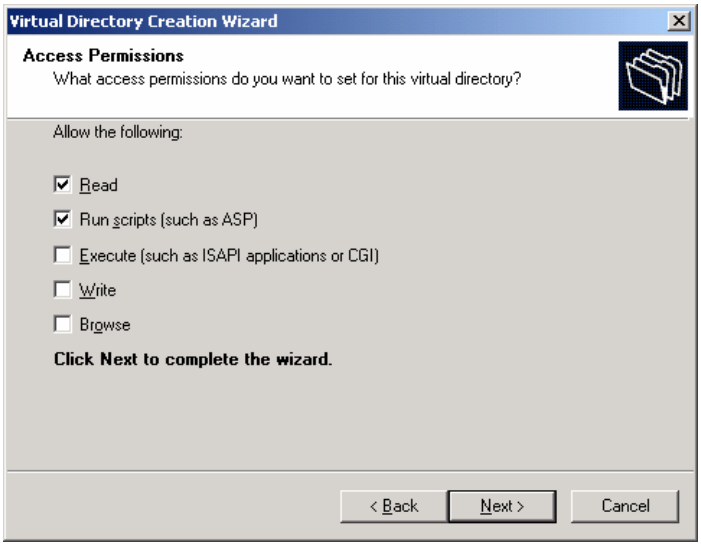


Figure A.4. Configuring the permissions for the Virtual Directory

Click **Next** to complete the wizard and click **Finish** to conclude.

Check if the virtual directory was created at the **Internet Information Services** window.

Once the virtual directory is created correctly, it will be necessary to configure the properties of the virtual directory according to the section below.

Configuring the Properties of the Virtual Directories

At the **Internet Information Services** window, expand the directory tree of the **Default Web Site** directory, right-click the ***AssetView*** virtual directory and select **Properties** from the menu.

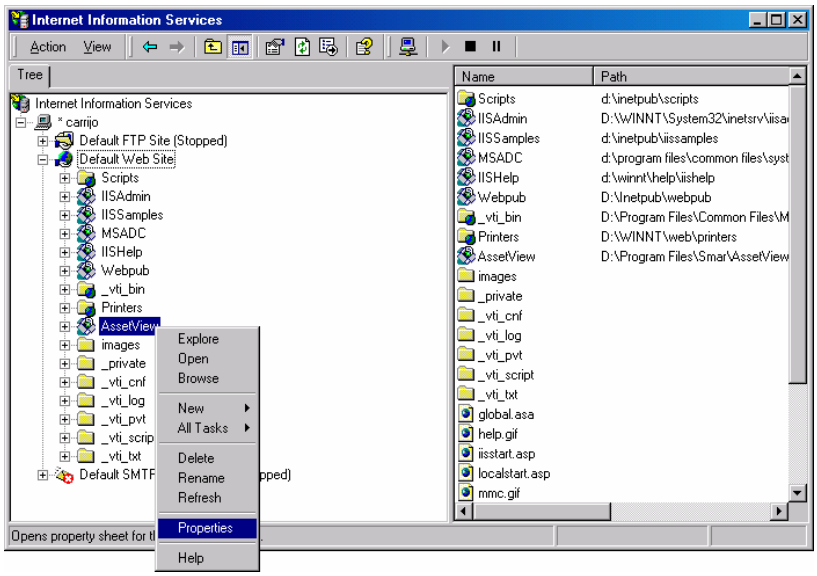


Figure A.5. AssetView Virtual Directory

The **AssetView Properties** dialog box will open. At the **Virtual Directory** tab, select all of the options in the **Local Path** rectangle.

In the **Application Settings** rectangle, click **Create** and type **AssetView** in the **Name** box. Select **Low (IIS Process)** in the **Application Protection** box:

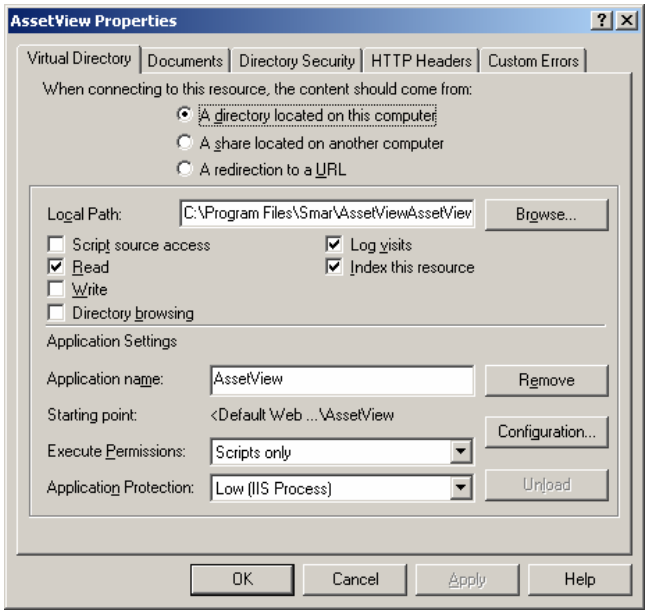


Figure A.6. Properties of the Virtual Directory

Click **OK** to close the dialog box and close the **AssetView Properties** dialog box.

Configuring IIS 6.0 on Windows Server 2003

Configuring the Application Pool

It is necessary to create the *Application Pool* in IIS 6.0 for ***AssetView***:

i. Open the **Internet Information Services** window. Click **Start > Settings > Control Panel** and double-click **Administrative Tools**. Then double-click **Internet Information Services Manager**.

ii. Right-click the **Application Pool** icon and select **New > Application Pool**.

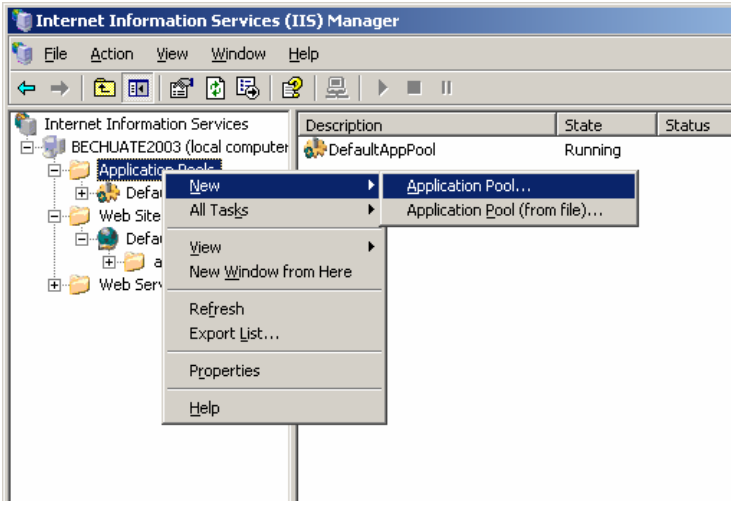


Figure A.7. Creating the Application Pool

iii. The **Add New Application Pool** dialog box will open.

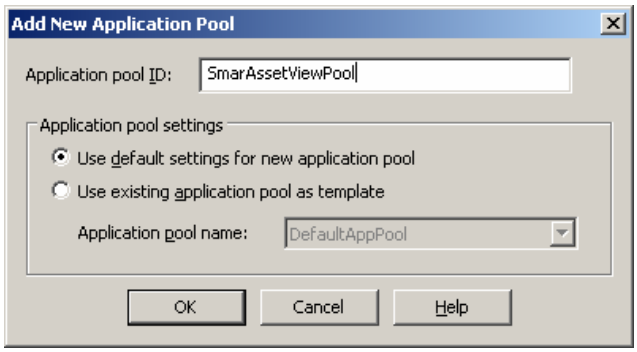


Figure A.8. Application Pool Identification

iv. Type **SmarAssetViewPool** as the Application Pool ID and click **Ok**.

v. Right-click the **SmarAssetViewPool** icon and select **Properties**.

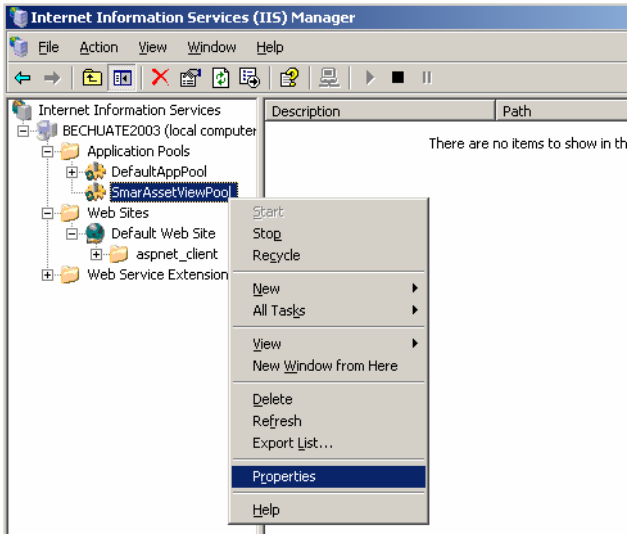


Figure A.9. Application Pool Properties

vi. The **SmarAssetViewPool Properties** dialog box will open.

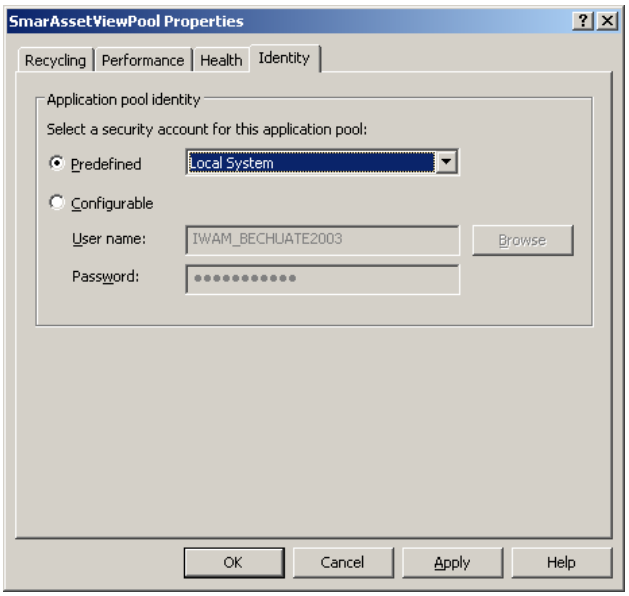


Figure A.10. AssetView Application Pool Properties

vii. Select the **Identity** tab, check the option **Predefined** and select **Local System** as the user account.

viii. Click **Ok** to conclude.

Creating the Virtual Directories

Now, it will be necessary to create the Virtual Directories.

On the **Internet Information Services Manager** window, expand the directory tree of the server machine and right-click the **Default Web Site** icon. Select **New > Virtual Directory**.

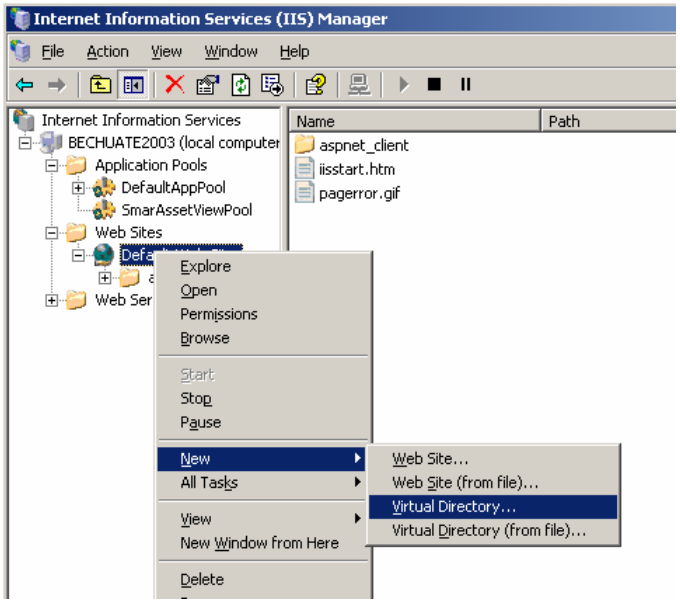


Figure A.11. Creating the Virtual Directory for the AssetView Application Pool

The **Virtual Directory Creation Wizard** will open. Click **Next** and type **AssetView** as the alias of the virtual directory. Click **Next**.

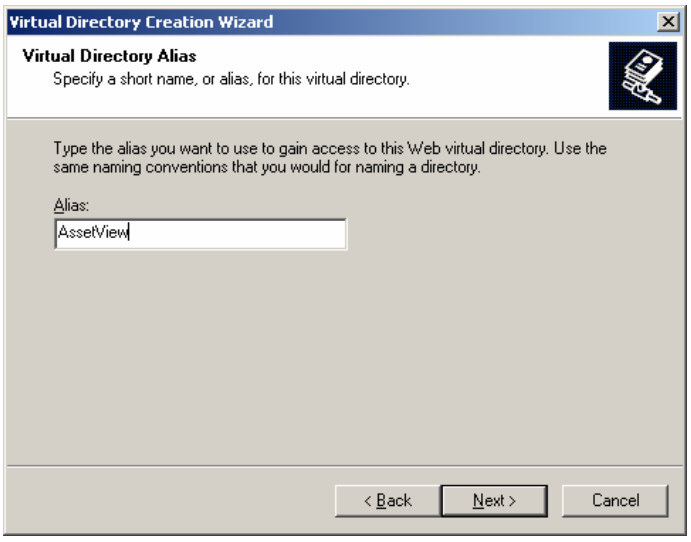


Figure A.12. Configuring the Virtual Directory

Then select the path of the new virtual directory. The default installation path is `C:\Program Files\Smar\AssetView\Web Pages`. Or click **Browse** to locate the **AssetView Web Pages** directory.

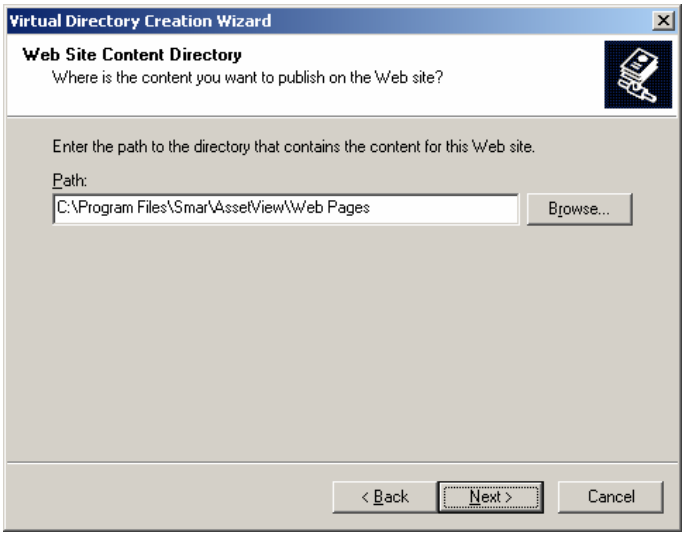


Figure A.13. Locating the *AssetView* Directory

Click **Next** to continue. On the following dialog box, select the options **Read** and **Run scripts (such as ASP)**.

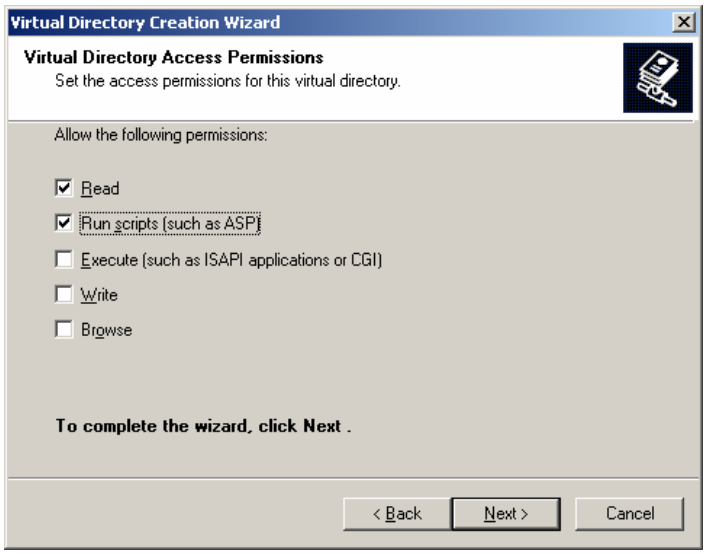


Figure A.14. Configuring the Permissions for the Virtual Directory

Click **Next** to complete the wizard then click **Finish** to conclude.

Once the virtual directory is created correctly, it will be necessary to configure the properties of the virtual directory according to the Application Pool created previously.

Configuring the Properties of the Virtual Directories

On the **Internet Information Services Manager** window, right-click the **AssetView** virtual directory and select **Properties**.

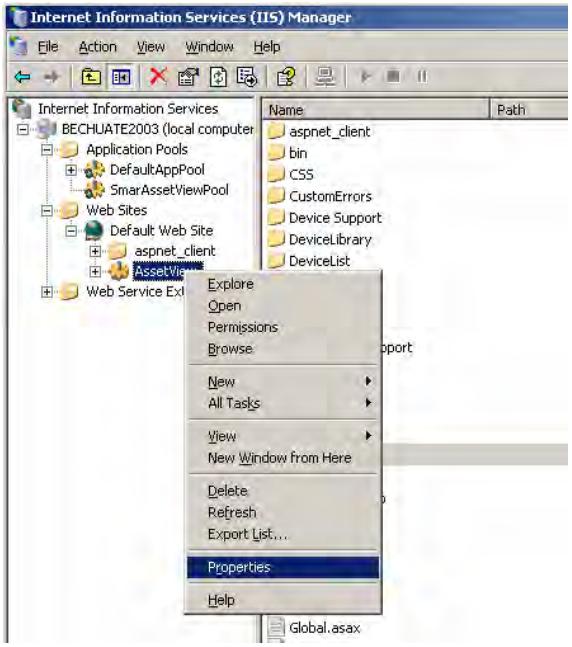


Figure A.15. AssetView Virtual Directory

The **AssetView Properties** dialog box will open.

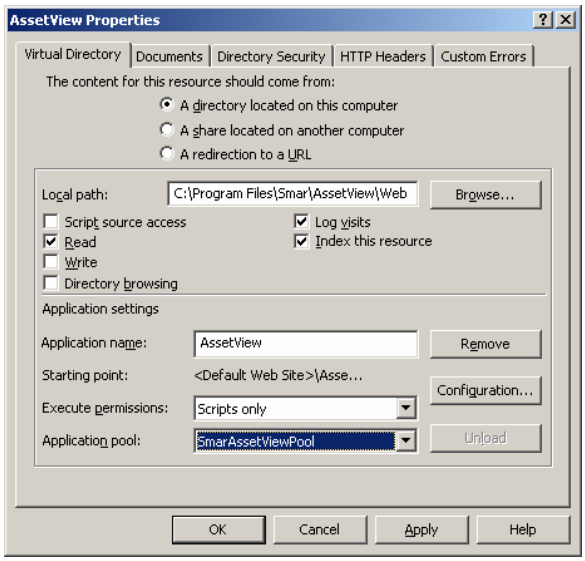


Figure A.16. Properties of the Virtual Directory

At the **Virtual Directory** tab, select the options **Read**, **Log visits** and **Index this resource** in the **Local Path** area.

In the **Application Settings** area, select **SmarAssetViewPool** created previously as the Application pool for the virtual directory.

At the **Directory Security** tab, click **Edit** in the **Anonymous Access and Authentication Control** area. Verify that the **Anonymous access** option is not selected.

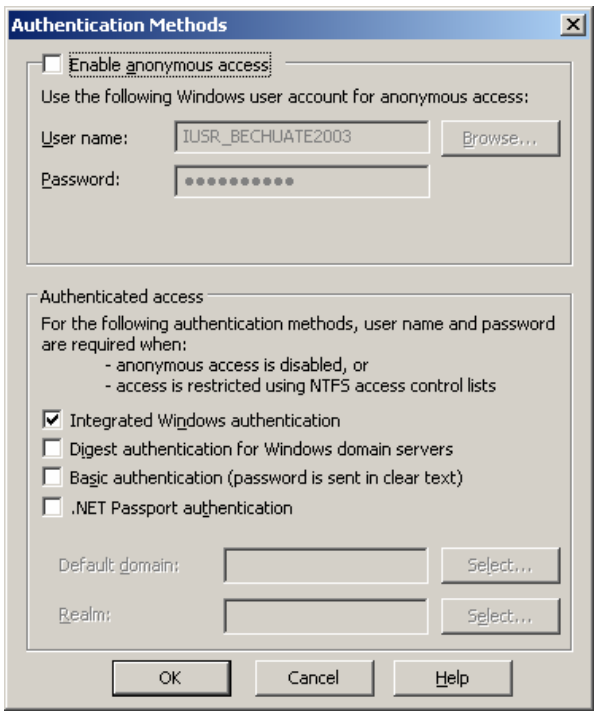


Figure A.17. Configuring the Authentication Method

Click **OK** to close the dialog box and close the **AssetView Properties** dialog box.

The IIS configuration for ***AssetView*** is complete.

B. ASSETVIEW DATABASE BACKUP PROCEDURES

Use the ***AssetView Backup*** application to backup the ***AssetView*** database. The ***AssetView Backup*** is easy to execute, and it can be used with the SQL Server or the MSDE database.

The ***AssetView Backup*** must be located in the same directory of the file **SmarAssetServer.exe**, because these applications use the same connection (**Assetview.udl**).

It is recommended to run the ***AssetView Backup*** application in the machine where the database server is installed. Even if the ***AssetView Backup*** is executed in a remote machine, the backup will be saved in the machine where the database server is installed.

Attention:

- Store the backup files in a secure place. It is recommended to save three copies of each backup file and store them in different locations.
- Execute the backup procedure on regular intervals.
- Define a reasonable period of time to store old backup versions.

IMPORTANT
Before executing the *AssetView Backup*, make sure that the *AssetServer* is not being executed and the *AssetView* pages are not open.

Creating the Backup File

1. On the **Start** menu, select **Programs > System302 > AssetView > Backup AssetView Database**, as indicated below:

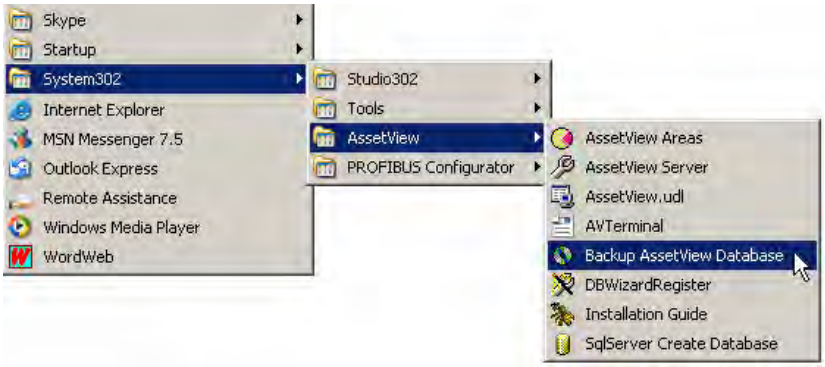


Figure B.1. Starting the AssetView Backup

2. The **AssetView Backup** window will open:

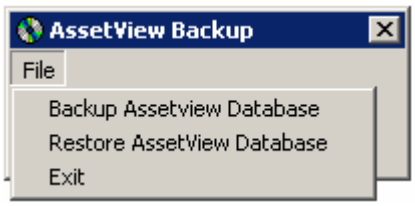


Figure B.2. AssetView Backup Window

3. Select the option **Backup AssetView Database**. The **Backup AssetView** dialog box will open:

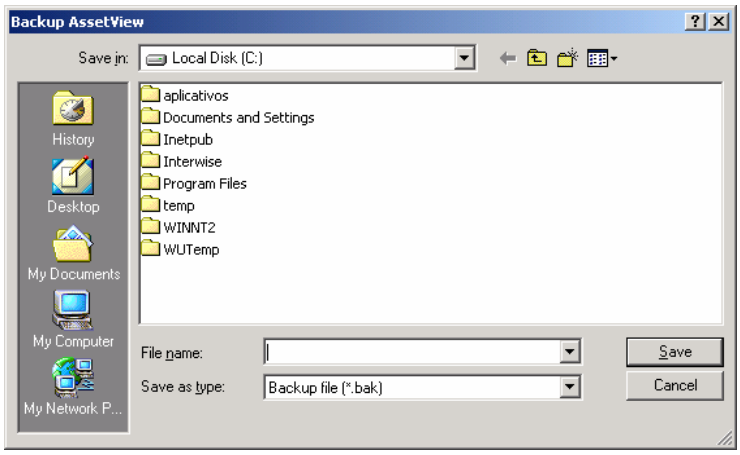


Figure B.3. Saving the Database Backup

4. Select the folder where the backup file will be saved and type the name for the file.

5. Click **Save** to conclude.

Restoring the Database

Before restoring the database, make sure the ***AssetServer*** is not being executed and the ***AssetView*** pages are not open.

It will be necessary to create a new ***AssetView*** database before restoring an old database. Follow the steps described below:

1. To create a new ***AssetView*** database, go to the **Start** menu and select **Programs > System302 > AssetView > SqlServer Create Database**.

2. The **Configure SQL Server Database** window will open:

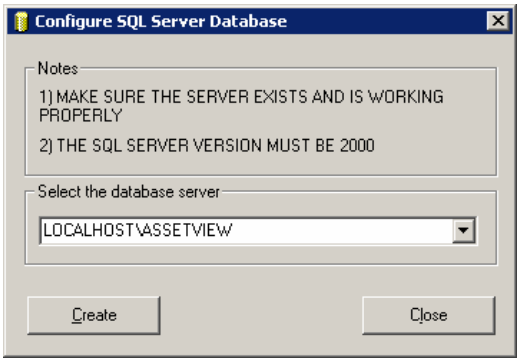


Figure B.4. Configure SQL Server Database Window

3. Select the name of the database server and click **Create**.

4. A message box will open to confirm the operation. Click **Yes** to proceed.

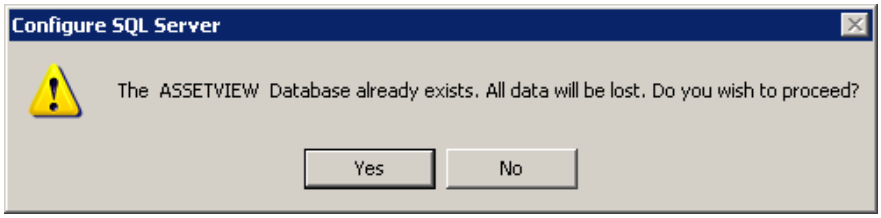


Figure B.5. Confirm the Operation

5. Wait a few seconds until a message box confirms that the operation was successful. Click **Ok** and then click **Close** on the **Configure SQL Server Database** to conclude.

6. On the **AssetView Backup** window, select the option **Restore AssetView Database**. The **Backup AssetView** dialog box will open:

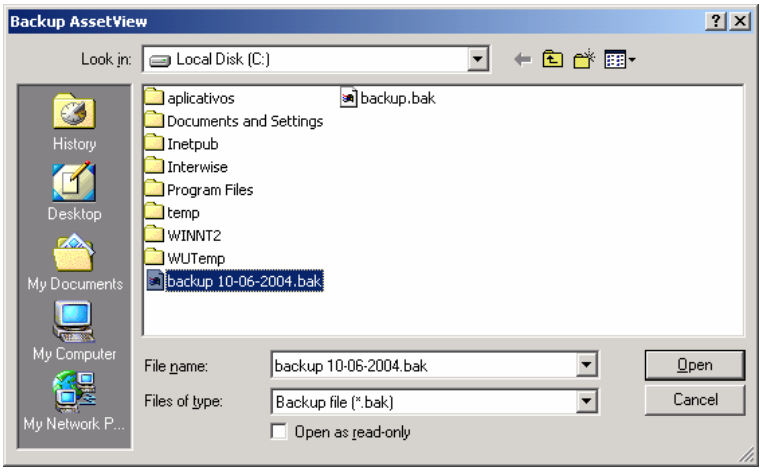


Figure B.6. Locating the Database Backup

7. Select the icon of the backup file that will be restored and click **Open**.

8. A message box will open to confirm the operation. Click **Yes** to proceed.

9. Wait a few seconds until a message box confirms that the operation was successful. Click **Ok** to conclude.

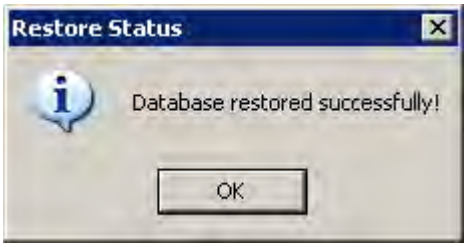


Figure B.7. AssetView Backup Database Restored

ASSETVIEW & FY302

FY302 Home Page

The figure below shows the **FY302** initial page and links:

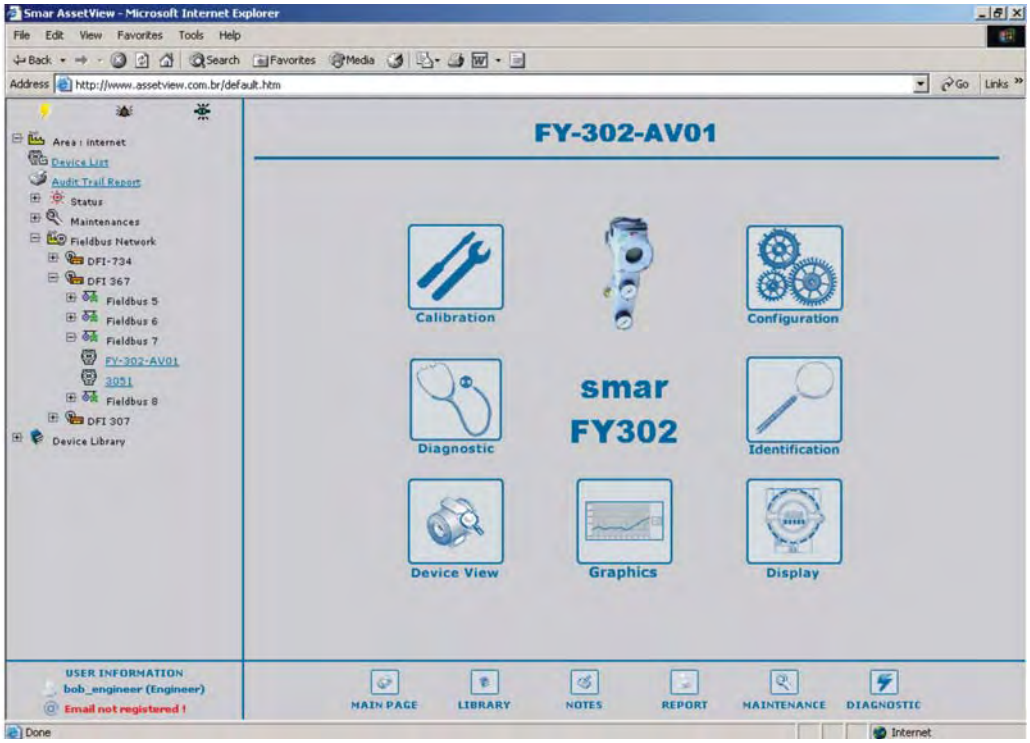


Figure C.1. FY302 Home Page

The following sub-sections will describe each one of the pages developed for the device maintenance.

FY302 Identification Page

This page displays information relevant to the positioner. The user can easily identify and specify the positioner in the physical plant.

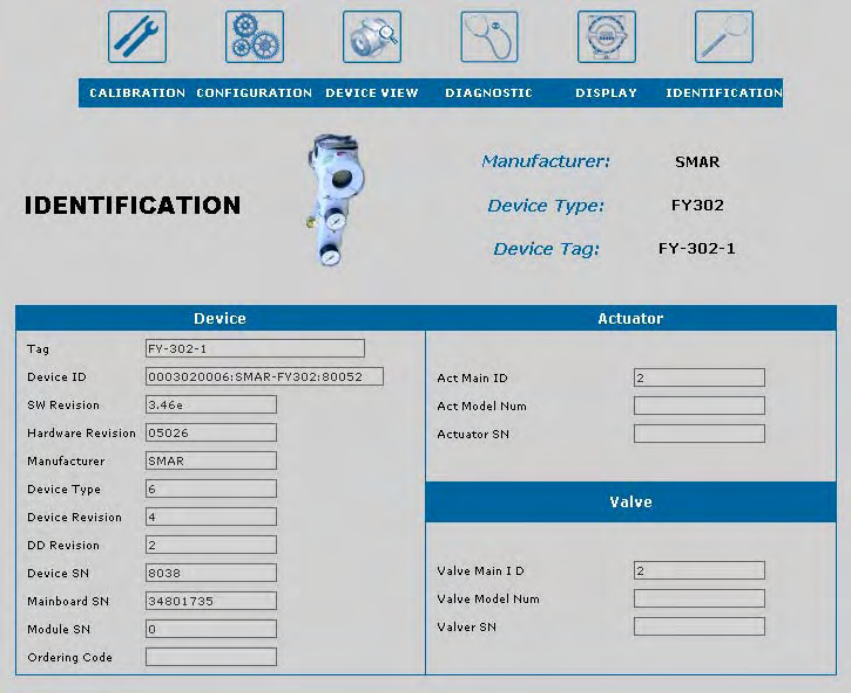


Figure C.2. Identification Page

Device

TAG	indicates the tag associated to the positioner in the physical plant. The tag can use up to 32 characters.
DEVICE ID	indicates the identification code of the positioner. This code can use up to 32 characters.
SW REVISION	indicates the software revision of the positioner.
HARDWARE REVISION	indicates the hardware revision of the positioner.
MANUFACTURER	identifies the positioner manufacturer.
DEVICE TYPE	identifies the type of the positioner for a specific manufacturer.
DEVICE REVISION	indicates the revision of the positioner.
DD REVISION	indicates the revision of the DD.
DEVICE SERIAL NUMBER	indicates the serial number of the positioner.
MAINBOARD SERIAL NUMBER	indicates the serial number of the main board.
MODULE SERIAL NUMBER	indicates the serial number of the positioner transducer module.
ORDERING CODE	indicates the ordering code of the positioner.

Actuator

ACT MAIN ID	indicates the identification number of the actuator manufacturer.
ACT MODEL NUM	indicates the identification number of the actuator model.
ACTUATOR SERIAL NUMBER	indicates the serial number of the actuator.

Valve

VALVE MAIN ID	indicates the identification number of the valve manufacturer.
VALVE MODEL NUM	indicates the identification number of the valve model.
VALVE SERIAL NUMBER	indicates the serial number of the valve.

FY302 Configuration Page

There are a few parameters in the **FY302** transducer block that can be used in the predictive and proactive maintenance. Some of them can be read online, while other parameters require the process to stop or the plant control to be set to manual.

It is possible to detect performance decreasing comparing the current parameters with standard values and therefore determine the predictive and proactive maintenance.

The user can check the general diagnostic status in the **FY302 Diagnostic Page**.

Operational Statistics (OEs) are data stored in the device that inform its usage, abnormal behaviors, or number of times that a specific condition occurred, such as total valve travel (odometer), total of reversals and maximum deviation limit between the valve position and the setpoint.

Using the **FY302 Configuration Page**, the user can set limit conditions for the operational statistics. If a specific OE reaches the limit value, the device notifies the system and this notification is highlighted in the Diagnostic Page.

Figure C.3. Configuration Page

Device Operation Mode

Indicates the operation mode for the device:

OOS	if this mode is selected, the value of the parameter *Mode Block* will be *Out of Service* for the *Resource*, *Transducer* and *Analog Output* blocks.
AUTO	if this mode is selected, the value of the parameter *Mode Block* will be *Auto* for the *Resource*, *Transducer*, *Display* and *Analog Output* blocks.
MAN	if this mode is selected, the value of the parameter *Mode Block* will be *Manual* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.
CAS	if this mode is selected, the value of the parameter *Mode Block* will be *Cas* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.

Deviation Alert

DEVIATION ENABLED	enables checking the difference between the current valve position and the desired set point. If the difference exceeds the dead band for more than a given period of time, an alert will be generated and will remain active until this difference decreases.
DEVIATION TIME	set a period of time (in seconds). The valve must exceed the dead band during this period of time before generating the alert.
DEVIATION DEAD BAND	indicates the magnitude of the valve deviation value (in percentage). An alert is generated when the valve exceeds this value during a given period of time.

The user can check the status of this diagnostic alarm in the **FY302 Diagnostic Page**, in "**Deviation Limit Exceeded**".

Reversal Alert

REVERSAL: indicates the number of times that the valve changes the direction according to the movement. The reversal total is incremented when the valve changes the direction and the movement total exceeds the specified limit.

REVERSAL ENABLED	enables checking the difference between the reversal total and an established limit. An alert is generated when the reversal total exceeds this limit.
REVERSAL LIMIT	indicates the reversal total limit. An alert is generated when the reversal total exceeds this limit. Enter a reversal value lower than the limit to acknowledge the alert.
REVERSAL DEAD BAND	indicates the magnitude of the valve movement value (in percentage). This value is used to increment the reversal total.

The user can check the general diagnostic status in the **FY302 Diagnostic Page**. See the example below:

Figure C.4. Reversal Alert

The user can check the alarm generated in the **FY302 Diagnostic Page**:

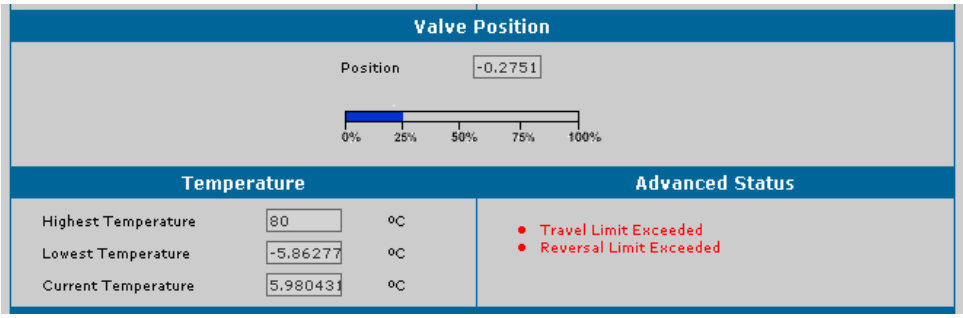


Figure C.5. Advanced Status

Note that the variable **Reversals** in the **Valve Totals** area exceeded the limit specified. The alarm is indicated in red in the **Advanced Status** area.

Travel Accum Alert

TRAVEL (odometer): indicates the equivalent number of full strokes. The travel is incremented when the number of changes exceeds the dead band value. It is used to indicate diaphragm replacement and actuator overhaul.

TRAVEL ENABLED	enables checking the difference between the odometer and an established limit. An alert is generated when the odometer exceeds this limit.
TRAVEL LIMIT	indicates the odometer value limit. An alert is generated when the odometer exceeds this limit. Enter an odometer value lower than the limit to acknowledge the alert.
TRAVEL DEAD BAND	indicates the magnitude of the valve movement value (in percentage). This value is used to increment the odometer.

The user can check the status of this diagnostic alarm in the **FY302 Diagnostic Page**, in "**Travel Limit Exceeded**".

Sensor Pressure Alert

An alert is generated every time the input pressure exceeds the limit.

SENSOR PRESSURE IN HIGH LIMIT	indicates the limit of the maximum input pressure.
SENSOR PRESSURE IN LOW LIMIT	indicates the limit of the minimum input pressure.

The user can check the general diagnostic status in the **FY302 Diagnostic Page**.

Travel Control

The valve travel conditions will be based on the parameters below.

CHARACTERIZATION TYPE	characterization type of the valve. ▪ LINEAR: the real position will be represented as a linear chart with the desired position. ▪ TABLE: the user can characterize the real positions according to its application. ▪ EP25, EP33, and EP50: the EP (Equal Percentage) curves provide a larger travel only for wide set point variation. ▪ QO25, QO33, and QO50: the QO (Quick Open) curves provide a larger travel for narrow set point variation.
CURVE BYPASS	enables/disables the curve.
CURVE LENGTH	indicates the number of points that will be used to define the curve.
FINAL VALUE CUTOFF LOW	if FINAL VALUE is less than this value the valve is forced to be fully closed. FINAL VALUE is the value of the desired position.
FINAL VALUE CUTOFF HIGH	if FINAL VALUE is greater than this value the valve is forced to be fully open. FINAL VALUE is the value of the desired position.
TRAVEL LIMIT LOW	odometer lower limit.
TRAVEL LIMIT HIGH	odometer upper limit.

The user can check the general diagnostic status in the **FY302 Diagnostic Page**.

To configure the points that define the characterization curve, click the link **Curve X/ Curve Y**, as indicated below:

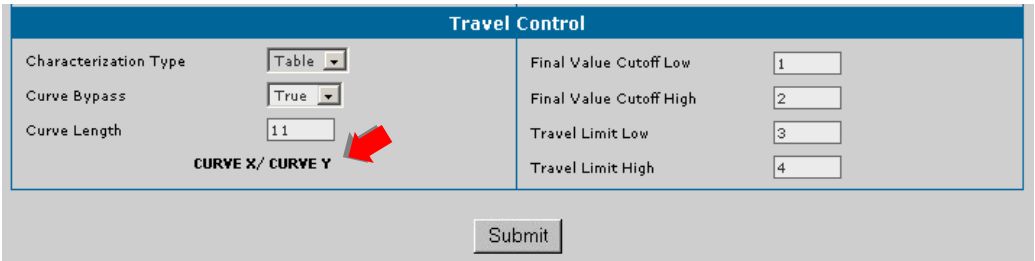


Figure C.6. Characterization Curve

The table with the points will open. Type the points of the curve and click **Ok** to send the values to the device. Click **Close** to close the table and return to the configuration page.

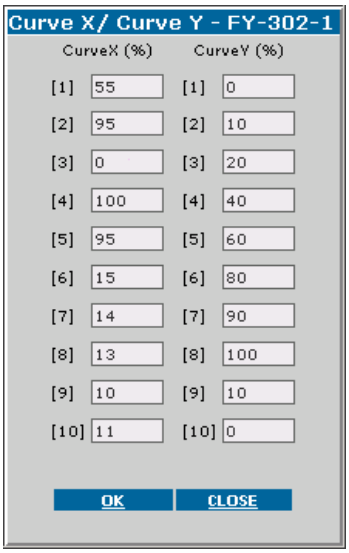


Figure C.7. Points Table

FY302 Diagnostics Page

This page displays the device status.

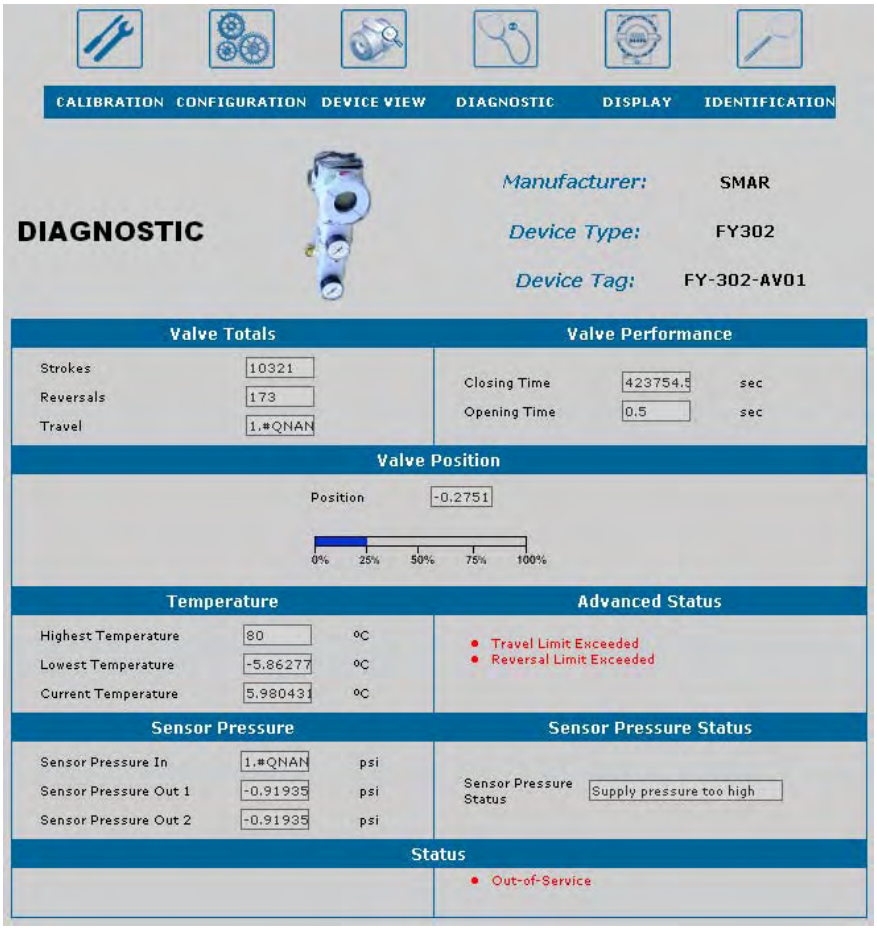


Figure C.8. Diagnostic Page

Valve Totals

STROKES	indicates the number of times that the valve fully opens and closes.
REVERSALS	indicates the number of times that the valve changes the direction according to the movement. The reversal total is incremented when the valve changes the direction and the movement exceeds the dead band.
TRAVEL (odometer)	indicates the equivalent number of full strokes. The travel is incremented when the number of changes exceeds the dead band value. It is used to indicate diaphragm replacement and actuator overhaul.

Valve Performance

CLOSING TIME	indicates the period of time (in seconds) that the valve takes to go from fully open to fully closed. This time is used to indicate a problem with the actuator, diaphragm leak and problem with the pneumatic tube.
OPENING TIME	indicates the period of time (in seconds) that the valve takes to go from fully closed to fully open. This time is used to indicate a problem with the actuator, diaphragm leak and problem with the pneumatic tube.

Valve Position

POSITION	indicates the current valve position.

Temperature

HIGHEST TEMPERATURE	indicates the highest temperature value measured by the temperature sensor of the positioner.
LOWEST TEMPERATURE	indicates the lowest temperature value measured by the temperature sensor of the positioner.
CURRENT TEMPERATURE	indicates the temperature value measured by the temperature sensor of the positioner.

Advanced Status

Shows the status of the continuous diagnostic, including the conditions of the mechanical module.

MAGNET NOT CENTRALIZED OR NOT DETECTED	automatic alarm.
SLOW VALVE MOVEMENT OR LOW AIR SUPPLY	automatic alarm.
TEMPERATURE OUT OF RANGE	automatic alarm.
BASE NOT TRIMMED	automatic alarm.
OUTPUT MODULE NOT INITIALIZED OR NOT CONNECTED	automatic alarm.
DEVIATION LIMIT EXCEEDED	this alarm indicates the *Deviation Limit* configured in the configuration page.
TRAVEL LIMIT EXCEEDED	this alarm indicates the *Travel Limit* configured in the configuration page.
REVERSAL LIMIT EXCEEDED	this alarm indicates the *Reversal Limit* configured in the configuration page.

Sensor Pressure

SENSOR PRESSURE IN	indicates the input pressure sensor reading.
SENSOR PRESSURE OUT1	indicates the pressure sensor reading of the output 1.
SENSOR PRESSURE OUT2	indicates the pressure sensor reading of the output 2.

Sensor Pressure Status

SENSOR PRESSURE STATUS	indicates the status of the input pressure sensor.

Status

Shows the device status of the continuous diagnostic, including the condition of the function block, the electronic and the mechanical module. All of the alarms are automatic. The device will notify the user even if the alarm has not been configured.

BLOCK CONFIGURATION ERROR	indicates the error status of the hardware and software components associated with the block.
LINK CONFIGURATION ERROR	indicates the error status of a link.
SIMULATE ACTIVE	indicates that the device is on simulation mode.
LOCAL OVERRIDE	indicates that the device is being operated manually.
DEVICE FAULT STATE SET	indicates that the device is in safe fault state condition.
DEVICE NEEDS MAINTENANCE SOON	internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon.
INPUT FAILURE/PROCESS VARIABLE HAS BAD STATUS	condition of the process variable is BAD.
OUTPUT FAILURE	indicates a failure in the output that could be due to the electronic or the mechanical module.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
LOST STATIC DATA	indicates that the device lost data from the flash or the EEPROM memory.
LOST NV DATA	indicates that the device lost data from the RAM memory.
READ BACK CHECK FAILED	indicates a discrepancy in reading the read back value. This could be caused by a hardware failure.
DEVICE NEEDS MAINTENANCE NOW	internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance.
POWER UP	indicates that the device has finalized a power up procedure.
OUT-OF-SERVICE	indicates that the function block is Out-of-Service.
GENERAL ERROR	an error has occurred and could not be classified as one of the errors below.
CALIBRATION ERROR	an error occurred during the device calibration or a calibration error has been detected during the device operation.
CONFIGURATION ERROR	an error occurred during the device configuration or a configuration error has been detected while operating the device.
ELECTRONIC FAILURE	an electronic component has failed.

MECHANICAL FAILURE	a mechanical component has failed.
I/O FAILURE	I/O failure has occurred.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.
SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ALGORITHM ERROR	the algorithm used in the transducer block generated an error. This could be due to an overflow, data reasonableness failure, etc.

FY302 Graphics Page

This page allows the user to configure the **FY302** graphs. Select the type of the graph, type the delay time to get the desired position (**Delay**) and click **New Graph**.

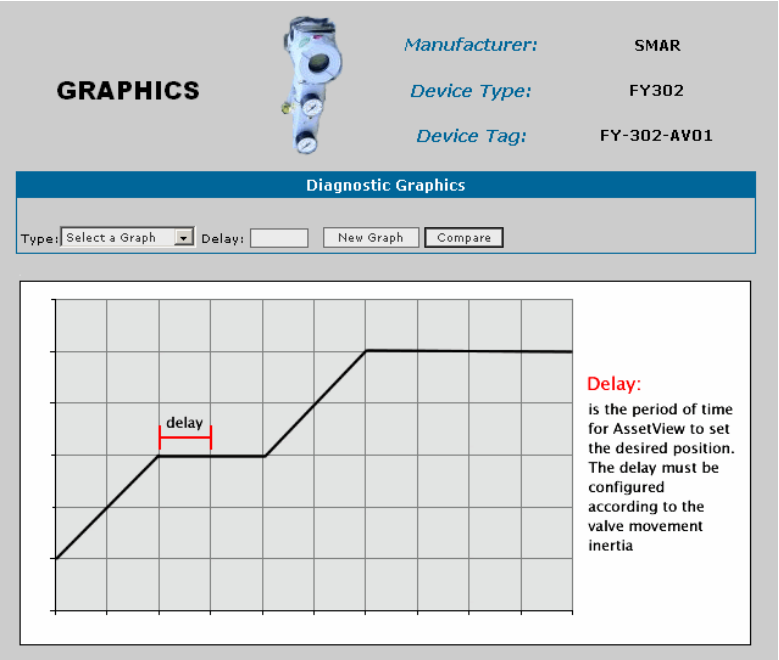


Figure C.9. Graphics Page

Remember that this procedure must be executed when the process stops or the plant control is set to manual. Open and close movements may interfere in the process.

AssetView will set the **Resource** and **Transducer** mode blocks at **Auto** to draw the chart. The mode block values will be restored at the end of this process.

CHARACTERIZATION: this chart will show the behavior of the current valve position compared to the desired value. ***AssetView*** will generate the desired value. The user can analyze the behavior of the valve response, such as stuck and stress. It will be easier to set the parameters of the positioner in the **Calibration** page, such as the **Servo_Gain** and the **Servo_Reset**, according to the application tuning and the dynamic response of the positioner (under and overshoot performance).

This chart benefits the preventive and predictive maintenance because the user can save the curves and compare them later. Performance results are related to the chosen characterization type, Servo gains and Servo reset parameters.

Remember that the response curve will depend on the response inertia of the valve analyzed. For slow valves, the time configured must be longer because it takes longer for the valve to reach the desired position.

See the example below:

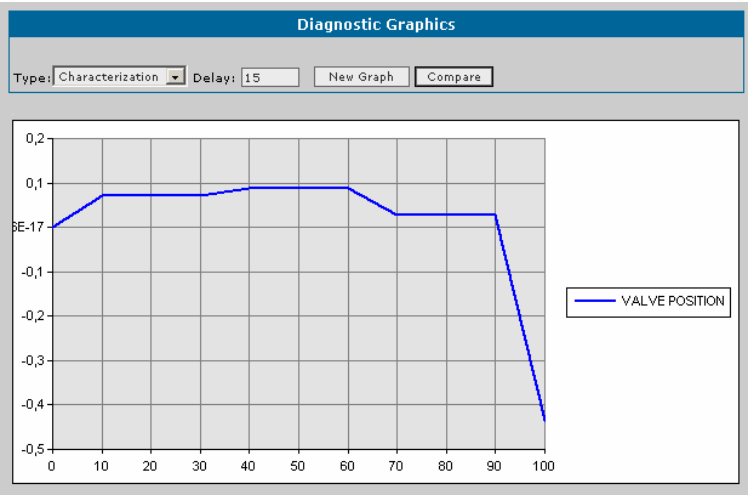


Figure C.10. Characterization Graph

Click **Compare** to compare characterization charts. On the **Type Graph** menu, select **Characterization**. Select the moment for the valve position **VP1** and another moment for the valve position **VP2**. Click **Compare** to conclude.

See the example below:

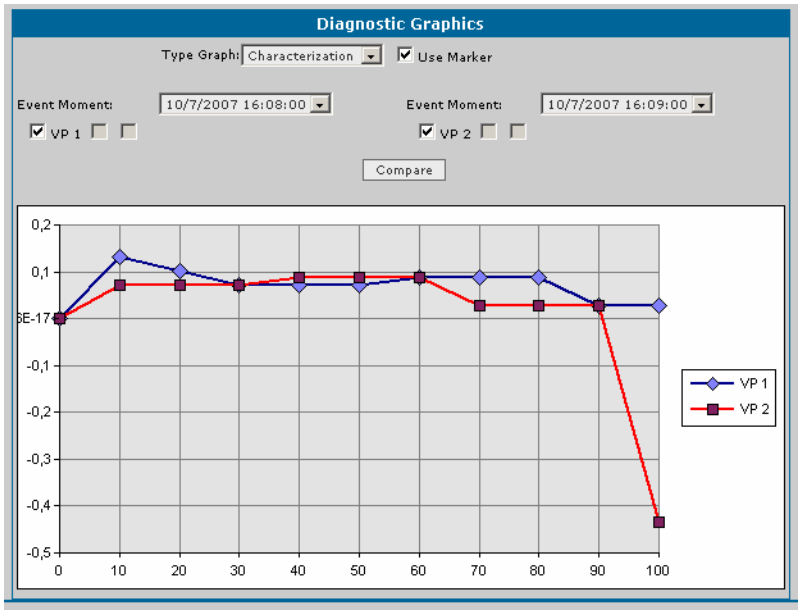


Figure C.11. Comparing Graphs

STEP RESPONSE: this chart will show the behavior of the current valve position and the desired position value related to the time. It is an easier way to check the tuning between the servo PID and the positioner.

The user can analyze the behavior of the valve response, such as stuck and stress. It benefits the preventive and predictive maintenance because the user can save the curves and compare them later.

Performance results are related to the chosen characterization type, Servo gains, Servo reset parameters and the valve inertia (slow or fast valve response).

After configuring the **Delay**, type the value for the **Setpoint** and click **Write**. This chart lets the user skim in the time coordinates during the analysis.

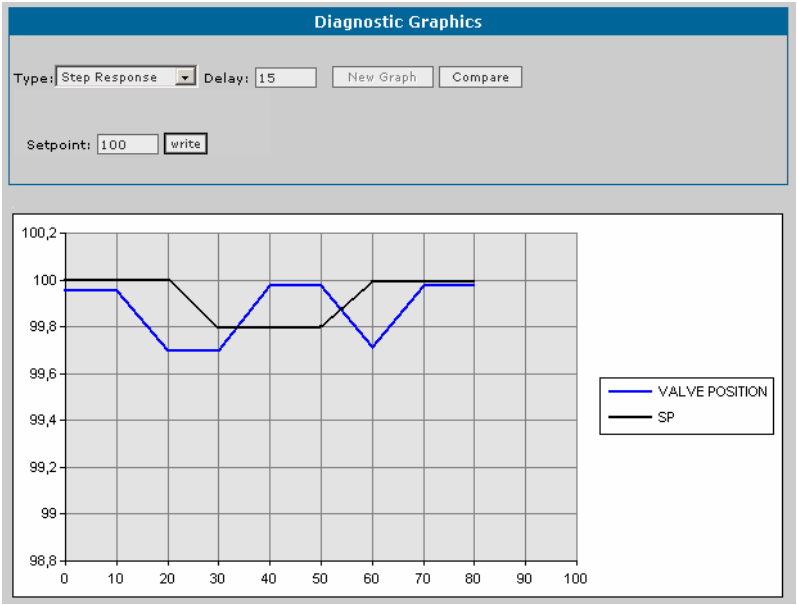


Figure C.12. Step Response Graph

Click **Compare** to compare the valve response. On the **Type Graph** menu, select **Step Response**. Select the moment to be compared and click **Compare** to conclude. See the example below:

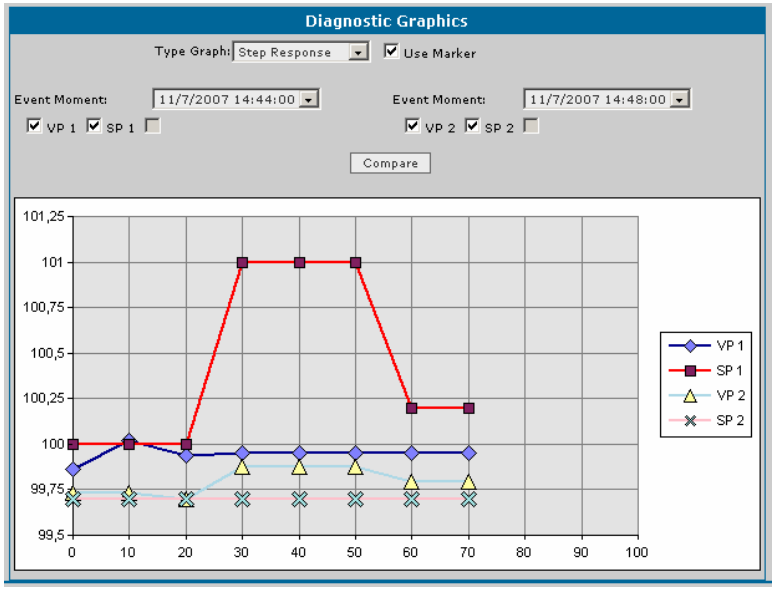


Figure C.13. Comparing Graphs

VALVE SIGNATURE: this chart will show the behavior of the position related to the output pressure. The desired value will be generated by ***AssetView***. This chart allows the user to analyze the behavior of the valve response according to the air pressure. For example, the user can save the chart during the installation or the commissioning procedure and then compare the current chart with the one saved before. It will be possible to check if more pressure is necessary to establish the same position. If it is true, it means that there is a mechanical stuck.

NOTE
The chart *Valve Signature* will be plotted only if the FY302 has the pressure sensor.

Performance results are related to the chosen characterization type, Servo gains, Servo reset parameters and input pressure. See the example below:

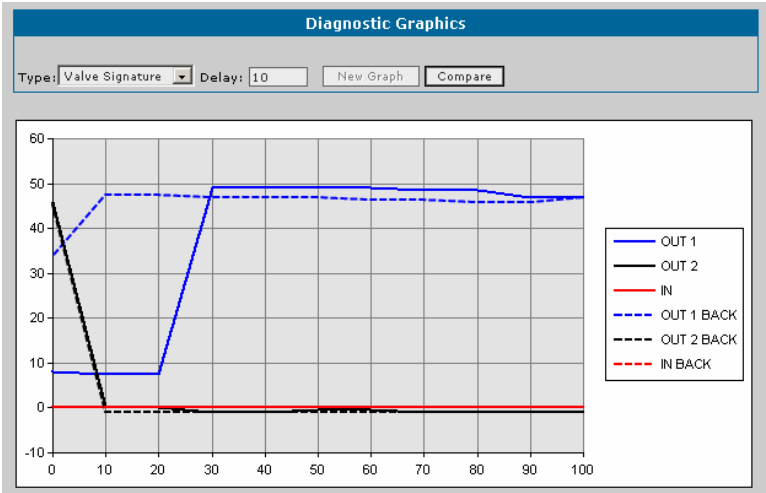


Figure C.14. Valve Signature Graph

Click **Compare** to compare the valve response. On the **Type Graph** menu, select **Valve Signature**. Select the moment to be compared and click **Compare** to conclude. See the example below:

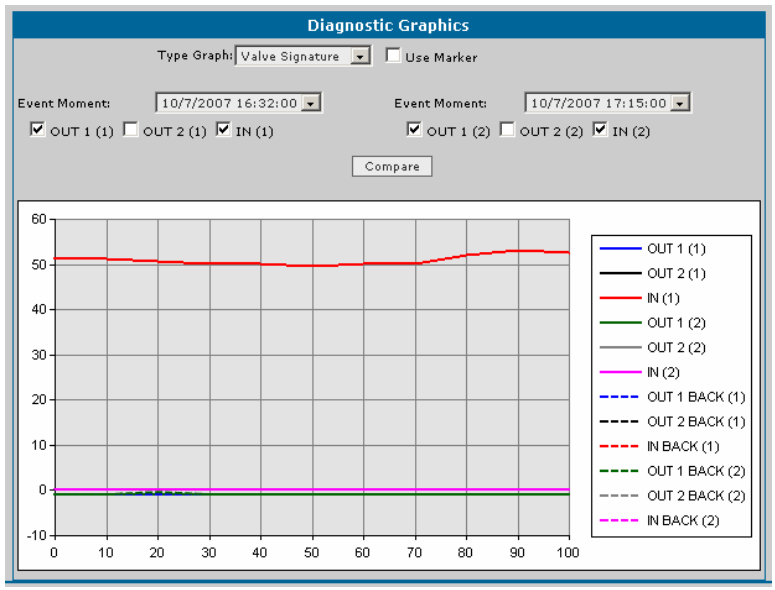


Figure C.15. Comparing Graphs

HYSTERESIS: this chart will show the hysteresis behavior of the valve when moving the valve from fully closed to fully open and vice-versa. It lets the user analyze the behavior of the valve response, such as stuck and stress. It benefits the preventive and predictive maintenance because the user can save the curves and compare them later.

Performance results are related to the chosen characterization type, Servo gains and Servo reset parameters.

Remember that the response curve will depend on the response inertia of the valve analyzed. For slow valves the time configured must be longer because it takes longer for the valve to reach the desired position.

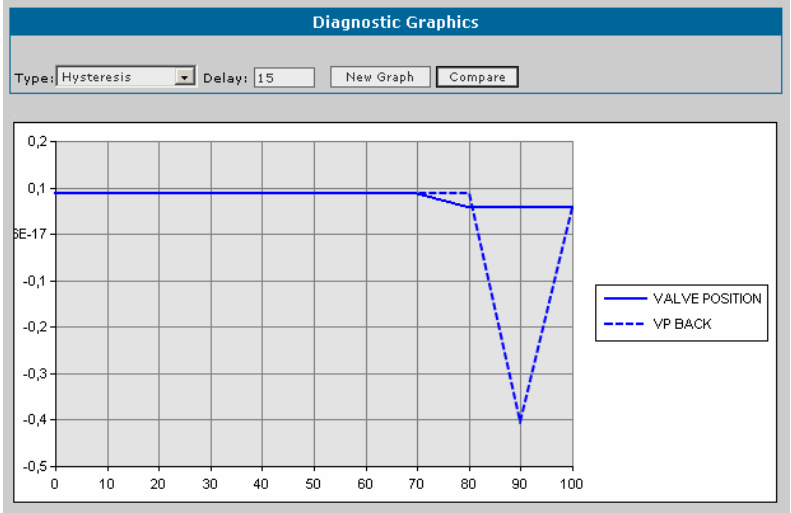


Figure C.16. Hysteresis Graph

Click **Compare** to compare the valve response. On the **Type Graph** menu, select **Hysteresis**. Select the moment to be compared and click **Compare** to conclude.

See the example below:

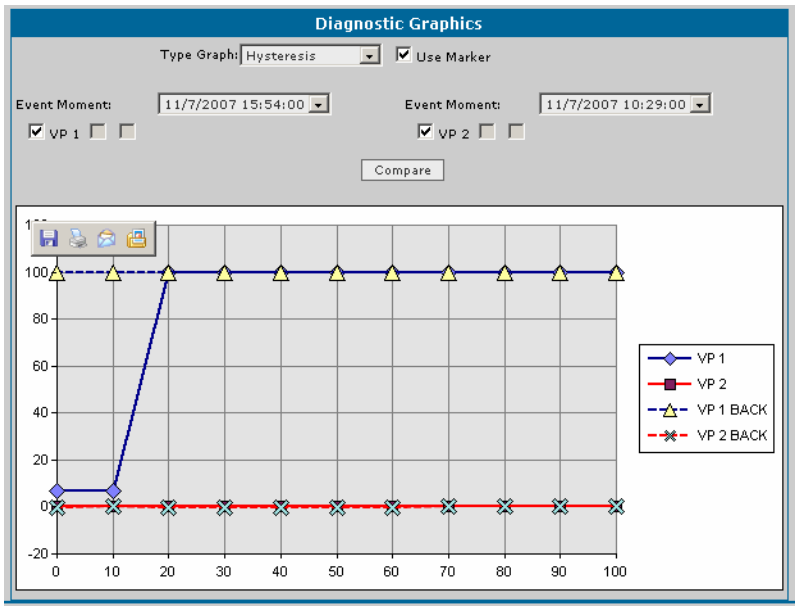


Figure C.17. Comparing Graphs

TRAVEL DEVIATION: this chart will show the behavior of the error accumulated in the process (between the current valve position and the desired position) related to the time. It lets the user analyze the behavior of the valve response, such as stuck and stress. It benefits the preventive and predictive maintenance because the user can save the curves and compare them later.

The value displayed in the histogram is the arithmetic average of 10 acquisitions. In stuck conditions the error accumulated would tend to increase because the instantaneous error would increase. This fact can be verified once the servo PID action increases.

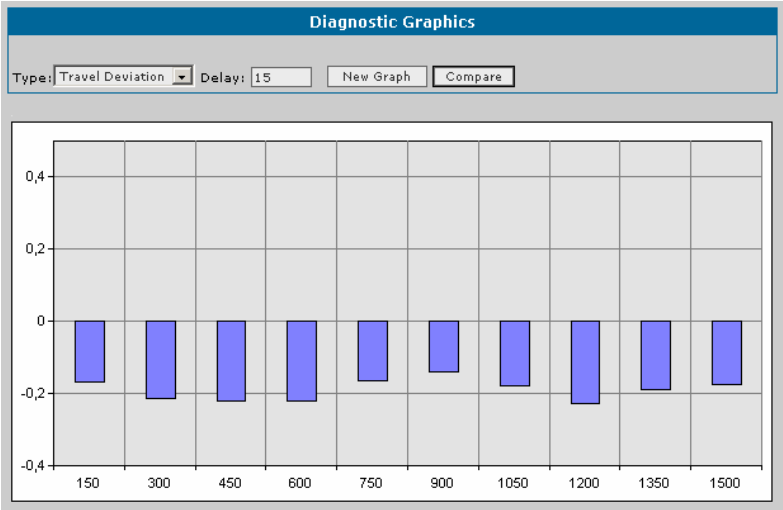


Figure C.18. Travel Deviation Graph

AS FOUND AS LEFT: this chart allows the user to store the device status before executing a calibration procedure. The user can save the chart of the set point related to the **Primary Value**. After executing the calibration, generate the chart again with the same characteristics to analyze the deviation.

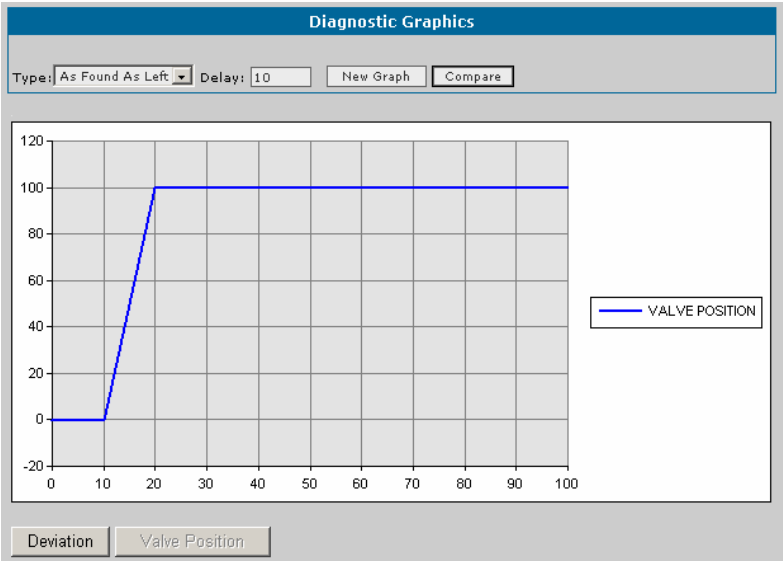


Figure C.19. As Found As Left Graph

Select the option **Deviation** to display the values of the error for each point written in the instrument.

Click **Compare** to compare the valve response. On the **Type Graph** menu, select **As Found As Left**. Select the moment to be compared and click **Compare** to conclude.

See the example below:

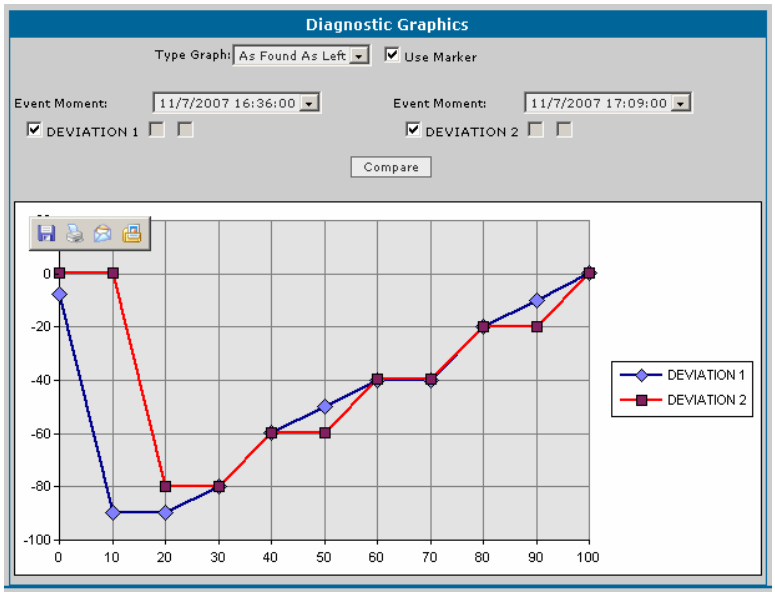


Figure C.20. Comparing Graphs

FY302 Calibration Page

This page displays configuration data used in the calibration procedures.

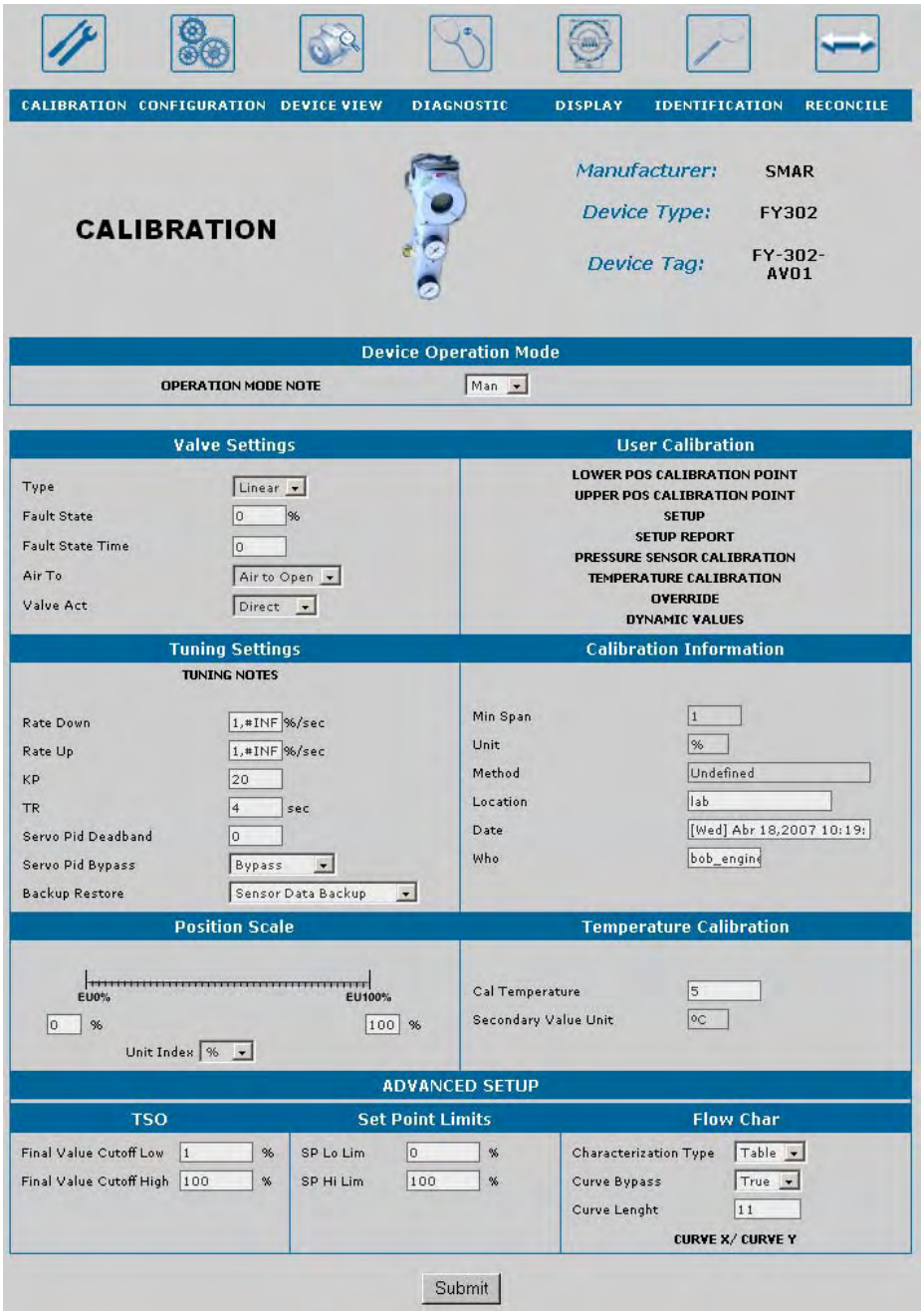


Figure C.21. Calibration Page

Device Operation Mode

Indicates the operation mode for the device:

OOS	if this mode is selected, the value of the parameter *Mode Block* will be *Out of Service* for the *Resource*, *Transducer* and *Analog Output* blocks.
AUTO	if this mode is selected, the value of the parameter *Mode Block* will be *Auto* for the *Resource*, *Transducer*, *Display* and *Analog Output* blocks.
MAN	if this mode is selected, the value of the parameter *Mode Block* will be *Manual* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.
CAS	if this mode is selected, the value of the parameter *Mode Block* will be *Cas* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.

Valve Settings

TYPE	the user configures the valve type: linear or rotary.
FAULT STATE	safe fault value (in percentage).
FAULT STATE TIME	indicates the time before the valve changes to the safe fault value (in seconds).
AIR TO	air condition to open or close.
VALVE ACT	action type: direct or reverse.

Tuning Settings

RATE DOWN	configures the set point step-down rate (in percentage) related to the time.
RATE UP	configures the set point step-up rate (in percentage) related to the time.
KP	Servo PID proportional gain.
TR	Servo PID integral time.
SERVO PID DEAD BAND	set the Servo PID dead band. It should not be changed by the user.
SERVO PID BYPASS	enables/disables the Servo PID.
BACKUP RESTORE	enables save and restore the calibration, setup and important configuration data. It is recommended to run the backup process with the option **Sensor Data Backup** after the auto-calibration process (setup).

Calibration Information

MIN SPAN	indicates the smallest difference allowed between the calibration upper position and the calibration lower position.
UNIT	indicates the calibration unit, in percentage always.
METHOD	indicates the calibration method. Before the device is released, it is calibrated according to the manufacturer criteria. If the user calibrates the positioner, it will indicate that the user executed the calibration.
LOC	indicates the location of the calibration, such as a laboratory, area 1, etc.
DATE	indicates the date of the executed calibration.
WHO	indicates the person responsible for the executed calibration.

Position Scale

EU 0%	indicates the lower limit for the input scale of the position variation.
EU100%	indicates the upper limit for the input scale of the position variation.
UNITS INDEX	indicates the engineering unit: percentage (%), radian (rad) or millimeter (mm).

To change the scale and the unit, ***AssetView*** will display a message indicating that the AO Mode Block will be set at a safe condition, with the value **OOS** (out of service).

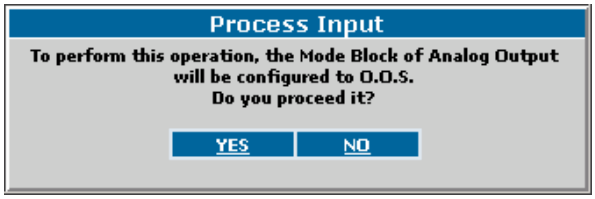


Figure C.22. Configuring the Mode Block Parameter

Click **Yes** and configure the scale limits:

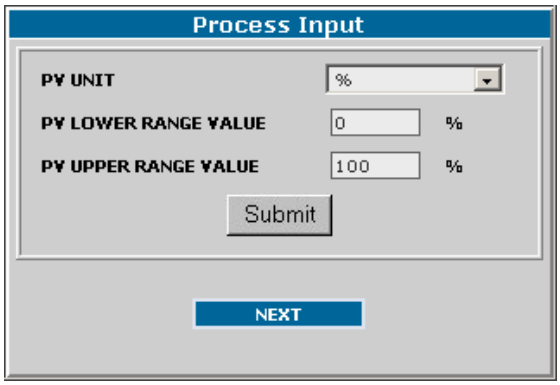


Figure C.23. Configuring the Limits

Edit the values and click the button **Submit**. Wait until the values are sent to the device and then click **Next** to conclude. The AO Mode Block will be restored:

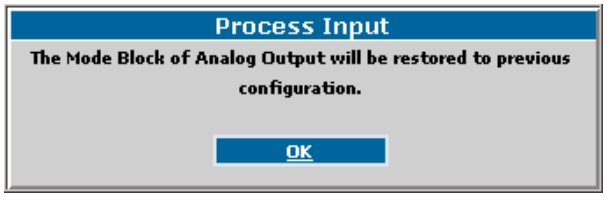


Figure C.24. Concluding the Procedure

Click **Ok** to conclude.

Temperature Calibration

CAL TEMPERATURE	indicates the last temperature calibration value of the positioner temperature sensor. The user must type the reference temperature and the device will be calibrated with this value. Note the - 40 to 85° Celsius limits when executing the calibration.
SECONDARY VALUE UNIT	indicates the unit related to the temperature.

Advanced Setup

TSO

FINAL VALUE CUTOFF LOW	if FINAL VALUE is less than this value the valve is forced to be fully closed. FINAL VALUE is the value of the desired position.
FINAL VALUE CUTOFF HIGH	if FINAL VALUE is greater than this value the valve is forced to be fully open. FINAL VALUE is the value of the desired position.

Set Point Limits

SP LO LIMIT	set point lower limit of the AO Block.
SP HI LIMIT	set point upper limit of the AO Block.

Flow Char

CHARACTERIZATION TYPE	characterization type of the valve. ▪ LINEAR: the real position will be represented as a linear chart with the desired position. ▪ TABLE: the user can characterize the real positions according to its application. ▪ EP25, EP33, and EP50: the EP (Equal Percentage) curves provide a larger travel only for wide set point variation. ▪ QO25, QO33, and QO50: the QO (Quick Open) curves provide a larger travel for narrow set point variation.
CURVE BYPASS	enables/disables the curve.
CURVE LENGTH	indicates the number of points that will be used to define the curve.

After selecting the table, the user must type the input and output values in percentage.

To configure the points that define the characterization curve, click the link **Curve X/ Curve Y**, as indicated below:

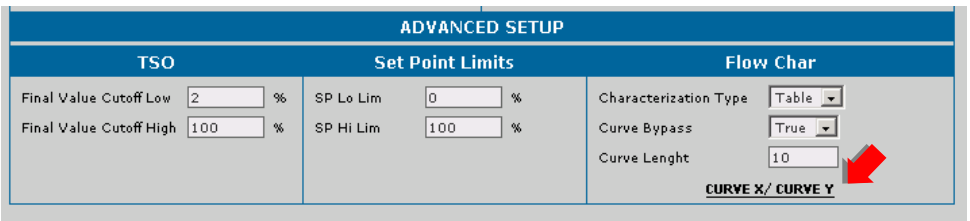


Figure C.25. Configuring the Characterization Curve

The table with the points will open:

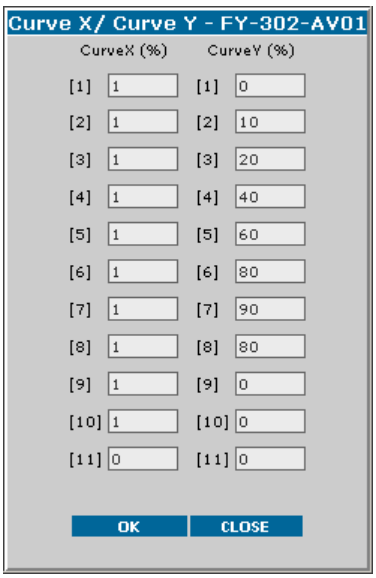


Figure C.26. Points Table

Type the points of the curve and click **Ok** to send the values to the device. Click **Close** to close the table and return to the calibration page.

User Calibration

NOTE
Whenever the positioner is installed to a valve, it is necessary to execute the auto-calibration procedure (setup) before connecting it to the process. The setup procedure will move the valve searching for the physical limits of the position.

The user must fix the positioner when the valve is isolated from the process and air is directly applied to it using a manual regulator. Match the arrow of the magnetic part with the arrow of the positioner transducer module when the valve is at 50.0%. This procedure is crucial for the properly operation of the positioner.

For further details consult the positioner manual.

The setup procedure is necessary even before the lower or upper position calibration.

LOWER POS CALIBRATION POINT: this method is used when the user wants to calibrate the 0 and the 100% limits differently from the physical limits set during the setup process.

Use this procedure in applications that involve *Splitter Range* conditions.

When this method is selected, a message box appears warning the user that this procedure must be executed when the process stops or the plant control is set at manual. Open and close movements may interfere in the process.

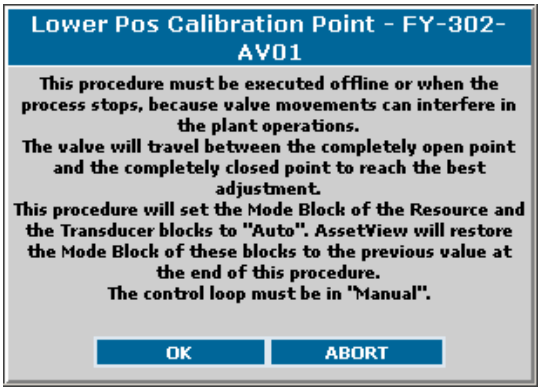


Figure C.27. Configuring the Mode Block

Click **OK** and complete the information about the calibration, indicating the location of the calibration, the date and the person responsible for the calibration:

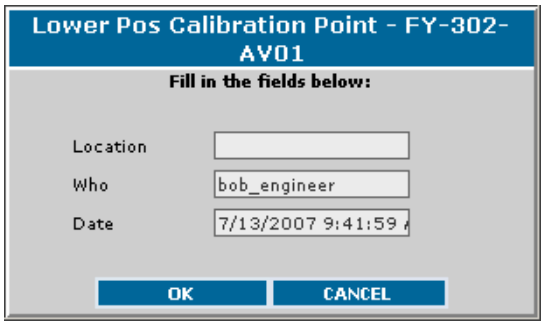


Figure C.28. Calibration Data

The valve will move to the lower position. The message shown in the figure below appears. Wait until the valve stabilizes the position and click **Ok**.

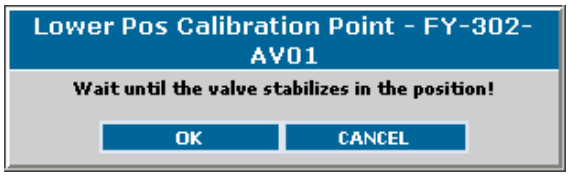


Figure C.29. Stabilizing the Position

Check the current physical position of the lower limit, which is indicated in the actuator scale, and type this value in the **New Position** text field:

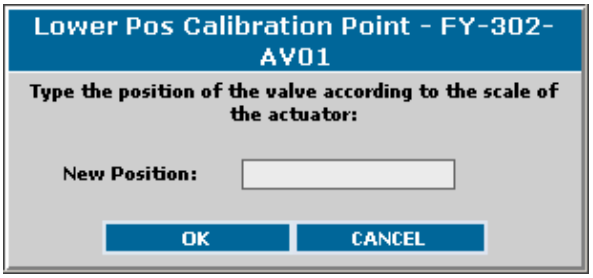


Figure C.30. Valve New Position

Suppose that the value read in the actuator scale is 10.0%. Once the user types this value and click **Ok**, the positioner will correct the lower position (set at around 0%).

Negative values for the position will execute the correction in the opposite direction of the movement.

After visual check, the user indicates whether the correction was successful or the calibration procedure must be executed again.

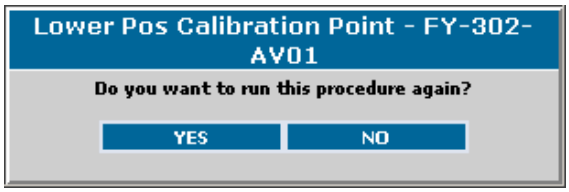


Figure C.31. Checking the Calibration

If the correction was successful, click **No**. Otherwise, if the calibration is not suitable, click **Yes**. The user can execute the correction. It is possible to "lie" to the positioner about the value read from the actuator scale. In this way, the positioner will be calibrated lower, according to the user necessities.

It is possible to save the calibration in the EEPROM memory of the positioner transducer module, which is recommended. Click **Yes** to save the calibration data.

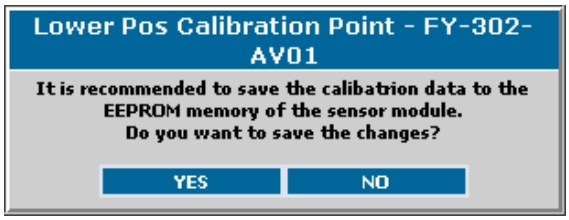


Figure C.32. Saving Calibration Data

UPPER POS CALIBRATION POINT: this method is similar to the **Lower Pos Calibration** procedure described above. It is used when the user wants to calibrate the 0 and the 100% limits differently from the physical limits set during the setup process.

Use this procedure in applications that involve *Splitter Range* conditions.

When this method is selected, a message box appears warning the user that this procedure must be executed when the process stops or the plant control is set at manual. Open and close movements may interfere in the process.

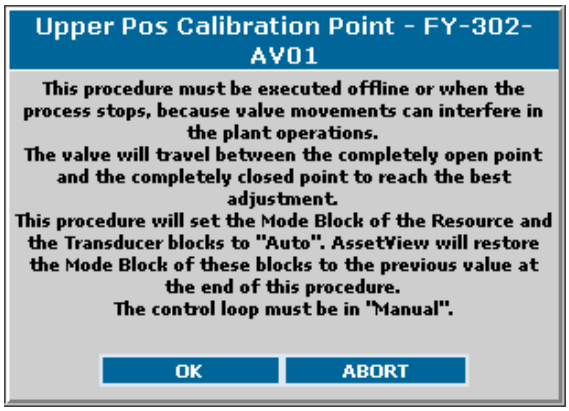


Figure C.33. Configuring the Mode Block

Click **OK** and complete the information about the calibration, indicating the location of the calibration, the date and the person responsible for the calibration:

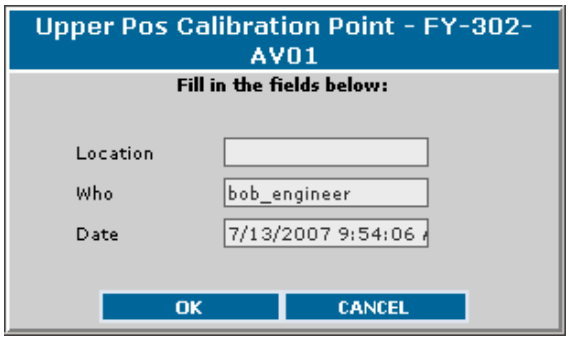


Figure C.34. Calibration Data

The valve will move to the upper position. The message shown in the figure below appears. The user must wait until the valve stabilizes the position and click **Ok** to continue.

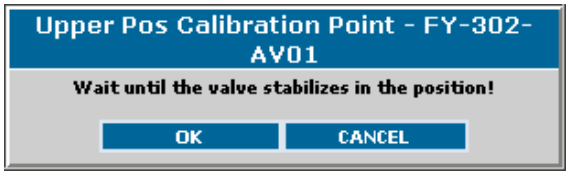


Figure C.35. Stabilizing the Position

Check the current physical position of the upper limit, which is indicated in the actuator scale, and type this value in the **New Position** text field:

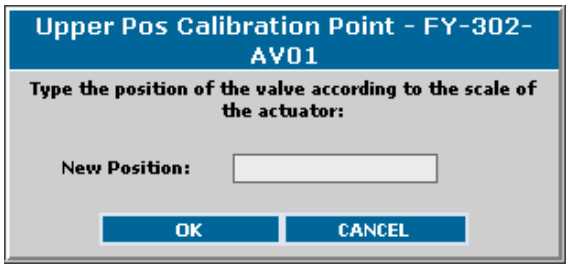


Figure C.36. Valve New Position

Suppose that the value read in the actuator scale is 90.0%. Once the user types this value and click **Ok**, the positioner will correct the upper position (set at around 100%).

Negative values for the position will execute the correction in the opposite direction of the movement.

After visual check, the user indicates whether the correction was successful or the calibration procedure must be executed again.

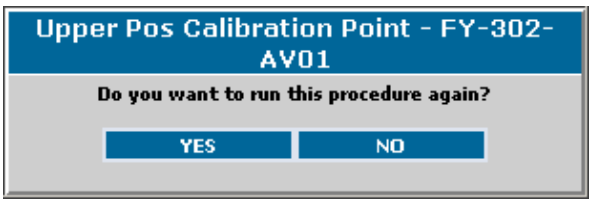


Figure C.37. Checking the Calibration

If the correction was successful, click **No**. Otherwise, if the calibration is not suitable click **Yes**. The user can execute the correction. It is possible to "lie" to the positioner about the value read from the actuator scale. In this way, the positioner will be calibrated higher, according to the user necessities.

It is possible to save the calibration in the EEPROM memory of the positioner transducer module, which is recommended. Click **Yes** to save the calibration data.

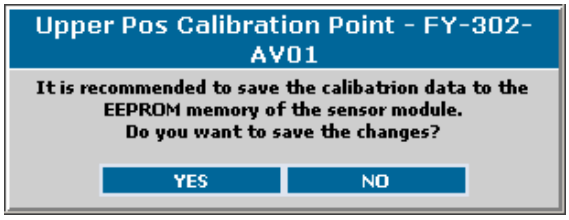


Figure C.38. Saving Calibration Data

SETUP: When this method is selected, a message box appears warning the user that this procedure must be executed when the process stops or the plant control is set at manual. Open and close movements may interfere in the process. Please refer to the positioner manual for setup details.

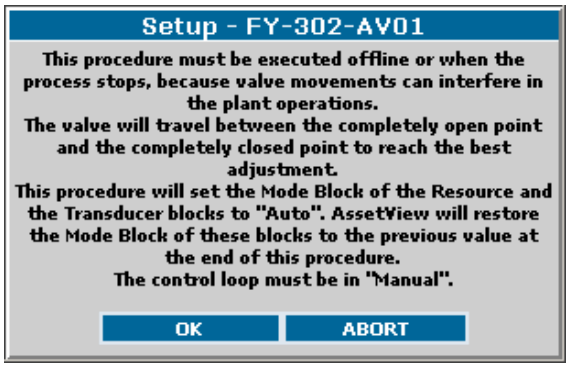


Figure C.39. Configuring the Mode Block

Click **OK** and the valve will move searching for the lower and upper physical position. Depending on the valve inertia this process may take a few minutes.

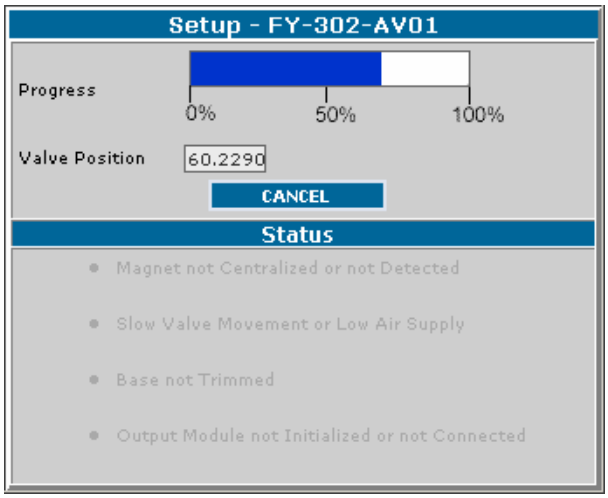


Figure C.40. Valve Movement

The progress bar indicates the percentage of this procedure. The user can also verify the setup status.

A message box will appear indicating that the *Setup* process is completed.

Figure C.41. Concluding the Calibration

At the end of the setup, it will be possible to save the data:

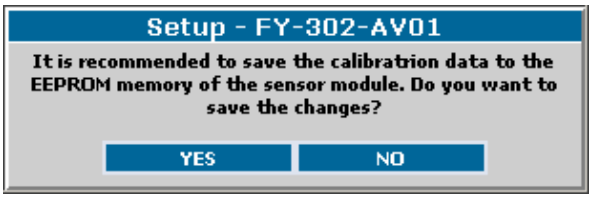


Figure C.42. Saving Calibration Data

SETUP REPORT: this option provides an analysis of the data stored during the last Setup process. The data has information about the HALL and the PIEZO sensors. It is useful to report a problem during the Setup process.

There are cases where the Setup process is executed and the valve is stuck or the input pressure is too low to allow the movement. In this case, the process will be finalized with “Time Out” and the lower and upper values of the HALL sensor will be practically the same, which indicates no movement.

Another example is the voltage condition of the PIEZO sensor that must be between 30 and 60V in a stable condition of a fixed position. If the voltage is out of this band the mechanical calibration will be necessary at the PIEZO sensor.

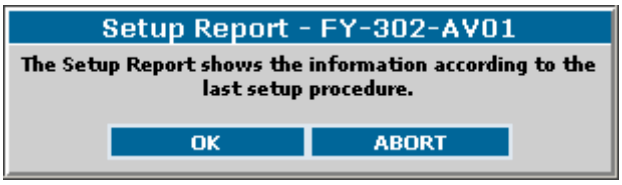


Figure C.43. Setup Report

Click **Ok**. The figure below shows the **Setup Report** options:

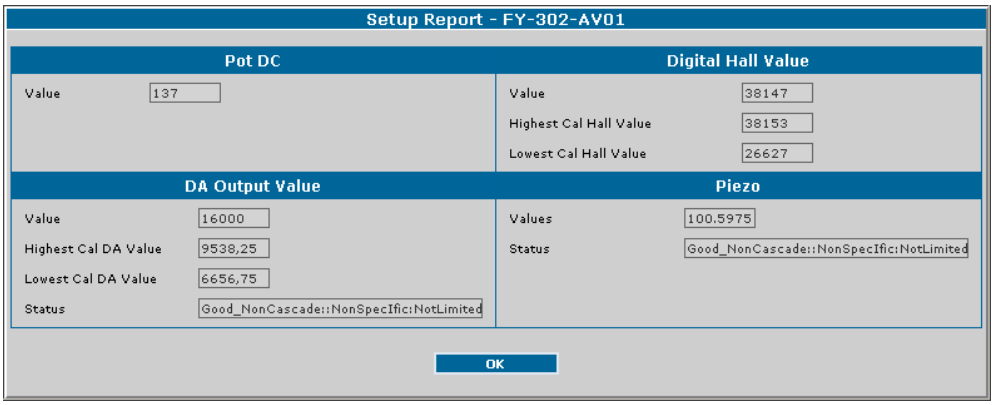


Figure C.44. Report Data

Pot DC:

VALUE	digital information of the hardware used to control the position.

Digital Hall Value:

VALUE	indicates the current value of the HALL sensor according to the current position.
HIGHEST CAL HALL VALUE	upper value of the HALL sensor calibrated during the *Setup* process or *Upper Pos Calibration* process.
LOWEST CAL HALL VALUE	lower value of the HALL sensor calibrated during the *Setup* process or *Lower Pos Calibration* process.

DA Output Value:

VALUE	indicates the current value of the D/A converter.
HIGHEST CAL DA VALUE	upper value of the D/A converter calibrated during the *Setup* process or *Upper Pos Calibration* process.
LOWEST CAL DA VALUE	lower value of the D/A converter calibrated during the *Setup* process or *Lower Pos Calibration* process.
STATUS	status of the D/A converter value.

Piezo:

VALUE	indicates the value of the PIEZO sensor voltage.
STATUS	indicates the status of the PIEZO sensor voltage.

PRESSURE SENSOR CALIBRATION: selecting this method the user can calibrate the pressure sensors, when they are installed in the positioner. These installations depend on the positioner version.

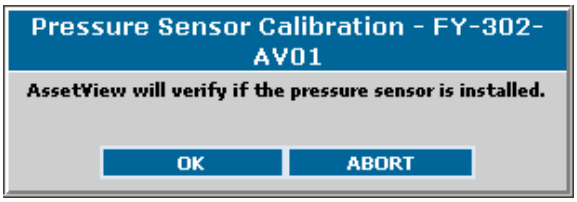


Figure C.45. Checking the Sensor Pressure

Click **OK** and complete the information about the calibration, indicating the location of the calibration, the date and the person responsible for the calibration:

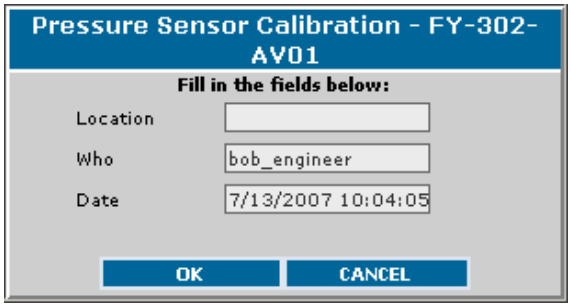


Figure C.46. Calibration Data

A message box appears warning the user that this procedure must be executed when the process stops or the plant control is set at manual. Open and close movements may interfere in the process.

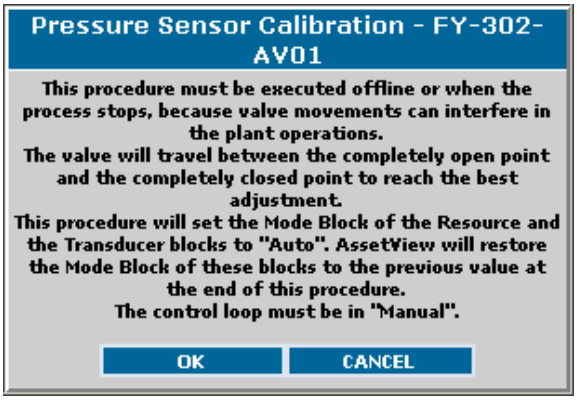


Figure C.47. Configuring the Mode Block

Click **Ok**. Then select the sensor that will be calibrated (**Input**, **Output1** or **Output2**) and click **Ok**:

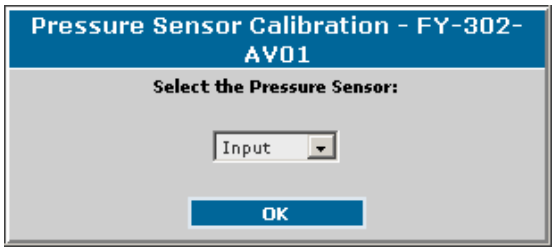


Figure C.48. Selecting the Sensor

Choose between upper calibration and lower calibration and click **Ok**:

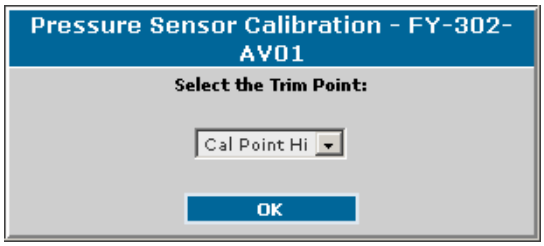


Figure C.49. Selecting the Calibration

A message box will open to confirm the limits for the pressure values. Click **Ok** to continue.

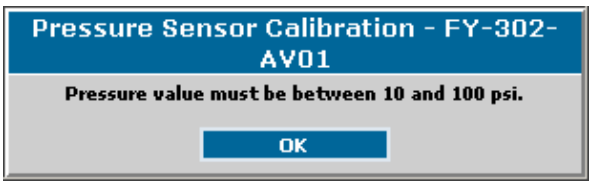


Figure C.50. Pressure Value Limits

The pressure of the sensor selected will be displayed according to the pressure measured. Click **Yes** to confirm if the pressure is correct:

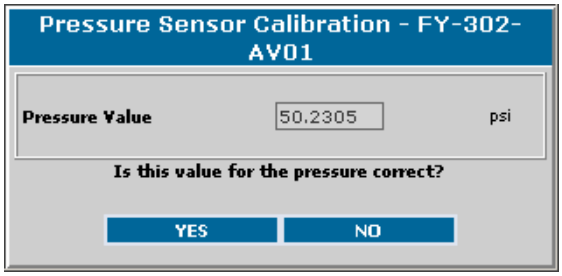


Figure C.51. Confirming the Pressure Value

If the user clicks **No** it will be necessary to indicate the pressure applied. Observe the values in the manometer of the positioner:

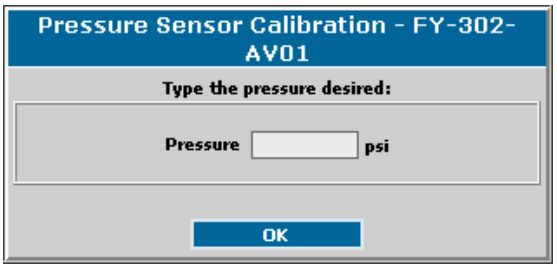


Figure C.52. New Pressure Value

Type the new value for the pressure and click **Ok**. If the pressure is correct, the user will be asked to save the data in the transducer module:

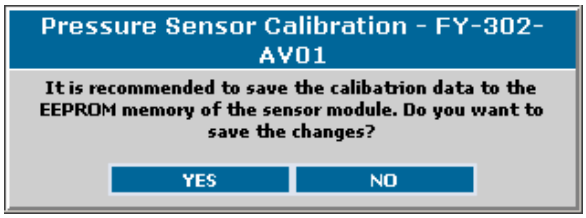


Figure C.53. Saving Calibration Data

TEMPERATURE CALIBRATION: selecting this method the user can calibrate the temperature sensor. Click the **Temperature Calibration** option and the following message will appear:

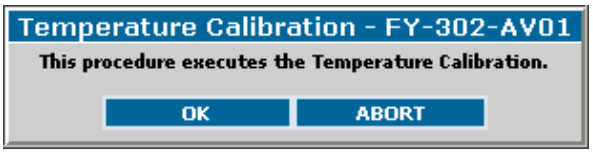


Figure C.54. Starting the Calibration

Click **OK** and complete the information about the calibration, indicating the location of the calibration, the date and the person responsible for the calibration:

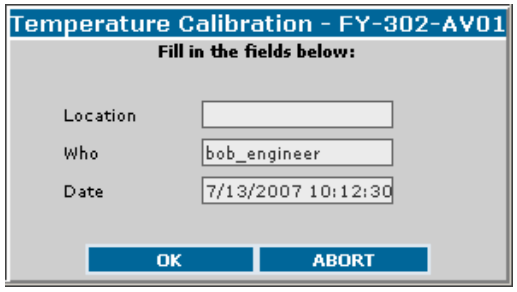


Figure C.55. Calibration Data

Click **Ok** to initiate the calibration. The user will have to verify the value of the reference temperature for the device.

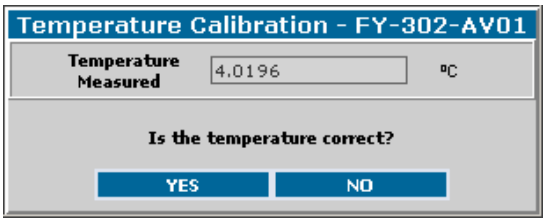


Figure C.56. Confirming the Temperature Value

If the temperature measured is correct, click **Yes** to complete the calibration procedure. If the temperature value indicated is not correct, click **No**. The dialog box will appear and the user can type the temperature value:

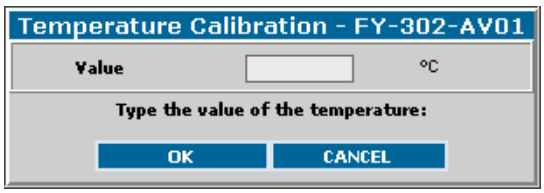


Figure C.57. New Temperature Value

Click **Ok** to conclude the temperature calibration.

OVERRIDE: selecting this method, the user can verify the position desired according to a previous Set Point. The message box will appear instructing the user about the safe procedures:

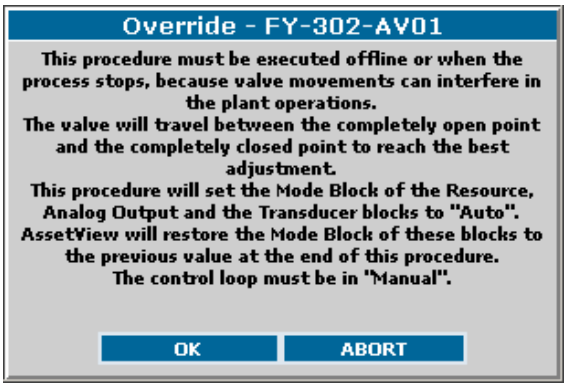


Figure C.58. Configuring the Mode Block

Click **Ok** to initiate the process. Select the set point value and click **Ok**.

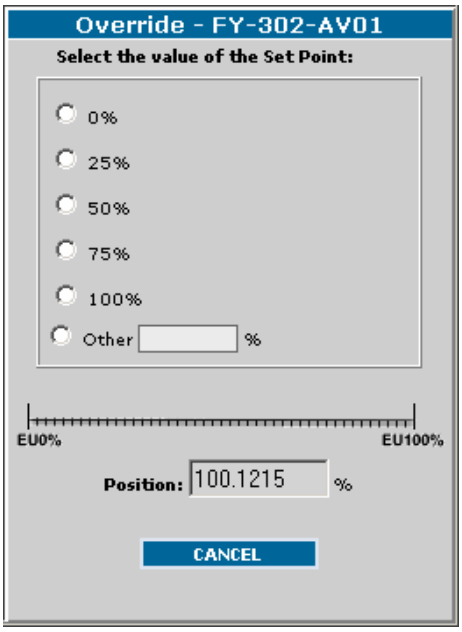


Figure C.59. Selecting the Set Point

The message shown below will open. Click **Ok** to proceed:

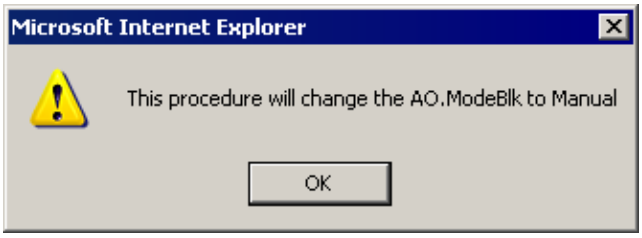


Figure C.60. Confirming the Calibration

Wait a few seconds for the valve position to be updated in the field **Position**. Select another value for the Set Point to test the valve position again.

Click **Cancel** to conclude the test and the message will appear indicating to the user that the previous configuration will be restored.

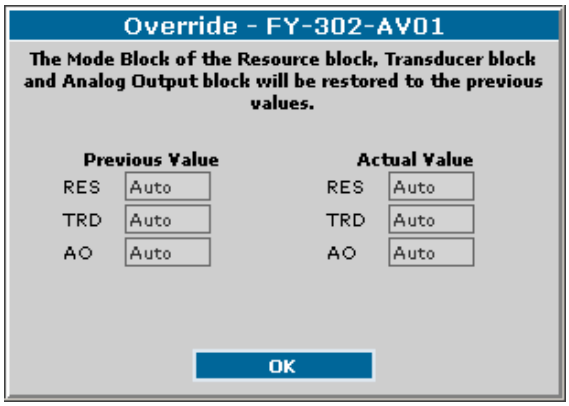


Figure C.61. Restoring the Configuration

Click **Ok** to conclude.

DYNAMIC VALUES: selecting this method the user can verify the dynamic values of the device.

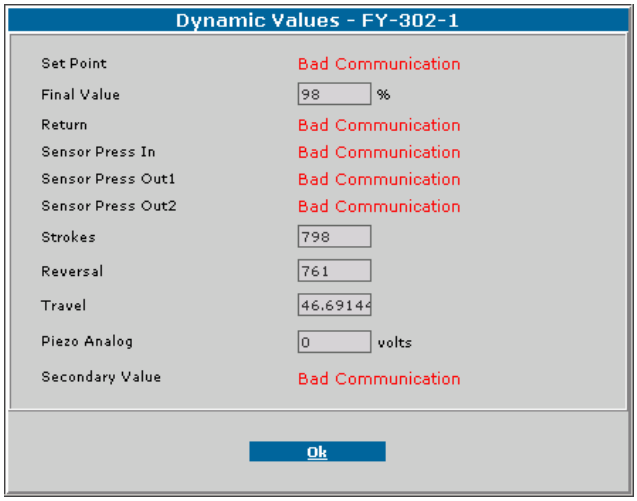


Figure C.62. Dynamic Values

FY302 Display Page

The user can configure the data shown in the device's display.

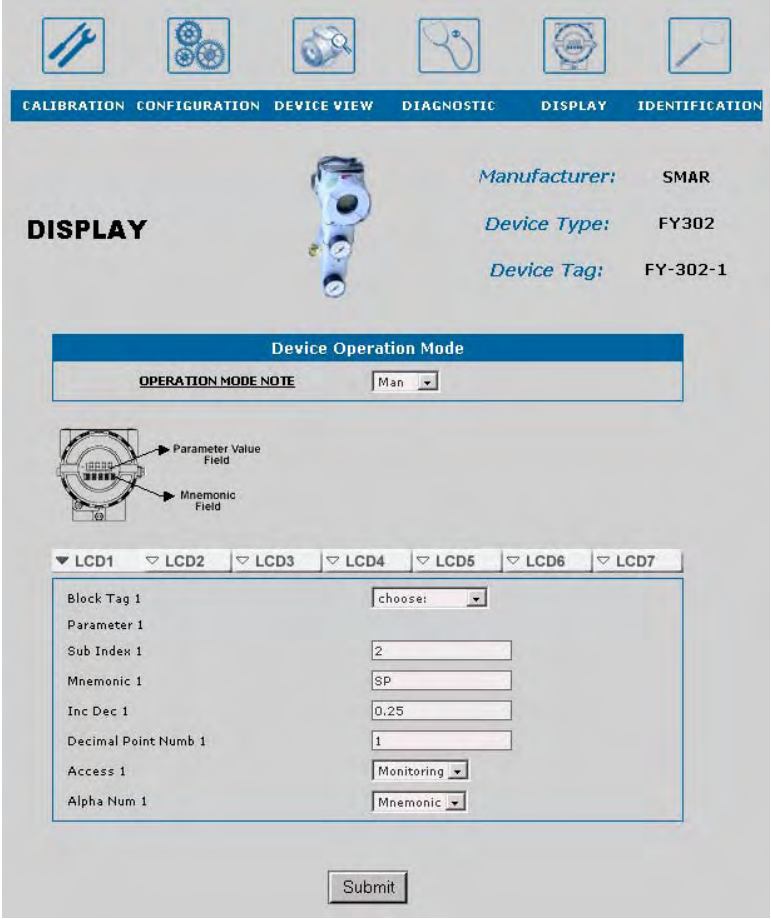


Figure C.63. Display Page

Device Operation Mode

Indicates the operation mode for the device:

OOS	if this mode is selected, the value of the parameter *Mode Block* will be *Out of Service* for the *Resource*, *Transducer* and *Analog Output* blocks.
AUTO	if this mode is selected, the value of the parameter *Mode Block* will be *Auto* for the *Resource*, *Transducer*, *Display* and *Analog Output* blocks.
MAN	if this mode is selected, the value of the parameter *Mode Block* will be *Manual* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.
CAS	if this mode is selected, the value of the parameter *Mode Block* will be *Cas* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.

Display

BLOCK TAG	shows the list of the tags for the instantiated blocks available.
PARAMETER	shows the list of parameters available to be displayed in the LCD for the block selected in the *Block Tag* option.
SUB INDEX	indicates the sub-index of the selected parameter.
MNEMONIC	indicates the mnemonic of the parameter selected in the *Parameter* option.
INC DEC	indicates the value to be added or subtracted when acting the parameter via local tuning.

DECIMAL POINT NUMB	indicates the digits to the right of the decimal point for the parameter being displayed in the LCD.
ACCESS	the user can select the type of access to the selected parameter: monitoring or action.
ALPHA NUM	indicates if the alphanumeric field will be used for the mnemonic or for the value.

FY302 Device View Page

The user can monitor the device's data opening the **Device View** page.

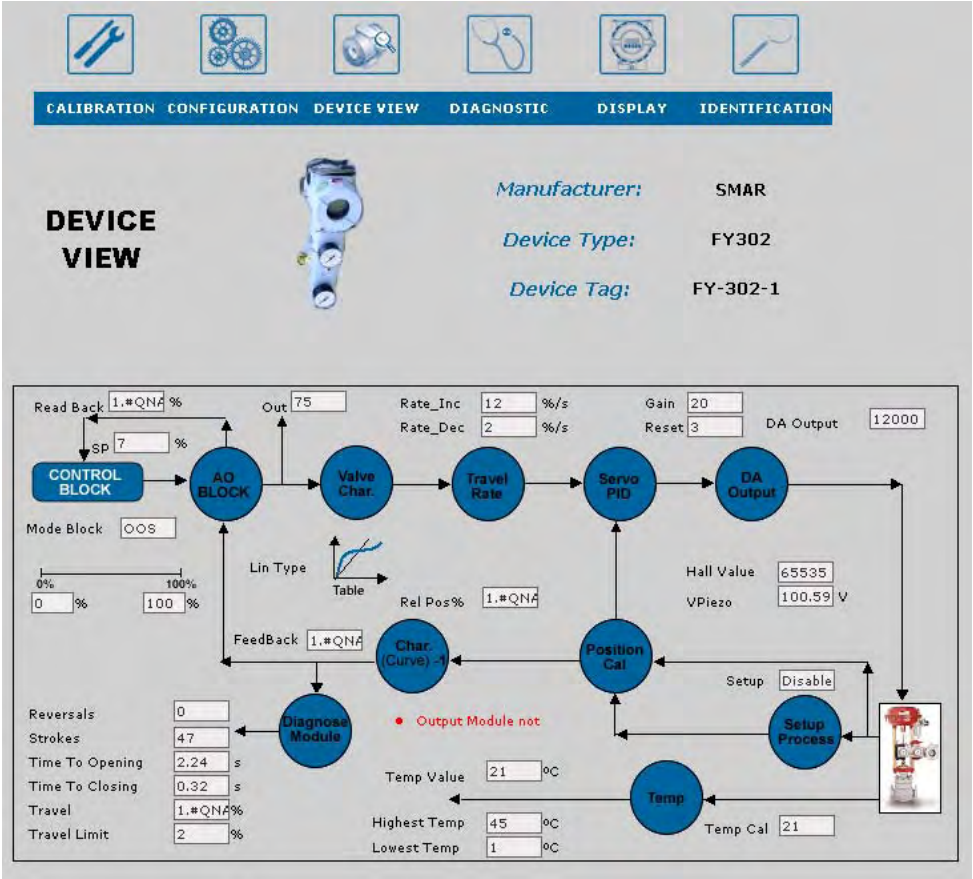


Figure C.64. Device View Page

Diagnostic and Maintenance for Positioners

With ***AssetView***, the user can take advantage of the digital information provided by the Fieldbus and Hart protocol.

The ***AssetView*** is a powerful tool for configuring the parameters of positioners and control valves, assisting the management of the control system and the predictive maintenance. It provides the information on the network, performance tests online (charts and trends), configuration/calibration for the positioners, performance monitoring and online diagnostics. The user can also analyze the data stored from several periods ("as found, as left"), reconciliate configurations according to the application needs, and print reports for later analysis.

With ***AssetView***, the user can act and control the process stability and its variation by viewing the entire process control, then optimizing the use of devices and assuring a continuous improvement for the system operation. The main goals are to provide a low-cost maintenance, guarantee the continuous and operational functionality of the devices with performance levels accepted by the application process control, minimize the efforts for the corrective maintenance and adapt the system for a safe and reliable operational extension.

The use of the ***AssetView*** starts during the commissioning of the devices and the process startup, when the user creates the database to be used as reference. The initial database is periodically compared to the current data. In this initial process, the network tuning is optimized according to the processes. The charts and trends will be used. Monitoring the diagnostics online allows the user to easily detect the status of the positioners and the valves being monitored. In the **Calibration Page**, the user can execute the *Auto Setup* and calibrate the position, assuring the operation performance of the positioners and the valves.

Preventive and Predictive Maintenance for Positioners

The status of the positioners and valves must be followed periodically through the **Diagnostics Page**, for predictive maintenance purposes. The tracking can minimize maintenance costs, because the maintenance will focus on the devices that really need maintenance, and in that way it will be possible to plan and reduce the idle time of the plant. Configuring the process to manual or off-line, it is possible to monitor and test the performance to evaluate the general operation condition of the positioners and valves.

The service and the calibration of the positioners are executed to assure the precision and the best performance from the valves. These procedures are executed when the process stops or in **Manual** mode, and it is not necessary to remove the valves from the process. The analyses and the services suggested by the analysis results are reported right after the tests, and all of the results can be saved in the maintenance database. For example, the analysis can indicate valve struck.

After analyzing the tests, it is possible to create a time reference between the calibrations or maintenance of the positioners, actuators and valves. For the positioners, the tests may indicate the actions needed, such as gain adjustments, improvement of the air system or tune. The frequency criterion and the analyses system are essential for the information acknowledgement, so the information stored can be useful for the proactive maintenance.

After the calibration, it will be necessary to check the valve signature and verify the dynamic response. If the result is not acceptable, it will be necessary to analyze the valve/actuator and positioner/valve conditions to find the best parameterization.

If the control valves tested continue to report control problems, the valve designs should also be analyzed. The design will be based on the minimum, medium and extreme conditions of the process. This phase must be conducted by an application engineer or a technician.

The advantage of the digital technology is the qualitative information, not only the values of the process, added to the online monitoring of the valve operation conditions and to the online analysis of the performance curves and deviations.

The technology used in the **FY302** positioner provides powerful diagnostic algorithms and, through ***AssetView***, it also provides powerful resources for the predictive analyses.

The positioner has characterization resources (tables, QO and QE curves), input and output pressure monitoring, temperature monitoring, travel control, strokes control, reversals control, input signals, set point, deviation, etc. With ***AssetView***, it is possible to view online diagnostics safely, without interrupting the process. It is possible to configure the travel limits, strokes, reversals, and alarms. The user can track the condition of the device and prevent problems in the process. The information are read and saved in the tool history for a specific configuration, helping to plan and execute the maintenance.

The ***AssetView*** can be accessed from anywhere because it was built on Web technology.

It is recommended to generate the charts before and after maintenance to register the status of the positioner, the valve, the actuator and the database. The database will be analyzed later to assist the user to decide the period of time needed between maintenances, delaying the following maintenance and reducing the idle time of the device.

AssetView and the Proactive Maintenance

Because of the resources available in the positioner and the online monitoring, it is possible to implement the proactive maintenance, determining the problems and their causes. The diagnostic potential of the field devices allow monitoring and registering the conditions, such as valve wearing. Through the diagnostics, the plant technicians execute the proactive maintenance based on the

online information, before the problem occurs, not waiting for the maintenance planned, avoiding and reducing the idle time of the plant.

The proactive maintenance in the **FY302** is implemented by configuring the alarms in the **FY302 Configuration Page**, such as **Reversal**, **Deviation** and **Travel**.

After configuring the alarms, the user can view the alarms in the **FY302 Diagnostics Page** according to the previous configuration, such as **Reversal Limit Exceed**, **Deviation Limit Exceed** and **Travel Limit Exceed**. The alarms that were not configured by the user are also displayed in the **Diagnostics Page**, such as **Slow Valve Movement or Low Air Supply**, **Base not Trimmed**, **Output Module not Initialized or not Connected**, etc.

ASSETVIEW & TT302

TT302 Home Page

The figure below shows the **TT302** initial page and its options:

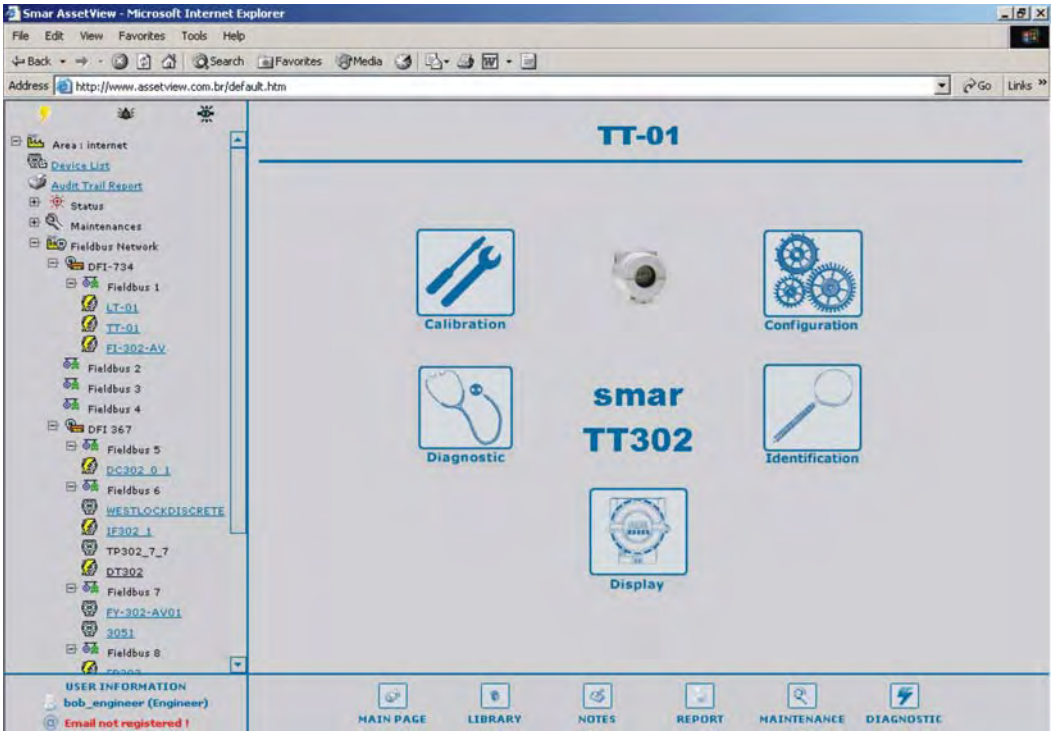


Figure D.1. TT302 Home Page

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

TT302 Identification Page

This page displays information relevant to the temperature transmitter. The user can easily identify and specify the transmitter in the physical plant.

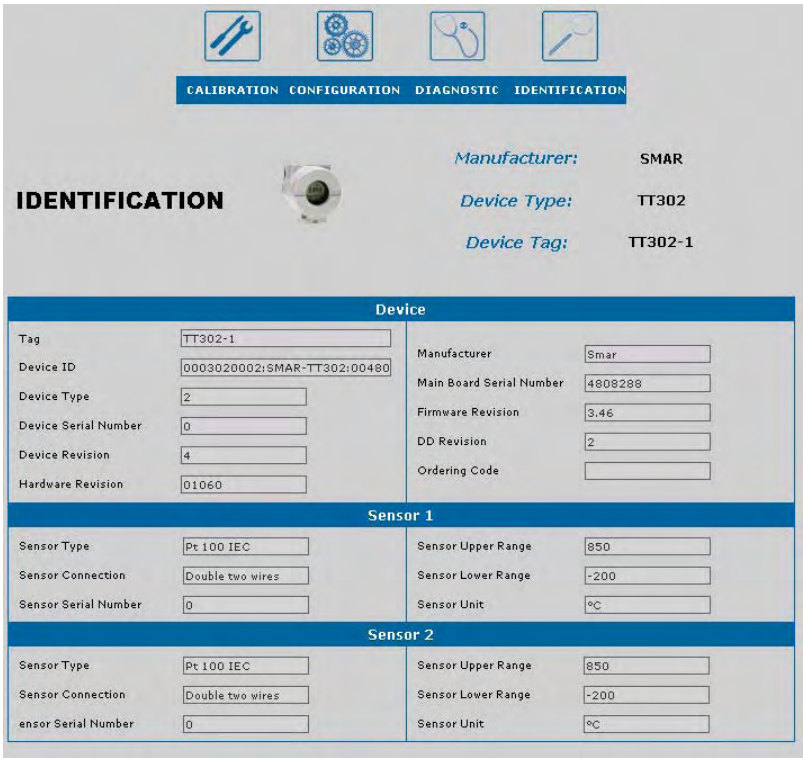


Figure D.2. Identification Page

Device

TAG	indicates the tag associated to the transmitter in the physical plant. The tag can use up to 32 characters.
DEVICE ID	indicates the identification code of the transmitter. This code can use up to 32 characters.
DEVICE TYPE	identifies the type of the transmitter for a specific manufacturer.
DEVICE SERIAL NUMBER	indicates the serial number of the transmitter.
DEVICE REVISION	indicates the revision of the transmitter.
HARDWARE REVISION	indicates the hardware revision of the transmitter.
MANUFACTURER	identifies the transmitter manufacturer.
MAIN BOARD SERIAL NUMBER	indicates the serial number of the main board.
FIRMWARE REVISION	indicates the software revision of the transmitter.
DD REVISION	indicates the revision of the DD.
ORDERING CODE	indicates the ordering code of the transmitter.

Sensor 1 and Sensor 2

SENSOR TYPE	indicates the type of the sensor.
SENSOR CONNECTION	indicates the number of wires used by the sensor.
SENSOR SERIAL NUMBER	indicates the serial number of the sensor.
SENSOR UPPER RANGE	indicates the upper range of the sensor.
SENSOR LOWER RANGE	indicates the lower range of the sensor.
SENSOR UNIT	indicates the unit of the sensor.

TT302 Configuration Page

This page configures the sensor connected to the transmitter, the type of measurement and the working unit. Instead working with the **Primary Value** in temperature units, it is possible to work with percentage values. It is also possible to calibrate the transmitter with no reference.

The user can check the general diagnostic status in the **TT302 Diagnostic Page** (refer to the next section). This status is generated according to the user configuration in the **TT302 Configuration Page**.

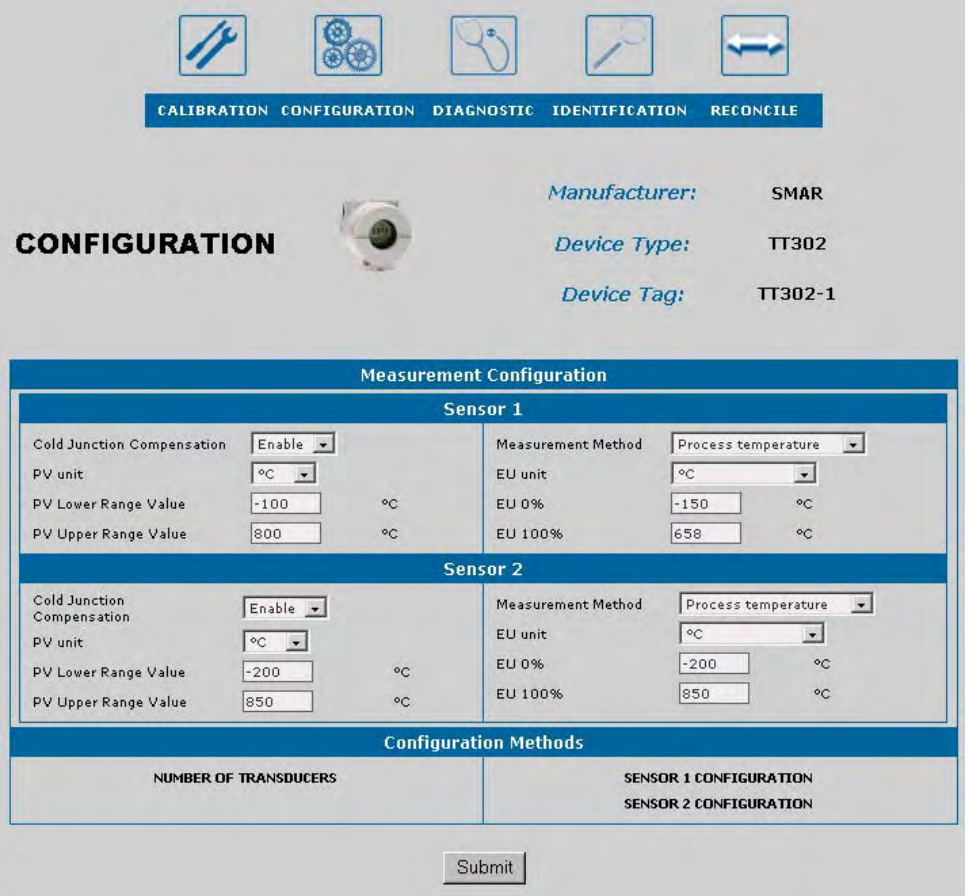


Figure D.3. Configuration Page

Measurement Configuration - Sensor 1 and Sensor 2

COLD JUNCTION COMPENSATION	enables the cold junction compensation for thermocouple sensors.
PV UNIT	unit of the process variable.
PV LOWER RANGE VALUE	lower limit of the process variable.
PV UPPER RANGE VALUE	upper limit of the process variable.
MEASUREMENT METHOD	the user selects the method of measurement (single or differential).
EU UNIT	engineering unit.
EU 0%	value of the temperature corresponding to 0%, in EU.
EU 100%	value of the temperature corresponding to 100%, in EU.

Configuration Methods

NUMBER OF TRANSDUCERS: this method enables the transmitter to work with two independent sensors. If there is only one sensor, the transducer number will be one.

Figure D.4. Configuring the Number of Sensors

After selecting the number of transducers, the message will appear confirming the configuration. Click **Ok** to conclude.

Figure D.5. Concluding the Configuration Method

SENSOR 1 CONFIGURATION: this method selects the type of the primary sensor and the number of wires. Select the type of the sensor and click **Ok**:

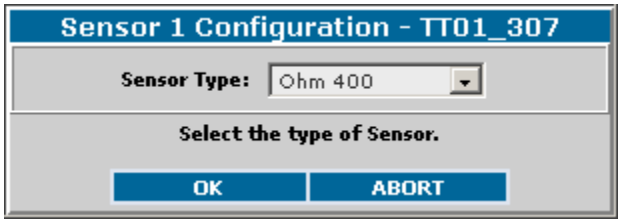


Figure D.6. Configuring the Primary Sensor

Select the type of the connection:

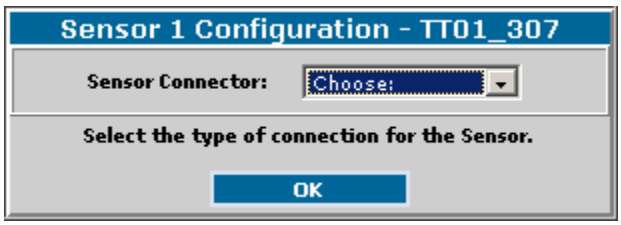


Figure D.7. Connection Type

If there are two sensors, the **Double two wires** connection must be selected.

The message will appear confirming the configuration:

Figure D.8. Concluding the Configuration Method

SENSOR 2 CONFIGURATION: this method selects the type of the secondary sensor.

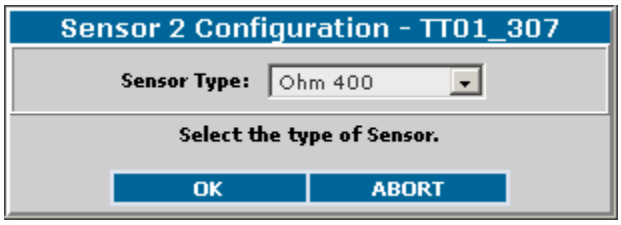


Figure D.9. Configuring the Secondary Sensor

The message will appear confirming the configuration:

Figure D.10. Concluding the Configuration Method

It will not be necessary to select the sensor connection because the only option available when using two sensors is the **Double two wires** connection.

TT302 Diagnostics Page

This page displays the device status.

Figure D.11. Diagnostic Page

Device Configuration Status

HOT BACKUP ACTIVATED	indicates that the transmitter is operating with redundant sensors.
DUAL SENSOR ACTIVATED	indicates that the transmitter is operating with two independent sensors.
COLD JUNCTION DEACTIVATED	indicates that the compensation of the cold junction is deactivated for the thermocouple sensor.
EEPROM SAVING IN PROGRESS	indicates that data is being saved in the serial EEPROM memory.
DIFFERENTIAL SENSOR ACTIVATED	indicates that the differential measurement type is activated.
TWO WIRES COMPENSATION ACTIVATED	indicates that the compensation of the leads of the two wires sensor is activated.

Device Diagnostic

POWER UP	indicates that the device has executed the power up procedure.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
DEVICE NEEDS MAINTENANCE SOON	the internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance.
ENVIRONMENT TEMP OUT OF RANGE	indicates that the temperature measured by the terminal temperature sensor is out of limits.
SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ELECTRONICS FAILURE	an electronic component has failed.
GENERAL ERROR	a general error related to the device has been detected.

Sensor 1 Diagnostic and Sensor 2 Diagnostic

INPUT FAILURE	indicates that the sensor is broken or disconnected.
SENSOR OUT OF RANGE	indicates that the temperature value is out of range for the sensor.
OUT OF SERVICE	indicates that the function block is out of service.
SENSOR SIMULATION ACTIVATED	indicates that the temperature is tracked by a programmed value instead of the temperature measured.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
BLOCK CONFIGURATION ERROR	indicates that there is an error related to the XD_SCALE parameter in the AI function block.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.

TT302 Calibration Page

This page displays configuration data used in the calibration procedures.

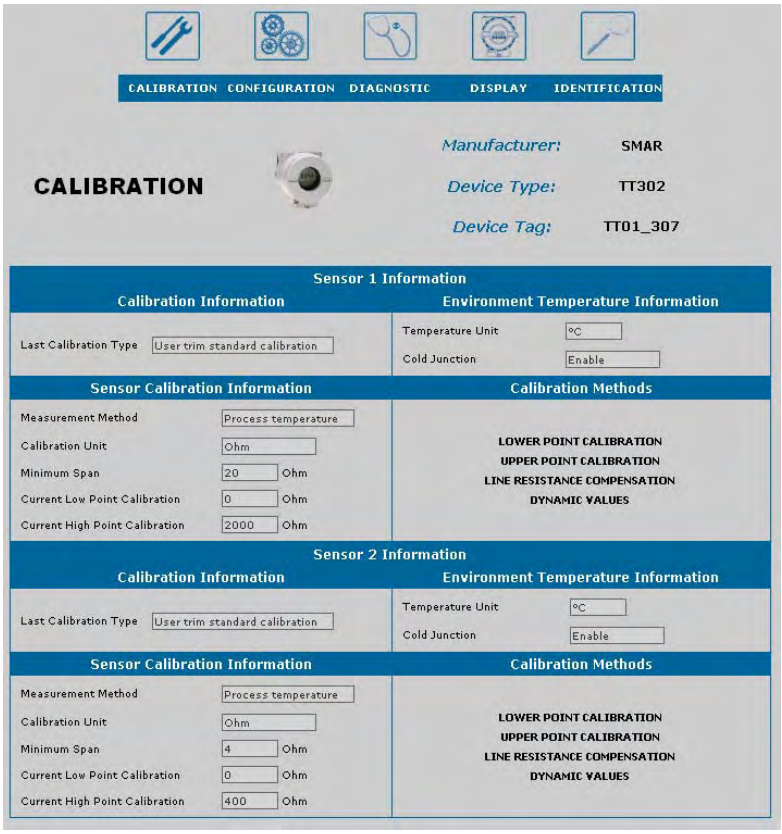


Figure D.12. Calibration Page

Sensor 1 Information and Sensor 2 Information

Displays the information for the respective sensor.

Calibration Information

LAST CALIBRATION TYPE	indicates the method used in the last calibration.

Environment Temperature Information

TEMPERATURE UNIT	set the unit of the terminal temperature sensor.
COLD JUNCTION	enable the cold junction compensation for the thermocouple sensors.

Sensor Calibration Information

MEASUREMENT METHOD	indicates the type of measurement.
CALIBRATION UNIT	indicates the unit for the temperature calibration procedure.
MINIMUM SPAN	indicates the minimum value allowed between the lower and upper points of the calibration.
CURRENT LOW POINT CALIBRATION	indicates the last lower point of the temperature calibration.
CURRENT HIGH POINT CALIBRATION	indicates the last higher point of the temperature calibration.

Calibration Methods

LOWER POINT CALIBRATION: this method is used when calibrating the temperature with the user's reference instead of the manufacturer's reference.

When this method is selected, a message box appears warning the user to wait for the temperature to stabilize.

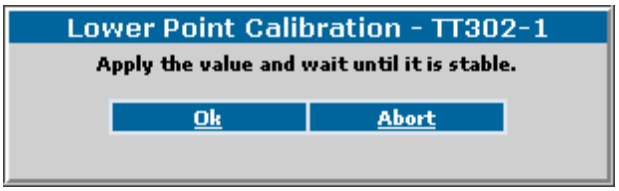


Figure D.13. Stabilizing the Temperature

Click **OK** and the temperature measured will be displayed.

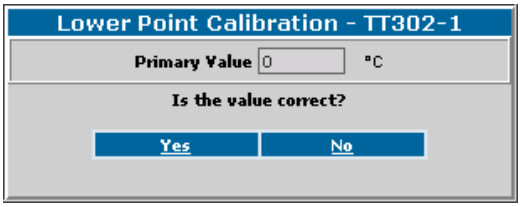


Figure D.14. Confirming the Value of the Temperature

If the value displayed is correct, click **Yes** to conclude this procedure. Otherwise, click **No** and type the temperature value:

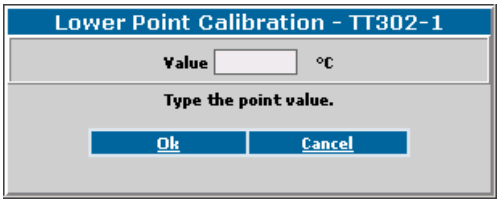


Figure D.15. New Temperature Value

Click **OK** to apply the new temperature value and then click **Yes** to confirm the alteration, as shown in Figure D.14. The calibration procedure will be concluded.

UPPER POINT CALIBRATION: this method is similar to the **Lower Point Calibration** procedure described above. It is used when calibrating the temperature with the user's reference instead of the manufacturer's reference.

When this method is selected, a message box appears warning the user to wait for the temperature to stabilize.

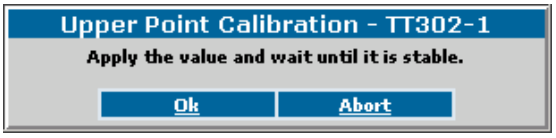


Figure D.16. Stabilizing the Temperature

Click **OK** and the temperature measured will be displayed.

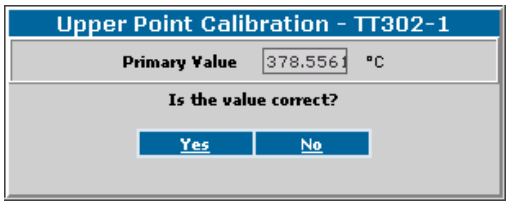


Figure D.17. Confirming the Value of the Temperature

If the value displayed is correct, click **Yes** to conclude this procedure. Otherwise, click **No** and type the temperature value:

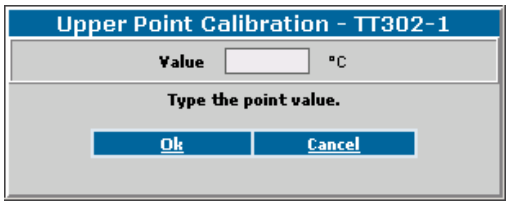


Figure D.18. New Temperature Value

Click **OK** to apply the new temperature value and then click **Yes** to confirm the alteration, as shown in Figure D.17. The calibration procedure will be concluded.

LINE RESISTANCE COMPENSATION: this method is used to compensate the lead resistance when two sensors are connected.

It is necessary to short-circuit the sensor in the field to determine the total lead resistance. Click **Ok** to continue.

Figure D.19. Sensor Short-Circuit

After the procedure is completed, the sensor can be reconnected. Click **Ok**.

Figure D.20. Reconnecting the Sensor

Check if the temperature is correct:

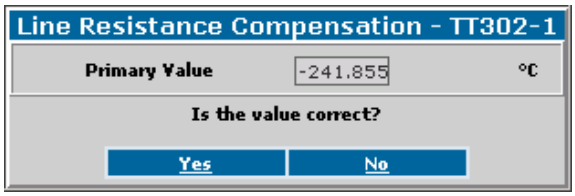


Figure D.21. Checking the Value of the Temperature

If the value displayed is correct, click **Yes** to conclude this procedure. Otherwise, click **No** and execute the short-circuit procedure again.

DYNAMIC VALUES: this method displays the dynamic parameters of the respective sensor.

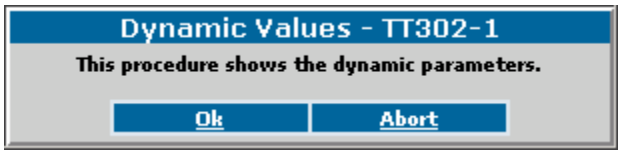


Figure D.22. Start Monitoring

Click **Ok** to proceed. The following dialog box will display the values of the temperature and the sensor terminal temperature.

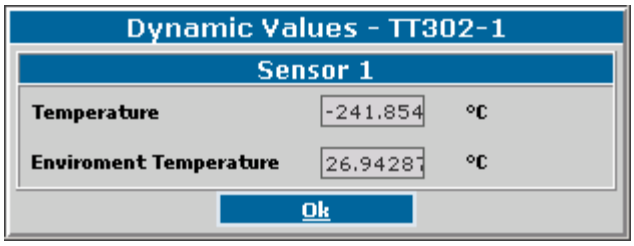


Figure D.23. Monitoring Dynamic Values

These values are monitored continuously while the dynamic value dialog box is open. To stop monitoring, click **Abort**.

TT302 Display Page

The user can configure the data shown in the device's display:

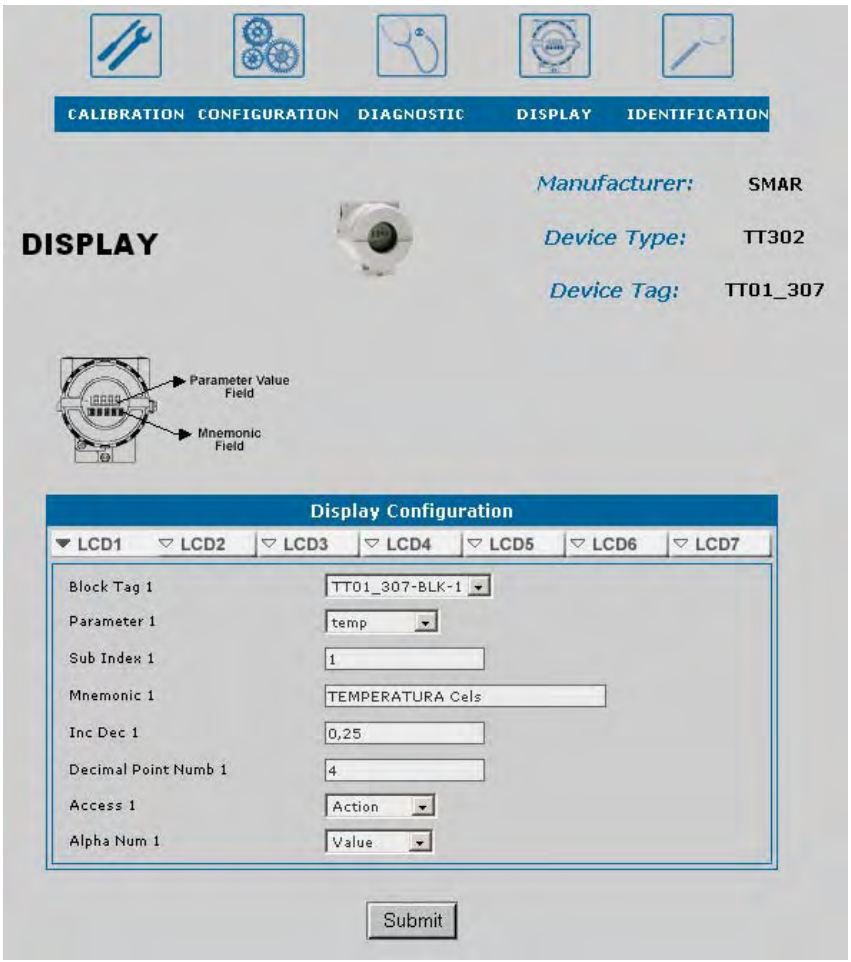


Figure D.24. Display Page

Display

BLOCK TAG	shows the list of the tags for the instantiated blocks available.
PARAMETER	shows the list of parameters available to be displayed in the LCD for the block selected in the *Block Tag* option.
SUB INDEX	indicates the sub-index of the selected parameter.
MNEMONIC	indicates the mnemonic of the parameter selected in the *Parameter* option.
INC DEC	indicates the value to be added or subtracted when acting the parameter via local tuning.
DECIMAL POINT NUMB	indicates the digits to the right of the decimal point for the parameter being displayed in the LCD.
ACCESS	the user can select the type of access to the selected parameter: monitoring or action.
ALPHA NUM	indicates if the alphanumeric field will be used for the mnemonic or for the value.

ASSETVIEW & LD302

LD302 Home Page

The figure below shows the **LD302** initial page and its options:

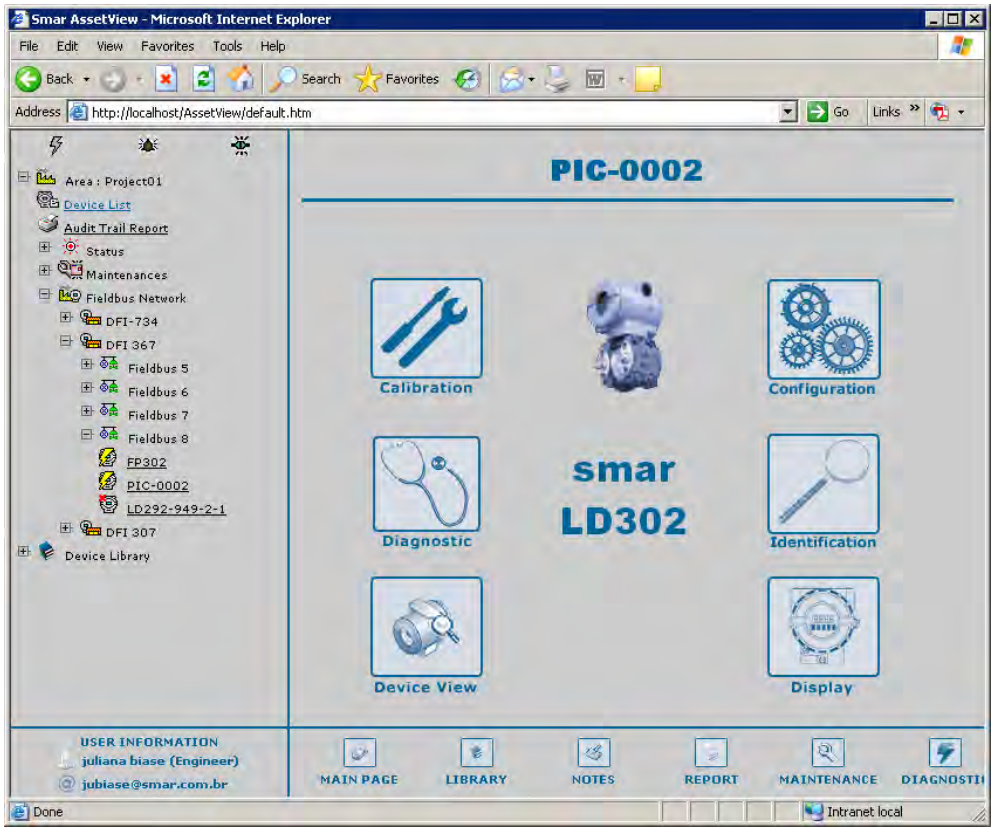


Figure E.1. LD302 Home Page

The following sub-sections will describe each one of the pages developed for the device maintenance.

LD302 Identification Page

This page displays information relevant to the pressure transmitter. The user can easily identify and specify the transmitter in the physical plant.

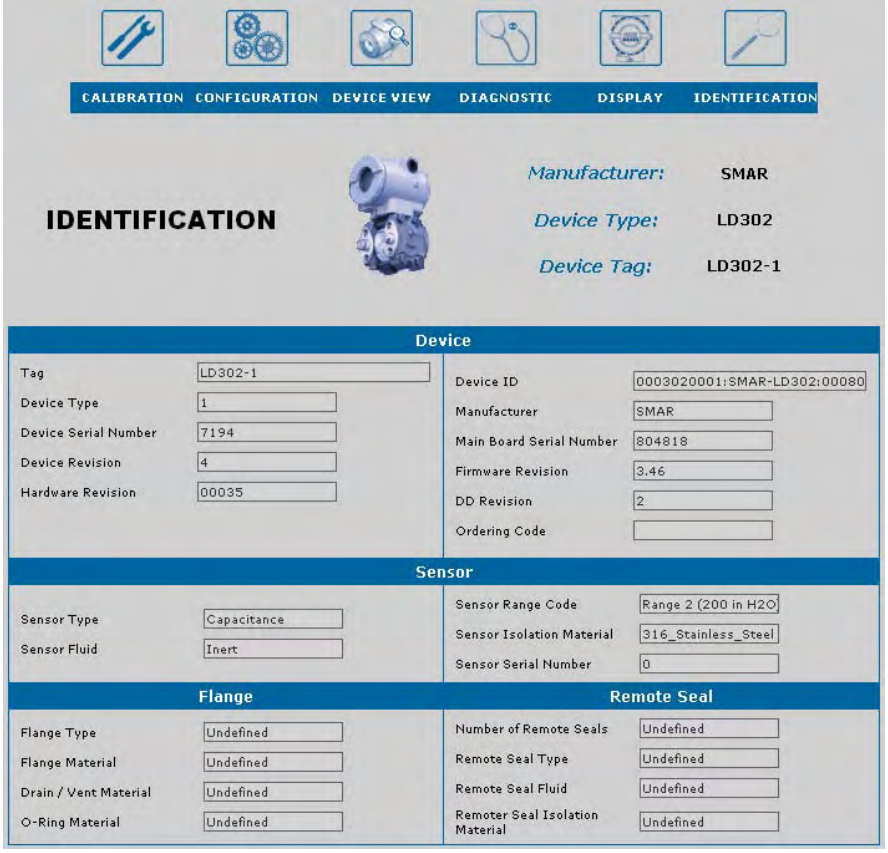


Figure E.2. Identification Page

Device

TAG	indicates the tag associated to the transmitter in the physical plant. The tag can use up to 32 characters.
DEVICE TYPE	identifies the type of the transmitter for a specific manufacturer.
DEVICE SERIAL NUMBER	indicates the serial number of the transmitter.
DEVICE REVISION	indicates the revision of the transmitter.
HARDWARE REVISION	indicates the hardware revision of the transmitter.
DEVICE ID	indicates the identification code of the transmitter. This code can use up to 32 characters.
MANUFACTURER	identifies the transmitter manufacturer.
MAIN BOARD SERIAL NUMBER	indicates the serial number of the transmitter main board.
FIRMWARE REVISION	indicates the firmware revision of the transmitter.
DD REVISION	indicates the revision of the DD.
ORDERING CODE	indicates the ordering code of the transmitter.

Sensor

SENSOR TYPE	indicates the sensor type of the transmitter.
SENSOR FLUID	indicates the fluid of the transmitter's sensor.
SENSOR RANGE CODE	indicates the range of the transmitter's sensor.
SENSOR ISOLATION MATERIAL	indicates the isolation material of the sensor.
SENSOR SERIAL NUMBER	indicates the sensor serial number of the transmitter.

Flange

FLANGE TYPE	indicates the type of the flange.
FLANGE MATERIAL	indicates the material of the flange.
DRAIN/VENT MATERIAL	indicates the material of the drain/vent.
O-RING MATERIAL	indicates the material of the o-ring.

Remote Seal

NUMBER OF REMOTE SEALS	indicates the number of remote seals.
REMOTE SEAL TYPE	indicates the type of the remote seal.
REMOTE SEAL FLUID	indicates the fluid of the remote seal.
REMOTE SEAL ISOLATION MATERIAL	indicates the isolation material of the remote seal.

LD302 Configuration Page

There are some parameters in the **LD302** transducer block that can be used in the predictive and proactive maintenance. It is possible to detect the performance decreasing by comparing the current parameters with the standard values and then schedule the maintenance.

The user can check the general diagnostic status in the **LD302 Diagnostic Page** (refer to the next section). This status is generated according to the user configuration in the **LD302 Configuration Page**. For example, there can be a "**Sensor Failure**" caused by an overpressure or a burnout sensor.

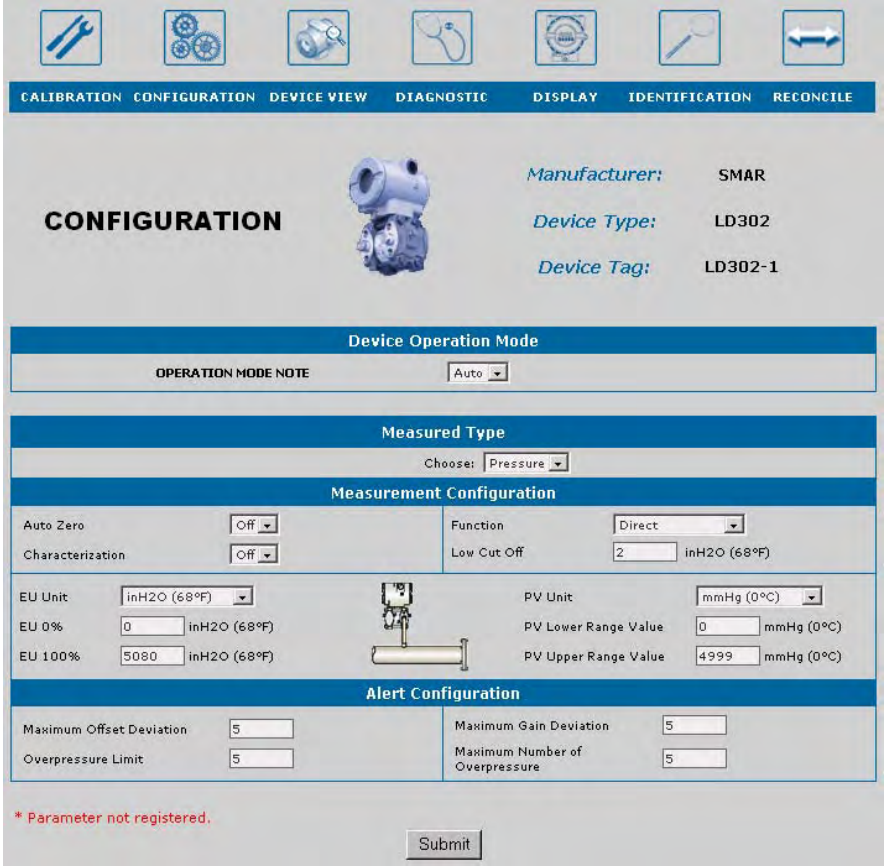


Figure E.3. Configuration Page

Device Operation Mode

Indicates the operation mode for the device:

OOS	if this mode is selected, the value of the parameter *Mode Block* will be *Out of Service* for the *Resource*, *Transducer* and *Analog Output* blocks.
AUTO	if this mode is selected, the value of the parameter *Mode Block* will be *Auto* for the *Resource*, *Transducer*, *Display* and *Analog Output* blocks.
MAN	if this mode is selected, the value of the parameter *Mode Block* will be *Manual* for the *Analog Output* block, and *Auto* for the *Resource*, *Transducer* and *Display* blocks.

Measured Type

Select the type of the measured variable:

LEVEL	indicates the transmitter is measuring the level.
PRESSURE	indicates the transmitter is measuring the pressure.
FLOW	indicates the transmitter is measuring the flow.

Measurement Configuration

AUTO ZERO	flag that enables and disables the zero cutoff.
CHARACTERIZATION	flag that enables and disables the pressure characterization.
FUNCTION	indicates the function that acts in the *Primary Value*: *Linear* or *Table*.
LOW CUT OFF	indicates the value of the pressure cutoff. If the pressure value is lower than the value indicated by *Low Cur Off*, zero (“0”) will be displayed.
EU UNIT	engineering unit.
EU 0%	value of the pressure corresponding to 0%, in EU.
EU 100%	value of the pressure corresponding to 100%, in EU.
PV UNIT	unit of the process variable.
PV LOWER RANGE VALUE	lower limit of the process variable.
PV UPPER RANGE VALUE	upper limit of the process variable.

Alert Configuration

MAXIMUM OFFSET DEVIATION	indicates the maximum offset deviation that occurs before the alarm goes off.
OVERPRESSURE LIMIT	limit for the overpressure.
MAXIMUM GAIN DEVIATION	indicates the maximum gain deviation that occurs before the alarm goes off.
MAXIMUM NUMBER OF OVERPRESSURE	indicates the maximum number of overpressure that occurs before the alarm goes off.

LD302 Diagnostics Page

The user can check the general diagnostic status in the **LD302 Diagnostic Page**.

Figure E.4. Diagnostic Page

Device Status

MAXIMUM PRESSURE MEASURED	maximum pressure measured in the sensor.
MAXIMUM TEMPERATURE MEASURED	maximum temperature measured in the sensor.
CURRENT OFFSET	current offset of the calibration curve.
CURRENT SPAN	current span of the calibration curve.

Diagnosis

This field shows the continuous diagnostic status for the device, including the function block condition, the electronic module condition and the sensor condition.

POWER UP	indicates that the device has executed the power up procedure.
SENSOR FAILURE	indicates a failure in the sensor, such as burnout or overpressure.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
OUT OF SERVICE	indicates that the function block is out of service.
DEVICE NEEDS MAINTENANCE SOON	the internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon. This diagnostic is related to overpressure in the sensor.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance. This diagnostic is related to the sensor of the calibration.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
BLOCK CONFIGURATION ERROR	indicates that there is an error related to the XD_SCALE parameter in the AI function block.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.
SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ELECTRONICS FAILURE	an electronic component has failed.
GENERAL ERROR	a general error related to the device has been detected.

LD302 Calibration Page

This page displays configuration data used in the calibration procedures.

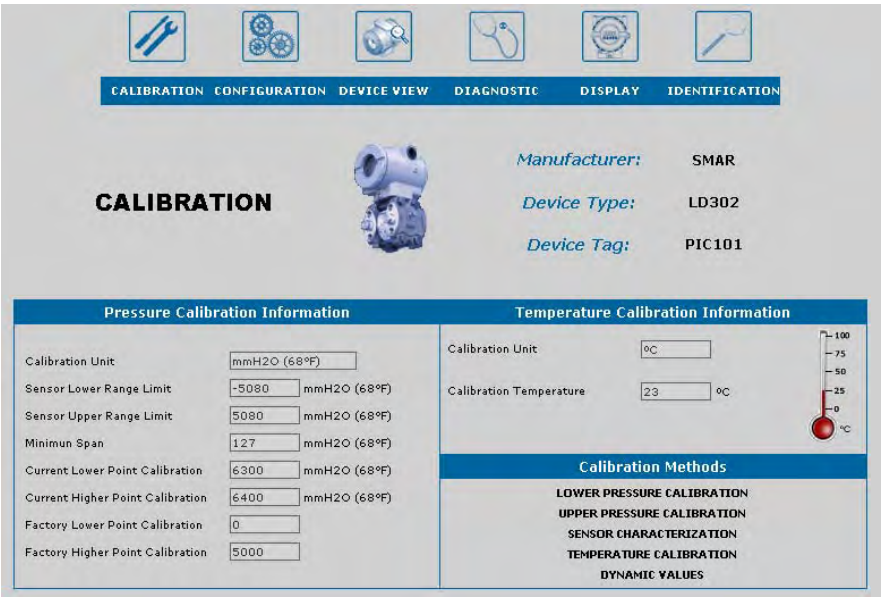


Figure E.5. Calibration Page

Pressure Calibration Information

CALIBRATION UNIT	indicates the unit for the pressure calibration procedure.
SENSOR LOWER RANGE LIMIT	indicates the lower limit for the sensor.
SENSOR UPPER RANGE LIMIT	indicates the upper limit for the sensor.
MINIMUM SPAN	indicates the minimum value allowed between the lower and upper points of the calibration.
CURRENT LOW POINT CALIBRATION	indicates the last lower point of the pressure calibration.
CURRENT HIGH POINT CALIBRATION	indicates the last higher point of the pressure calibration.
FACTORY LOW POINT CALIBRATION	indicates the last lower point of the pressure calibration according to the manufacturer's procedure.
FACTORY HIGH POINT CALIBRATION	indicates the last higher point of the pressure calibration according to the manufacturer's procedure.

Temperature Calibration Information

CALIBRATION UNIT	indicates the unit for the temperature calibration procedure.
CALIBRATION TEMPERATURE	indicates the value of the last calibration of the temperature.

Calibration Methods

NOTE
When the transmitter is installed, it is recommended to run the *Lower Pressure Calibration* procedure to minimize the mounting. Please refer to the transmitter manual for further details.

LOWER PRESSURE CALIBRATION: this method is used when calibrating the lower pressure point. The user can select the calibration unit and type the value of the pressure applied as a reference value to the transmitter, observing the sensor limits and the minimum span.

When this method is selected, a message box appears warning the user that this procedure must be executed when the process stops or the plant control is set to manual.

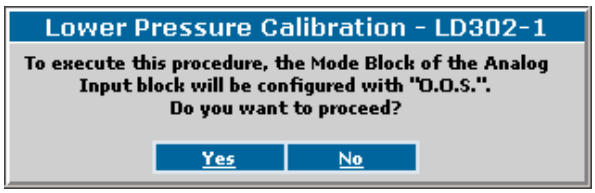


Figure E.6. Configuring the Mode Block

Click **Yes**, apply the pressure and wait for the sensor to stabilize.

Figure E.7. Stabilizing the Pressure

Click **OK** and the pressure measured will be displayed.

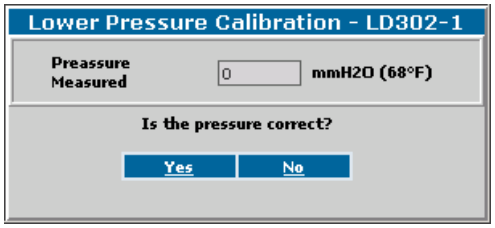


Figure E.8. Confirming the Value of the Pressure

If the value displayed is correct, click **Yes** to conclude this procedure. Otherwise, click **No** and type the pressure value:

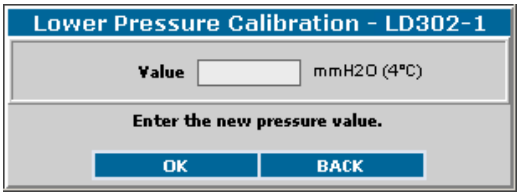


Figure E.9. New Pressure Value

Click **OK** to apply the new pressure value and then click **Yes** to confirm the alteration, as shown in Figure E.8. The calibration procedure will be concluded.

UPPER PRESSURE CALIBRATION: this method is similar to the **Lower Pressure Calibration** procedure described above. It is used when calibrating the pressure with the user's reference instead of the manufacturer's reference.

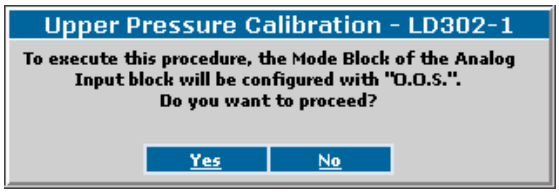


Figure E.10. Configuring the Mode Block

Click **Yes**, apply the pressure and wait for the sensor to stabilize.

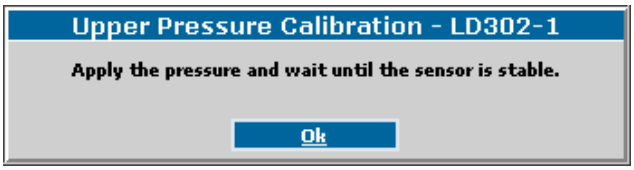


Figure E.11. Stabilizing the Pressure

Click **OK** and the pressure measured will be displayed.

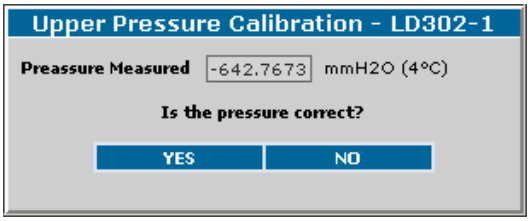


Figure E.12. Confirming the Value of the Pressure

If the value displayed is correct, click **Yes** to conclude this procedure. Otherwise, click **No** and type the pressure value:

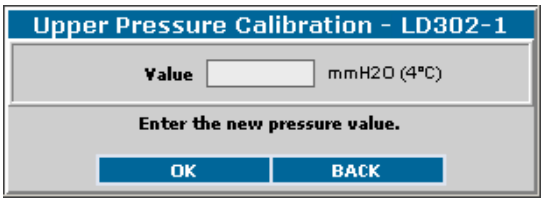


Figure E.13. New Pressure Value

Click **OK** to apply the new pressure value and then click **Yes** to confirm the alteration, as shown in Figure E.12. The calibration procedure will be concluded.

SENSOR CHARACTERIZATION: this method is used to correct the sensor reading in several points. Use a pressure source accurate and stable, such as a dead-weight tester, to guarantee the accuracy to be at least three times better than the transmitter accuracy.

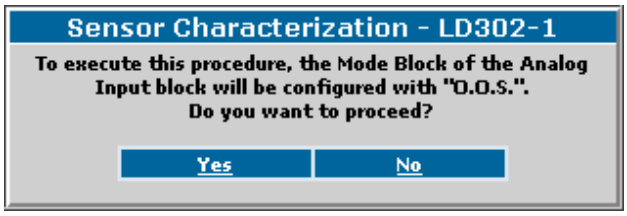


Figure E.14. Configuring the Mode Block

Click **Yes** and wait for the pressure to stabilize before performing the trim. The characteristic curve of the sensor can be slightly nonlinear at a certain temperature and for certain ranges. This non-linearity can be corrected by the **Characterization Trim**. The user can characterize the transmitter with the operating range to obtain a better accuracy. The characterization is determined from two up

to five points.

Apply the pressure to the transmitter:

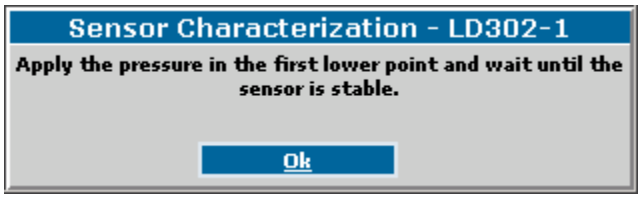


Figure E.15. Stabilizing the First Point

The pressure measured will be displayed. Click **Ok** if the pressure is stable.

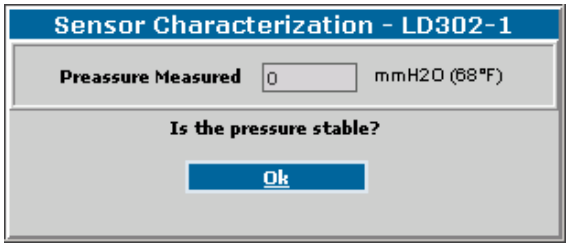


Figure E.16. Confirming the Value of the Pressure

Type the value of the pressure that is being applied and click **Ok**:

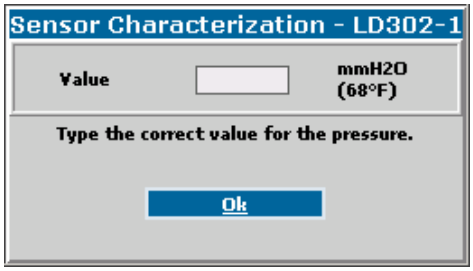


Figure E.17. New Pressure Value

Apply the pressure for the second point:

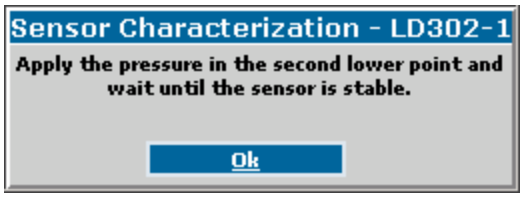


Figure E.18. Stabilizing the Second Point

The pressure measured will be displayed:

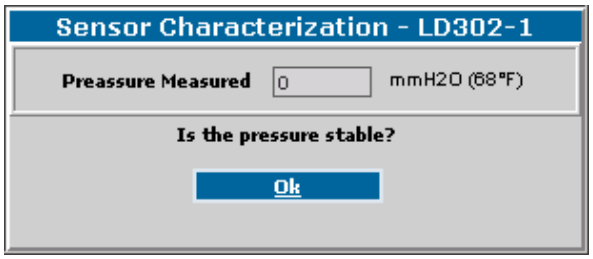


Figure E.19. Confirming the Value of the Pressure

Type the value of the pressure and click **Ok**:

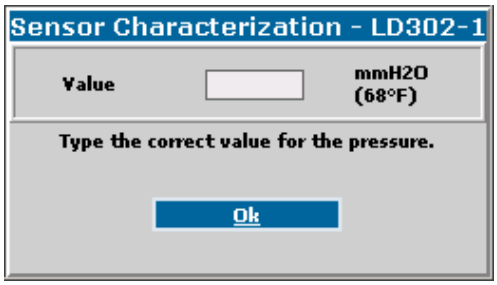


Figure E.20. New Pressure Value

To calibrate another point, click **Yes** in the following box and repeat the procedure described above for the first point. Otherwise, click **No** to conclude.

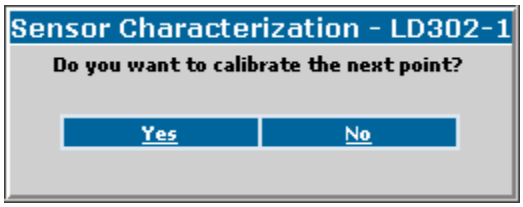


Figure E.21. Calibrating Other Points

TEMPERATURE CALIBRATION: this method is used to calibrate the temperature sensor.

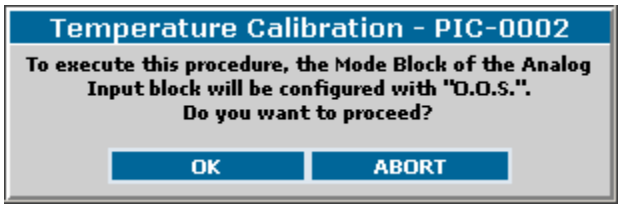


Figure E.22. Configuring the Mode Block

Click **Yes**, apply the temperature and wait for the sensor to stabilize.

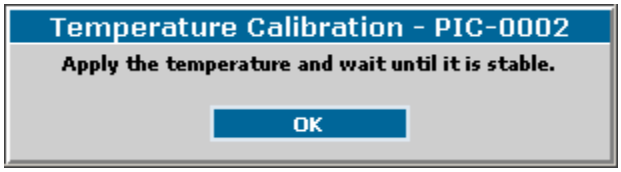


Figure E.23. Stabilizing the Temperature

Click **Ok** to start the calibration. The temperature measured will be displayed:

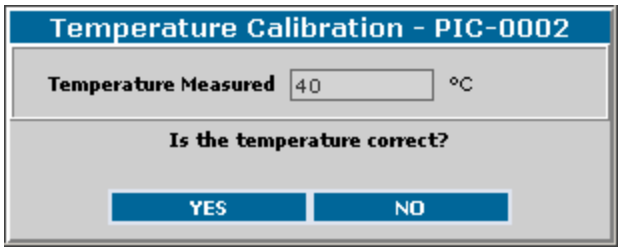


Figure E.24. Confirming the Value of the Temperature

If the value displayed is correct, click **Yes** to conclude this procedure. Otherwise, click **No** and type the temperature value:

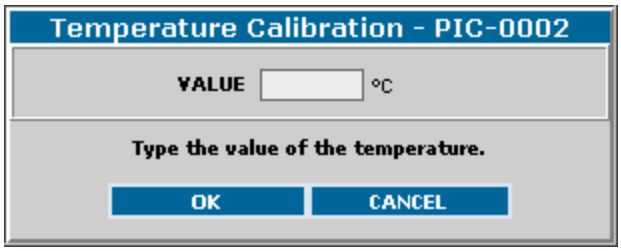


Figure E.25. New Temperature Value

Click **OK** to apply the new temperature value and then click **Yes** to confirm the alteration, as shown in Figure E.24. The calibration procedure will be concluded.

DYNAMIC VALUES: this method displays the dynamic parameters of the sensor.

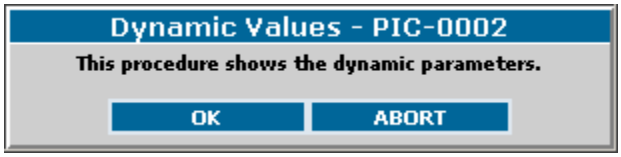


Figure E.26. Start Monitoring

Click **Ok** to proceed. The following dialog box will display the values of the temperature and the sensor terminal temperature.

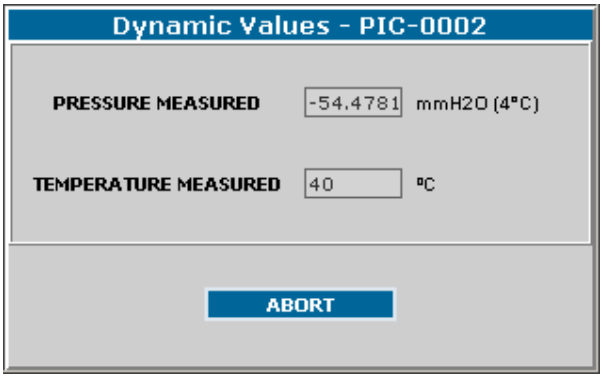


Figure E.27. Monitoring Dynamic Values

These values are monitored continuously while the dynamic value dialog box is open. To stop monitoring, click **Abort**.

LD302 Display Page

The user can configure the data shown in the device's display.

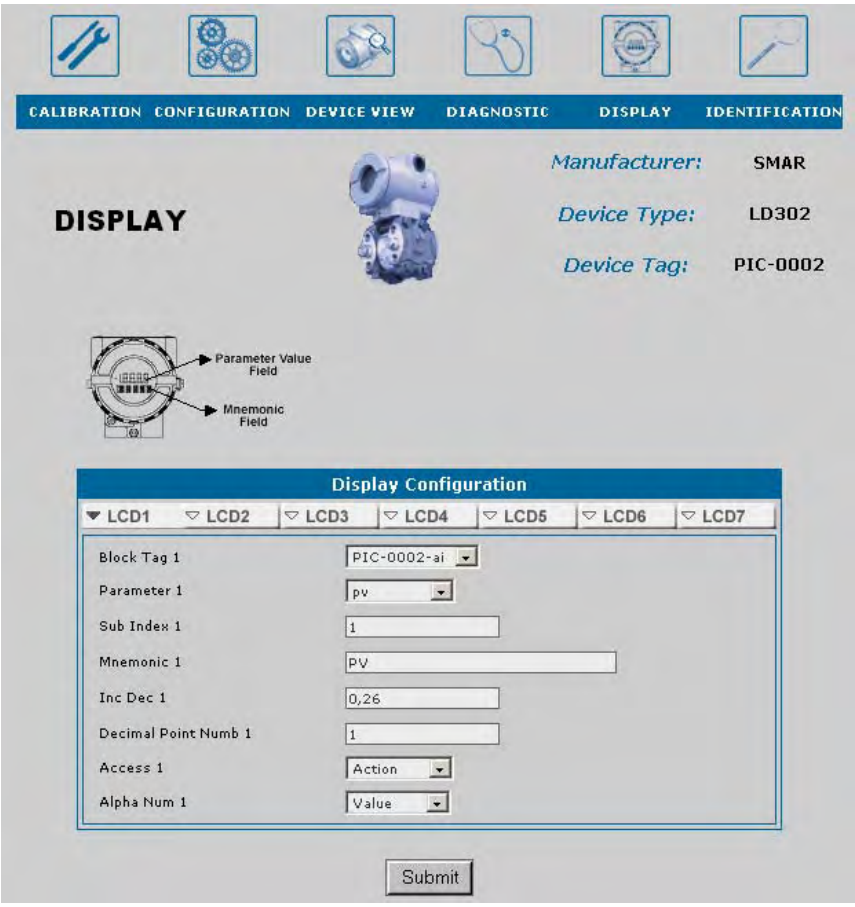


Figure E.28. Display Page

Display

BLOCK TAG	shows the list of the tags for the instantiated blocks available.
PARAMETER	shows the list of parameters available to be displayed in the LCD for the block selected in the *Block Tag* option.
SUB INDEX	indicates the sub-index of the selected parameter.
MNEMONIC	indicates the mnemonic of the parameter selected in the *Parameter* option.
INC DEC	indicates the value to be added or subtracted when acting the parameter via local tuning.
DECIMAL POINT NUMB	indicates the digits to the right of the decimal point for the parameter being displayed in the LCD.
ACCESS	the user can select the type of access to the selected parameter: monitoring or action.
ALPHA NUM	indicates if the alphanumeric field will be used for the mnemonic or for the value.

LD302 Device View Page

The user can monitor the device's data opening the *Device View* page.

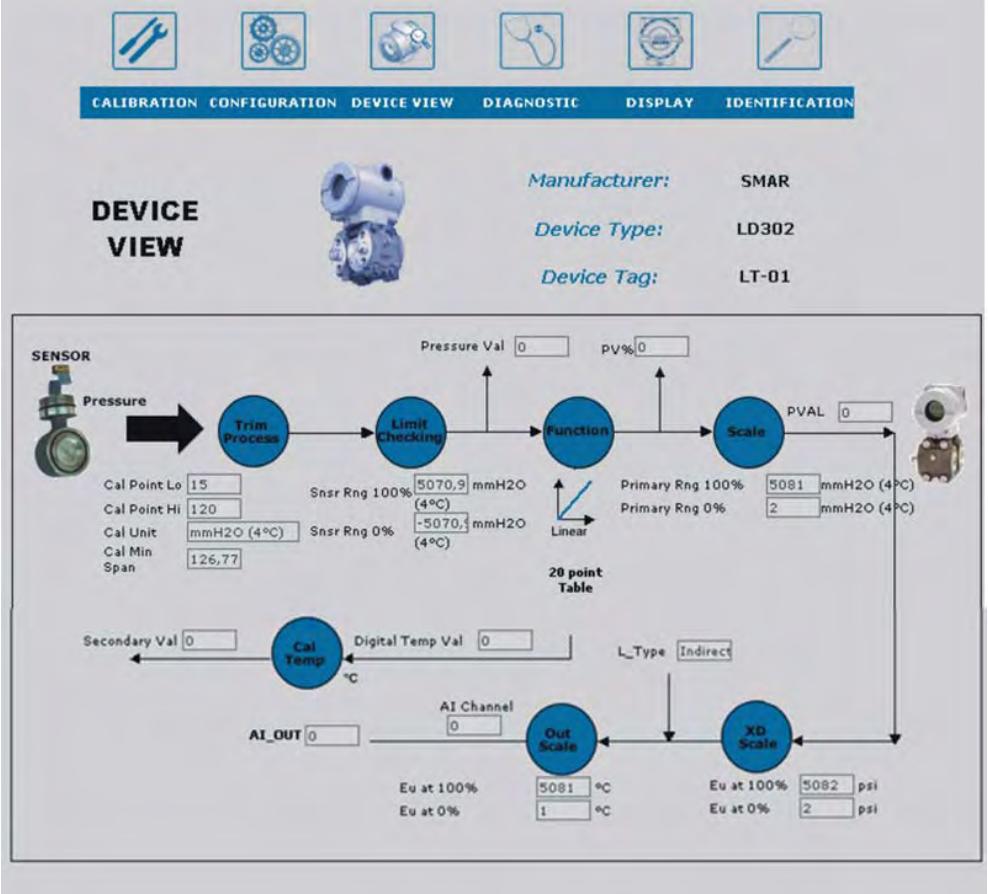


Figure E.29. Device View Page

F.ASSETVIEW & DT301

DT301 Home Page

The figure below shows the ***DT301*** initial page and its options:

Figure F.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

NOTE
Remember that *AssetView* monitors HART instruments through Smar's HI302 (HART/Foundation Fieldbus Interface). It is necessary to update the HI302 firmware version to 0301 (3.15 or higher) and create the blocks configuration for the HI302. Please refer to the *HI302 User's Manual* (Chapter 3) for further information

DT301 Identification Page

This page displays information relevant to the density transmitter. The user can easily identify and specify the transmitter in the physical plant.

Figure F.2

Device

TAG	indicates the tag associated to the transmitter in the physical plant. The tag can use up to 8 characters.
DESCRIPTOR	16-characters field for additional identification of the transmitter. It can be used to identify a location or a service.
MESSAGE	32-characters field for any other information, such as the name of the responsible for the last calibration, specific procedures, etc.
DATE	identifies a relevant date, such as the last calibration, the next calibration or the installation date. The date is stored as bytes: DD = [1,..31], MM = [1..12], YY = [0..255], where the effective year is calculated by [Year = 1900 + YY].
MANUFACTURER	identifies the transmitter manufacturer.
DEVICE TYPE	identifies the type of the transmitter for a specific manufacturer.
DEVICE ID	indicates the identification code of the transmitter. This code can use up to 32 characters.
HART POLLING ADDRESS	indicates the transmitter's address in multidrop mode (0 to 15) or controller mode (0).
WRITE PROTECT MODE	indicates if the transmitter is protected from writing.
DEVICE SERIAL NUMBER	indicates the serial number of the transmitter.
SENSOR SERIAL NUMBER	indicates the serial number of the sensor.
FIRMWARE REVISION	indicates the firmware revision of the transmitter.
HARDWARE REVISION	indicates the hardware revision of the transmitter.
ORDERING CODE	indicates the ordering code of the transmitter.
HART REVISION	indicates the HART protocol revision used in the transmitter.
SPECIFIC REVISION	indicates the specific revision of the instrument.
DISPLAY	indicates if the display is installed in the instrument.

Probe Info

FLANGE TYPE	indicates the type of the flange.
PROBE MATERIAL	indicates the material in the probe.
O-RING MATERIAL	indicates the type of material for the o-ring.
INSTALLATION TYPE	indicates the installation type: top mounting (direct) or side mounting (reverse).
PROBE TYPE	indicates the probe type: sanitary or industrial.
PROBE FLUID	indicates the fluid used in the probe.
DIAPHRAGM MATERIAL	indicates the type of the material that composes the diaphragm.
ELECTRICAL CONNECTION	indicates the type of the electrical connection.
RANGE	indicates the reading range of the probe.

DT301 Configuration Page

The Smart Density Transmitter DT301 has a very comprehensive set of HART commands that allow the user to access any implemented functionality. The DT301 configuration page allows the user to configure parameters such as input limits, work range, linearization table, etc.

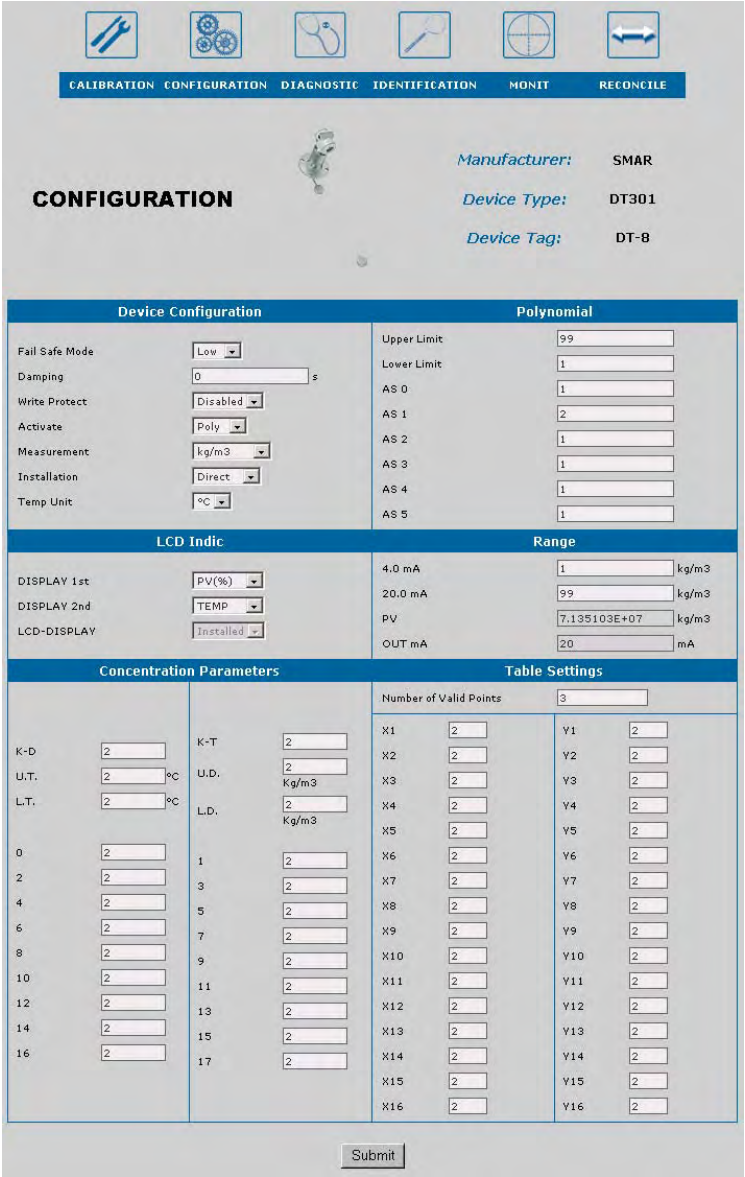


Figure F.3

Device Configuration

FAIL SAFE MODE	indicates the transmitter action when the instrument is on fail safe mode (in case there is a fail).
DAMPING	the *damping* is a digital filter that adjusts the time constant between 0 and 32 seconds.
WRITE PROTECT	indicates if the transmitter is protected from writing.
ACTIVATE	activates the polynomial or the linearization table.
MEASUREMENT	indicates the measurement unit.
INSTALLATION	indicates the installation type: top mounting (direct) or side mounting (reverse).
TEMP UNIT	indicates the temperature unit defined by the user.

Polynomial

UPPER LIMIT	indicates the upper limit of the polynomial.
LOWER LIMIT	indicates the lower limit of the polynomial.
AS 0 ... AS 5	defines the parameters values of the polynomial.

LCD Indic

DISPLAY 1ST	indicates the first variable selected by the user.
DISPLAY 2ND	indicates the second variable selected by the user.
LCD DISPLAY	indicates if the display is installed in the instrument.

Range

4.0 mA	indicates the lower limit for the reading range.
20.0 mA	indicates the upper limit for the reading range.
PV	process variable.
OUT mA	process variable in mA.

Concentration Parameters

K-T	temperature constant.
U-T	temperature upper limit.
L-T	temperature lower limit.
K-D	density constant.
U-D	density upper limit.
L-D	density lower limit.
0 … 17	polynomial parameters (Conc.).

Table Settings

NUMBER OF VALID POINTS	defines the number of points used in the user table.
(Xi,Yi)	values of the table points. This value must be in percentage.

DT301 Diagnostics Page

The user can check the general diagnostic status in the *DT301 Diagnostic Page*.

Figure F.4

Device Status

POWER UP	indicates that the device has executed the power up procedure.
DEVICE MALFUNCTION	indicates a failure in the sensor or the sensor is disconnected.
CONFIGURATION CHANGED	indicates that parameters of the transmitter were altered.
ANALOG OUTPUT SATURATED	indicates the pressure is out of the limits of the calibrated values or at burn-out (output current at 3,90 or 21,00 mA).
PV OUT OF LIMITS	indicates the pressure is out-of-limits, the sensor is damaged, the sensor module is not connected, or the transmitter has a false configuration.
TEMPERATURE OUT OF LIMITS	indicates the temperature is out-of-limits.
OUTPUT CURRENT FIXED	indicates the output is in constant mode or the transmitter is in multidrop mode.

DT301 Calibration Page

This page displays configuration data used in the calibration procedures.

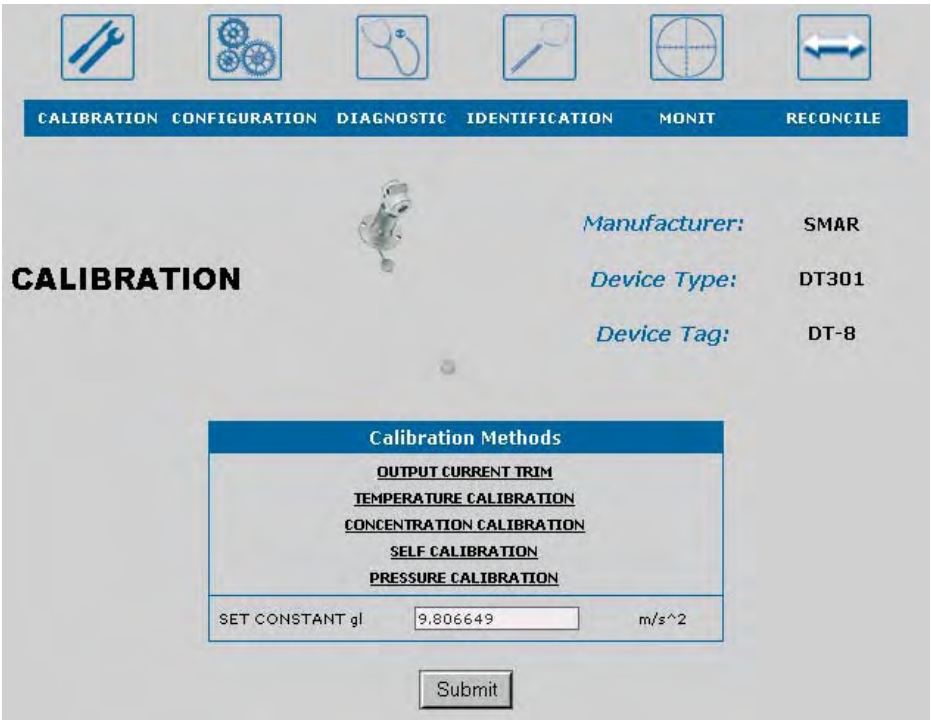


Figure F.5

Calibration Methods

SET CONSTANT GL	constant that defines the local gravity acceleration where the instrument is installed.

OUTPUT CURRENT TRIM: when the microprocessor generates a 0% output signal, the Digital/Analog converter and the components associated provides a 4mA output. If the signal is 100%, the output should be 20mA. There might be a slight difference between the Smar's current standards and the plant current standard. In this case, follow the steps described below to adjust the current.

Figure F.6

Make sure the transmitter is *off-line*. Click *Ok*.

Figure F.7

Connect the multimeter to the test point. Click *Ok* to continue.

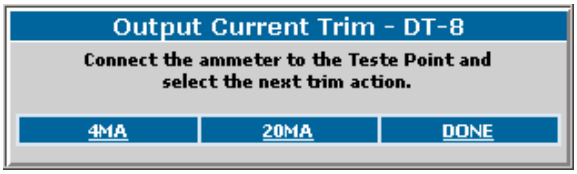


Figure F.8

Connect the ammeter to the test point and select the value of the current that will be calibrated. The current measured will be displayed:

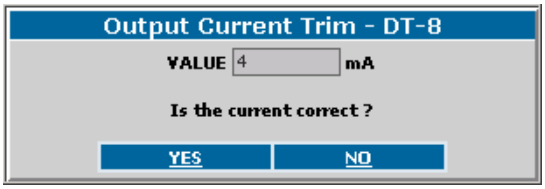


Figure F.9

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the current value:

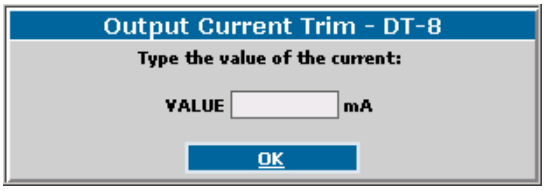


Figure F.10

Click *OK* to apply the new current value and then click *Yes* to confirm the alteration, as shown in Figure F.9.

The user can select another current calibration, as showed in the figure below. Select the current value and repeat the steps described above, or click *Done* to conclude the output current calibration procedure.

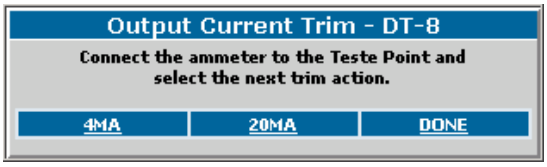


Figure F.11

TEMPERATURE CALIBRATION: this method is used to calibrate the temperature sensor.

Wait until the temperature stabilizes and click *Ok*.

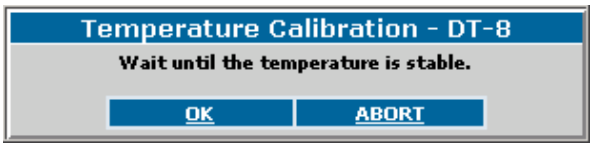


Figure F.12

The temperature measured will be displayed:

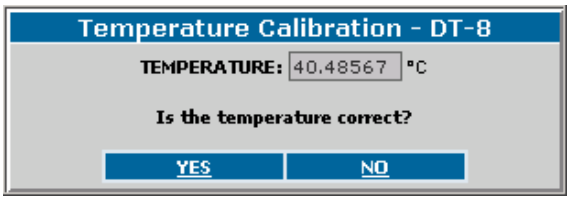


Figure F.13

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the temperature value:

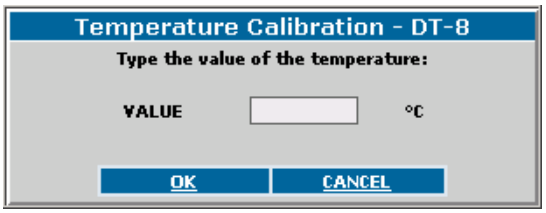


Figure F.14

Click *OK* to apply the new temperature value and then click *Yes* to confirm the alteration, as shown in Figure F.13.

CONCENTRATION CALIBRATION: this method is used to calibrate measurements from the DT301 related to the user standard, that is, to calibrate the concentration or density the user must inform the transmitter the value of the concentration or density that the DT301 should read when in contact with the solution.

It is recommended to use at least two standards: one standard shows the lower concentration and the other, the upper concentration.

Set the DT301 in contact with the standard solution and wait until the value measured is stable. Select the calibration range for the solution where the DT301 is submerged.

Figure F.15

NOTE
It is recommended to execute this calibration for the lower limit and then for another concentration with a higher value. The calibration procedure for the *Lower* option is the same as for the *Upper* option.

Wait until the DT301 is stable and click *Ok* to proceed.

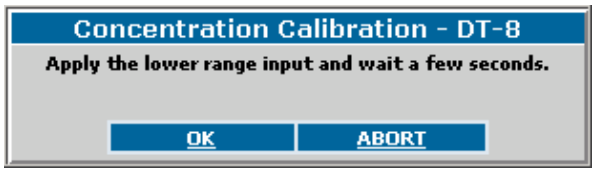


Figure F.16

The density value will be displayed:

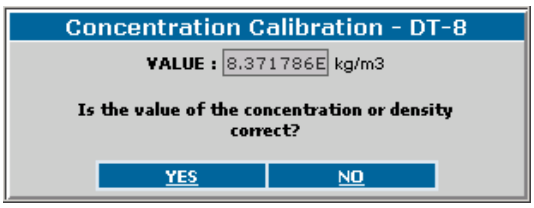


Figure F.17

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the density value that the DT301 should have read:

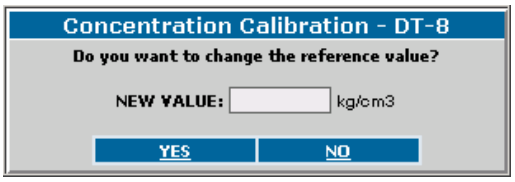


Figure F.18

Click *Yes* to apply the changes or click *No* and the value won't be updated.

Click *Yes* to confirm the density value, as showed in Figure F.17.

The correct value of the density or concentration will be displayed. In case it is not correct, repeat this calibration procedure.

To alter the calibration unit, for example using Brix degree, the user must change the parameter **Measurement** in the DT301 configuration page.

SELF CALIBRATION: this method calibrates the transmitter using the air density or the water density in Brix degree as a reference. According to the measurement parameter configured: if it is air, the unit kg/m3 must be configured; if it is water, select the unit Brix.

Figure F.19

Select the variable to be calibrated. Notice that the test point must be in contact with the selected element.

Figure F.20

Click *Ok* to continue. The calibration error will be displayed:

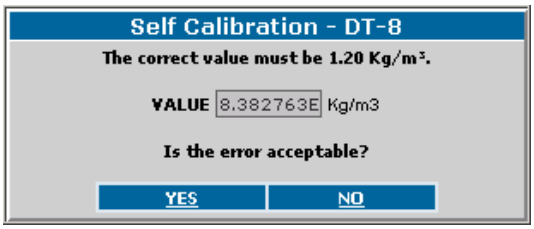


Figure F.21

If the error is acceptable, click *Yes* to conclude the procedure. Otherwise, click *No* to read the value again.

Repeat this step until the error is acceptable and then click *Yes* to conclude.

If the user selects the water, the dialog box below will open before starting the calibration to alert the user that the variable unit must be Brix degree. To change the unit, open the DT301 configuration page and edit the parameter **Measurement**.

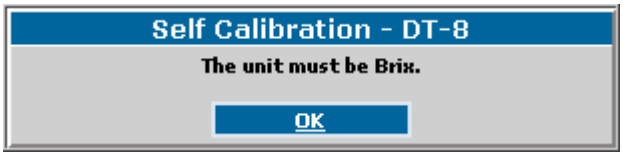


Figure F.22

The calibration steps are the same as described for the air, but the Brix degree value in the water is always zero.

PRESSURE CALIBRATION: this method corrects any distortions that have occurred in the sensor's mechanical gain, acting on the transference curve span. The upper pressure adjustment is identical to the lower pressure, except for the reference point. The user can select the calibration unit and type the value of the pressure that will be used as a reference value for the transmitter, respecting the range limit of the sensor and the minimum span.

OBSERVAÇÃO
A specific device must be used to apply the pressure.

The transmitter must be in off-line mode.

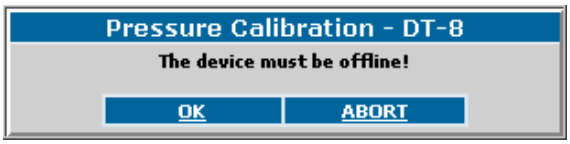


Figure F.23

Click *Ok* and select the value to be calibrated:

Figure F.24

Apply the input value and wait until the transmitter is stable:

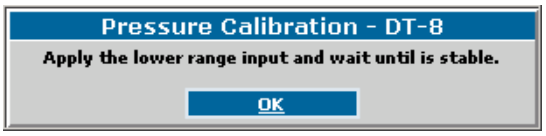


Figure F.25

Click *OK* and the pressure will be displayed.

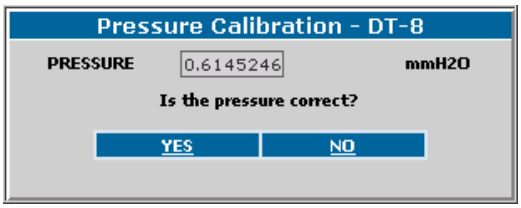


Figure F.26

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the pressure value:

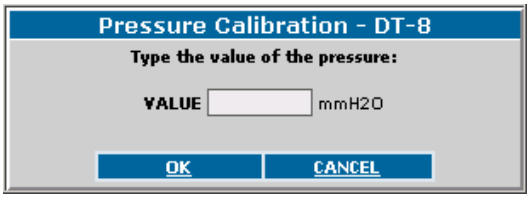


Figure F.27

Click *OK* to apply the new pressure value and then click *Yes* to confirm the alteration, as shown in Figure F.26.

DT301 Monitoring Page

This page displays the parameters and monitoring data of the density transmitter.

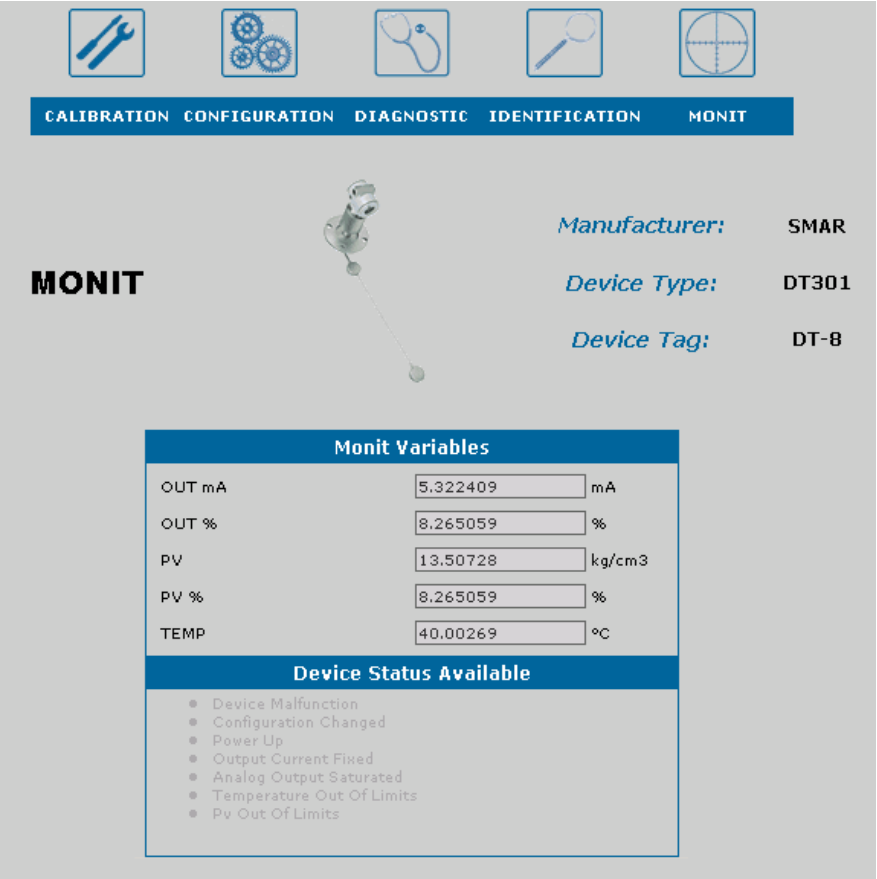


Figure F.28

Monit Variables

OUT mA	output value in mA.
OUT %	output value in percentage.
PV	process variable.
PV %	value of the process variable, in percentage.
TEMP	temperature value.

Device Status Available

DEVICE MALFUNCTION	indicates a failure in the sensor or the sensor is disconnected.
CONFIGURATION CHANGED	indicates that parameters of the transmitter were altered.
POWER UP	indicates that the device has executed the power up procedure.
OUTPUT CURRENT FIXED	indicates the output is in constant mode or the transmitter is in multidrop mode.
ANALOG OUTPUT SATURATED	indicates the pressure is out of the limits of the calibrated values or at burn-out (output current at 3,90 or 21,00 mA).
TEMPERATURE OUT OF LIMITS	indicates the temperature is out-of-limits.
PV OUT OF LIMITS	indicates the pressure is out-of-limits, the sensor is damaged, the sensor module is not connected, or the transmitter has a false configuration.

G. ASSETVIEW & FI302

FI302 Home Page

The figure below shows the ***FI302*** initial page and its options:

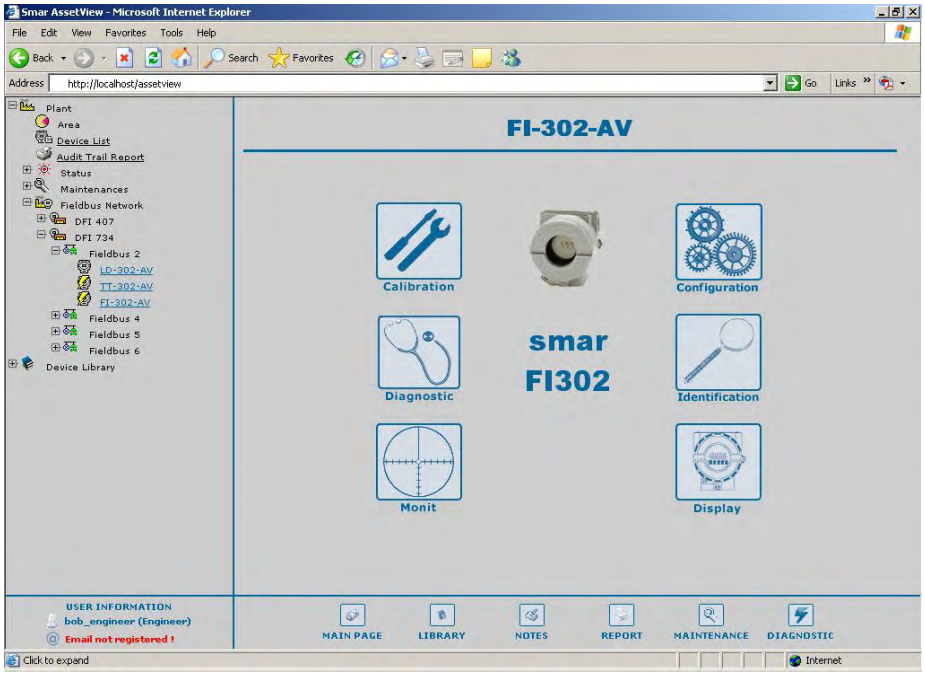


Figure G.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

FI302 Identification Page

This page displays information relevant to the converter. The user can easily identify and specify the device in the physical plant.

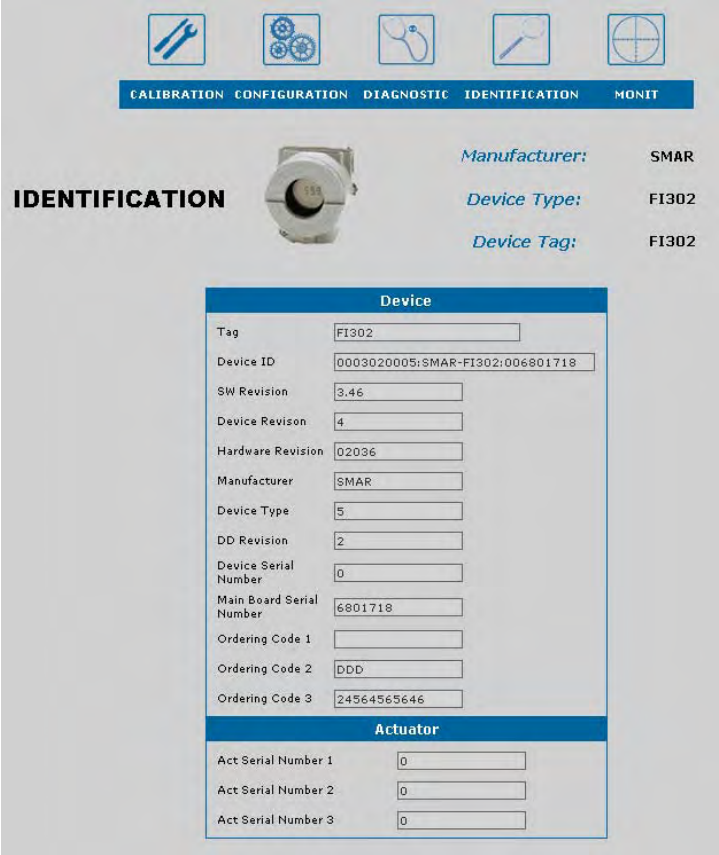


Figure G.2

Device

TAG	indicates the tag associated to the converter in the physical plant. The tag can use up to 32 characters.
DEVICE ID	indicates the identification code of the converter. This code can use up to 32 characters.
SW REVISION	indicates the software revision of the converter.
DEVICE REVISION	indicates the revision of the converter.
HARDWARE REVISION	indicates the hardware revision of the converter.
MANUFACTURER	identifies the converter manufacturer.
DEVICE TYPE	identifies the type of the converter for a specific manufacturer.
DD REVISION	indicates the revision of the DD.
DEVICE SERIAL NUMBER	indicates the serial number of the converter.
MAIN BOARD SERIAL NUMBER	indicates the serial number of the main board.
ORDERING CODE 1 ... 3	indicates the ordering code of the converter.

Actuator

ACT SERIAL NUMBER 1 ... 3	indicates the serial number of the actuator.

FI302 Configuration Page

The FI302 contains three output transducer blocks. The channel number of the AO block corresponds to the terminal block with the same number.

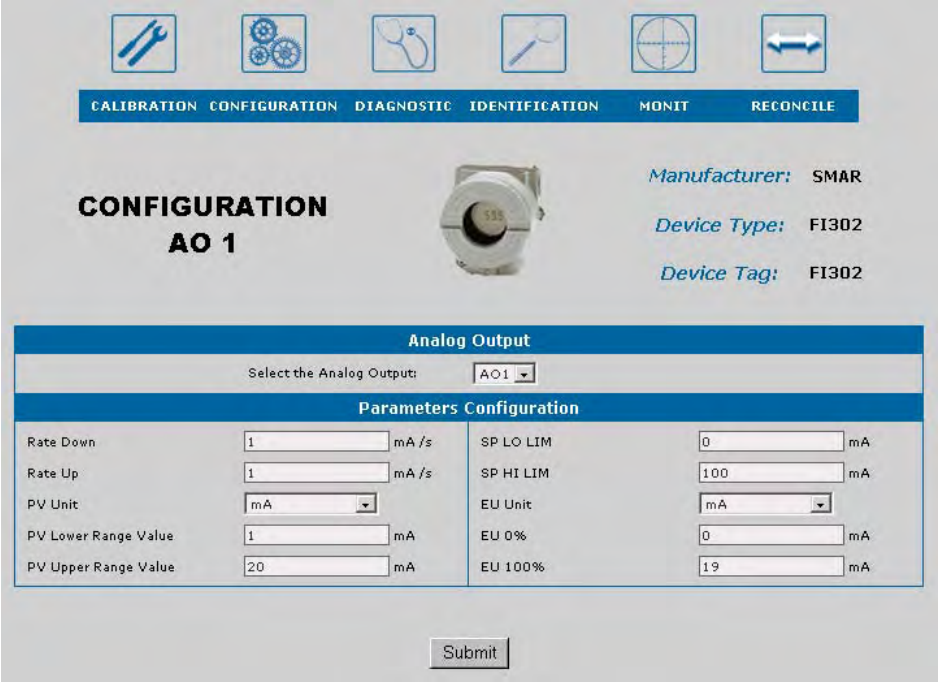


Figure G.3

Select the Analog Output

Select the AO block to be configured.

Parameters Configuration

RATE DOWN	configures the set point rate down related to the time.
RATE UP	configures the set point rate up related to the time.
PV UNIT	unit of the process variable.
PV LOWER RANGE VALUE	lower limit of the process variable.
PV UPPER RANGE VALUE	upper limit of the process variable.
SP LO LIM	lower limit of the AO block set point.
SP HI LIM	upper limit of the AO block set point.
EU UNIT	engineering unit.
EU 0%	value of the measuring corresponding to 0%, in EU.
EU 100%	value of the measuring corresponding to 100%, in EU.

FI302 Diagnostics Page

This page displays the device status.

Figure G.4

Diagnosis

Displays the diagnostic status of the device, including the status of the function block, mechanical module and sensor.

POWER UP	indicates that the device has executed the power up procedure.
SENSOR FAILURE	indicates the sensor of the final element has failed (open current loop, for example).
OUTPUT FAILURE	indicates a failure in the output that could be due to the electronic or the mechanical module.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
OUT OF SERVICE	indicates that the function block is out of service.
DEVICE NEEDS MAINTENANCE SOON	the internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon. This diagnostic is related to the output current generated.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance. This diagnostic is related to the calibration, for example.
BLOCK CONFIGURATION ERROR	indicates that there is an error related to the XD_SCALE parameter in the AO function block.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.
SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ELECTRONICS FAILURE	an electronic component has failed.
GENERAL ERROR	a general error related to the device has been detected.

FI302 Calibration Page

This page displays configuration data used in the calibration procedures.

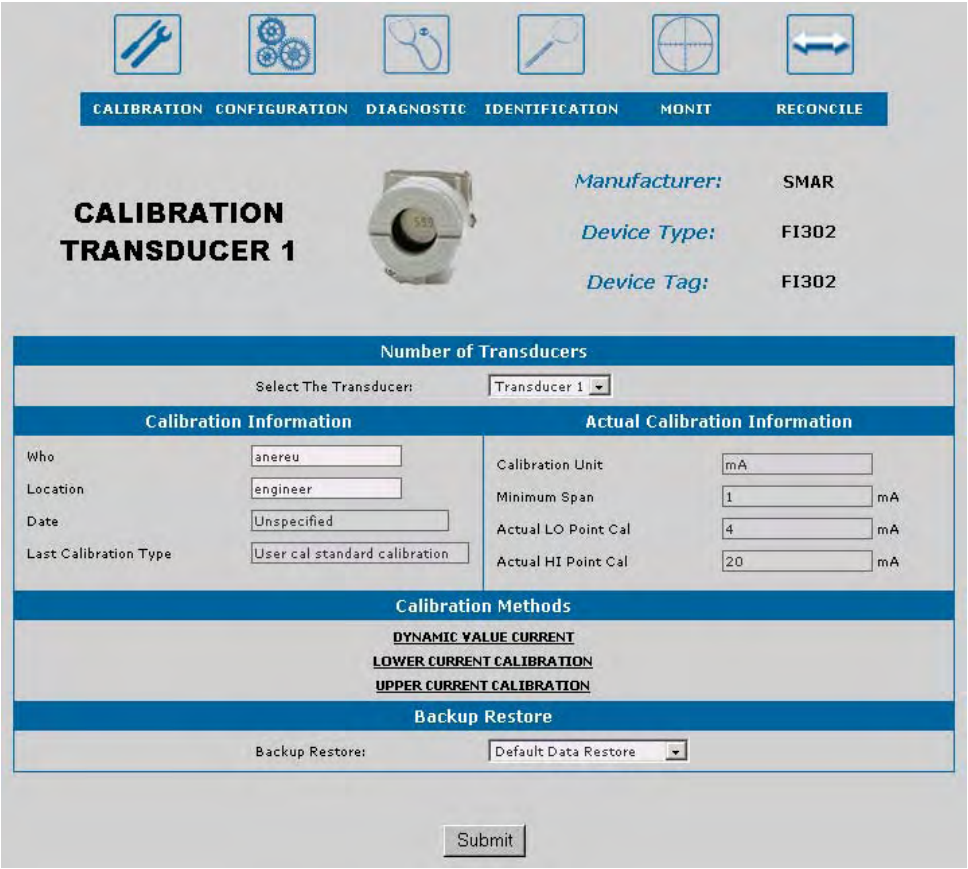


Figure G.5

Number of Transducers

Select the transducer block to be calibrated.

Calibration Information

WHO	indicates the person responsible for the executed calibration.
LOCATION	indicates the location of the calibration.
DATE	indicates the date of the executed calibration.
LAST CALIBRATION TYPE	indicates the method used in the last calibration.

Actual Calibration Information

CALIBRATION UNIT	indicates the unit for the calibration procedure.
MINIMUM SPAN	indicates the minimum value allowed between the lower and upper points of the calibration.
ACTUAL LO POINT CAL	indicates the last lower point of the current calibration.
ACTUAL HI POINT CAL	indicates the last higher point of the current calibration.

Calibration Methods

DYNAMIC VALUE CURRENT: this method shows the current parameters of the converter.

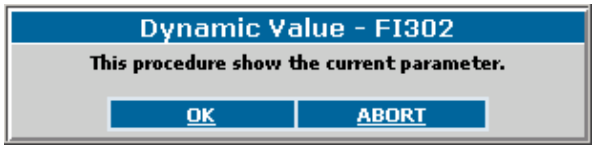


Figure G.6

Click *Ok* to proceed. The dialog box will display the current value measured, as indicated below.

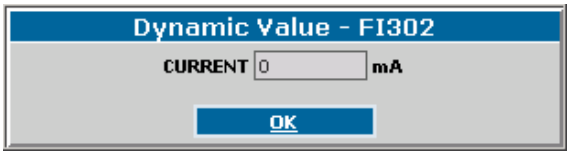


Figure G.7

LOWER CURRENT CALIBRATION: this method is used when the user wants to calibrate the lower current. The user can select the calibration unit and type the value of the applied current to be used as the reference value of the converter, respecting the limits and the minimum span.

When this method is selected, a message box appears warning the user that this procedure must be executed when the plant control is set at manual. Connect the ammeter to the corresponding output channel of the FI302.

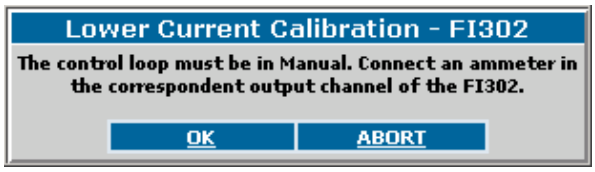


Figure G.8

Click *Ok* and wait until the current value is stable.

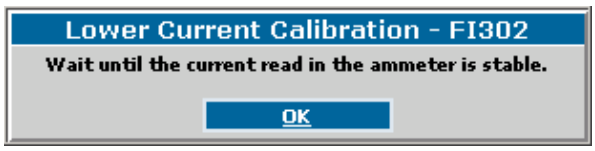


Figure G.9

Click *OK* and the current will be displayed.

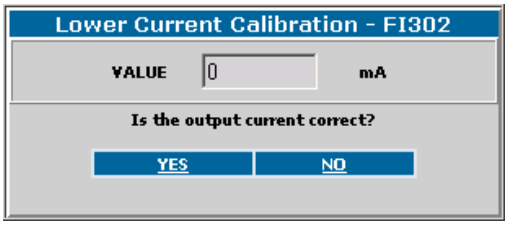


Figure G.10

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the current value:

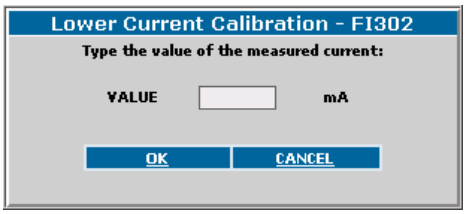


Figure G.11

Click *OK* to apply the new current value and then click *Yes* to confirm the alteration, as shown in Figure G.10.

UPPER CURRENT CALIBRATION: this method is similar to the *Lower Current Calibration* described above.

When this method is selected, a message box appears warning the user that this procedure must be executed when the plant control is set at manual. Connect the ammeter to the corresponding output channel of the FI302.

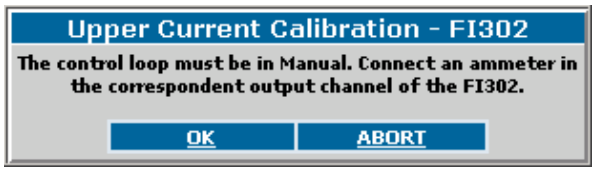


Figure G.12

Click *Ok* and wait until the current value is stable.

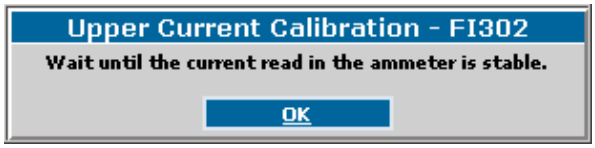


Figure G.13

Click *OK* and the current will be displayed.

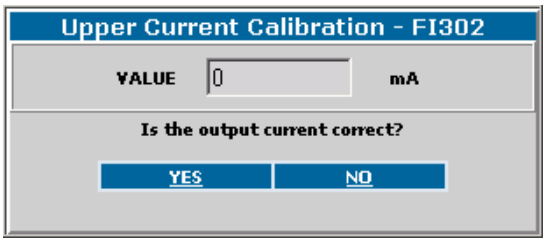


Figure G.14

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the current value:

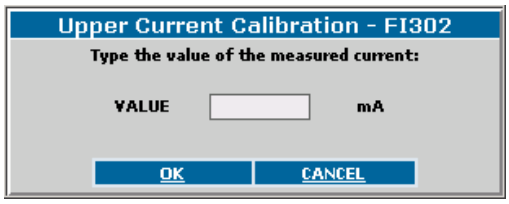


Figure G.15

Click *OK* to apply the new current value and then click *Yes* to confirm the alteration, as shown in Figure G.14.

Backup Restore

Select the method to save the calibration data or restore the configuration data.

NONE	Ok.
FACTORY CAL RESTORE	restores the factory calibration data.
LAST CAL RESTORE	restores data from the last calibration.
DEFAULT DATA RESTORE	restores default data from the flash memory.
SENSOR DATA RESTORE	restores sensor data.
FACTORY CAL BACKUP	saves the factory calibration data.
LAST CAL BACKUP	saves data from the last calibration.
SENSOR DATA BACKUP	saves sensor data.

FI302 Display Page

The user can configure the data shown in the device's display.

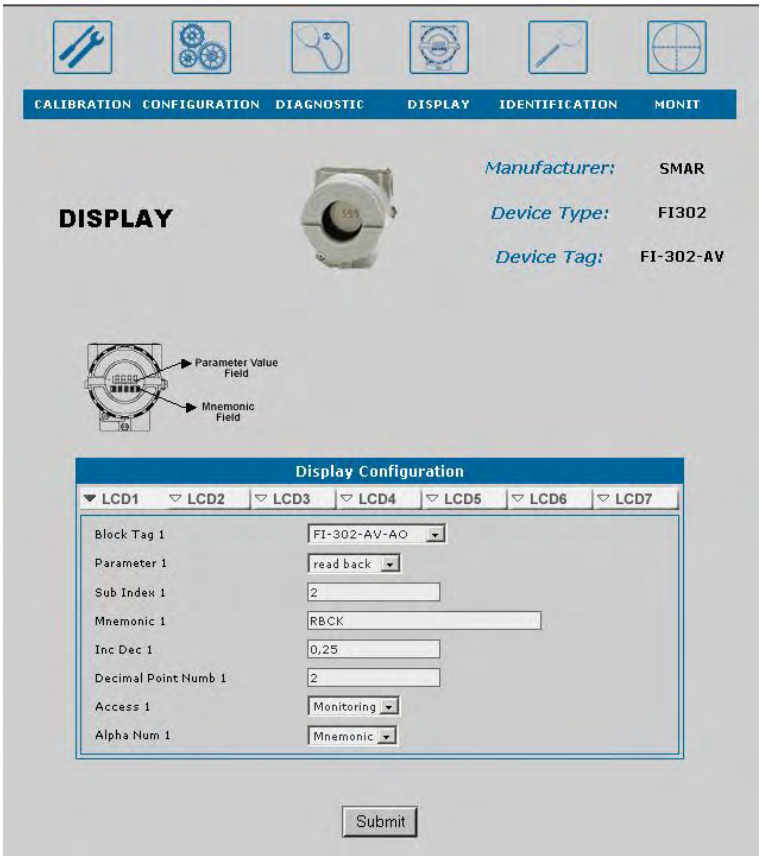


Figure G.16

Display

BLOCK TAG	shows the list of the tags for the instantiated blocks available.
PARAMETER	shows the list of parameters available to be displayed in the LCD for the block selected in the *Block Tag* option.
SUB INDEX	indicates the sub-index of the selected parameter.
MNEMONIC	indicates the mnemonic of the parameter selected in the *Parameter* option.
INC DEC	indicates the value to be added or subtracted when acting the parameter via local tuning.
DECIMAL POINT NUMB	indicates the digits to the right of the decimal point for the parameter being displayed in the LCD.
ACCESS	the user can select the type of access to the selected parameter: monitoring or action.
ALPHA NUM	indicates if the alphanumeric field will be used for the mnemonic or for the value.

FI302 Monitoring Page

This page displays the parameters of the transducer blocks.

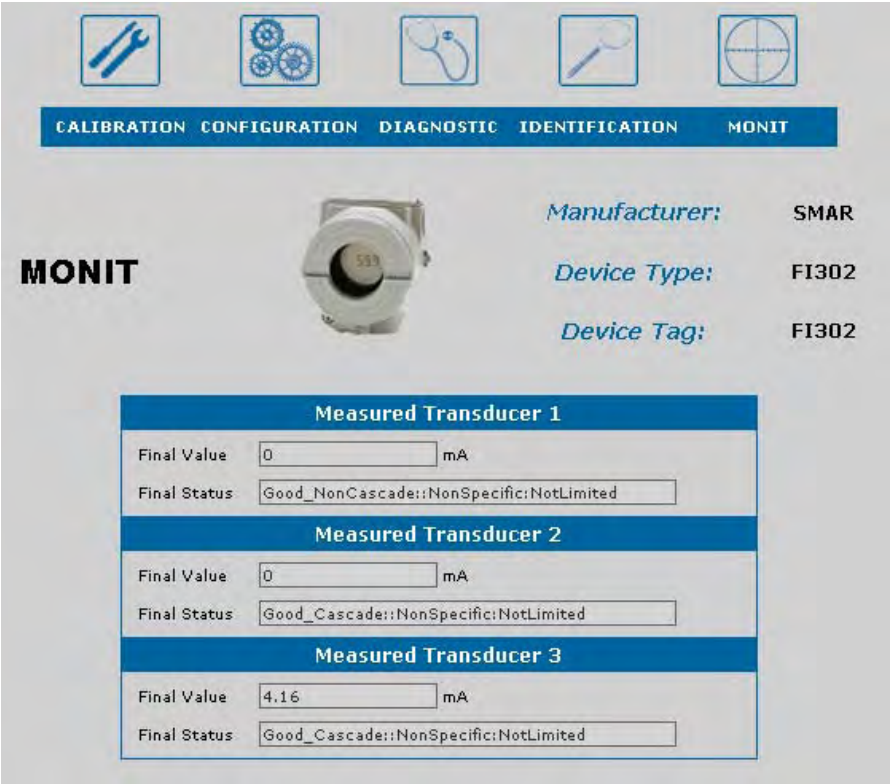


Figure G.17

Measured Transducer

FINAL VALUE	indicates the final value of the current in the corresponding transducer block.
FINAL STATUS	indicates the final status of the current in the corresponding transducer block.

H. ASSETVIEW & IF302

IF302 Home Page

The figure below shows the ***IF302*** initial page and its options:

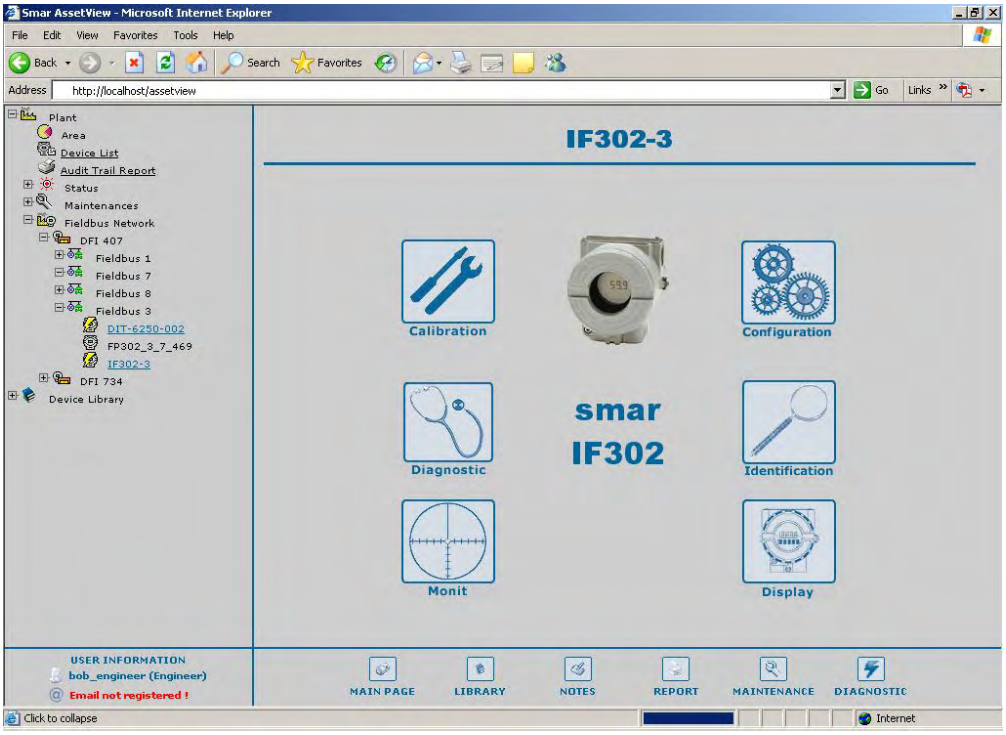


Figure H.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

IF302 Identification Page

This page displays information relevant to the converter. The user can easily identify and specify the device in the physical plant.

Figure H.2

Device

TAG	indicates the tag associated to the converter in the physical plant. The tag can use up to 32 characters.
DEVICE ID	indicates the identification code of the converter. This code can use up to 32 characters.
DEVICE SERIAL NUMBER	indicates the serial number of the converter.
DEVICE REVISION	indicates the revision of the converter.
DD REVISION	indicates the revision of the DD.
FIRMWARE REVISION	indicates the firmware revision of the converter.
HARDWARE REVISION	indicates the hardware revision of the converter.
DEVICE TYPE	identifies the type of the converter for a specific manufacturer.
MANUFACTURER	identifies the converter manufacturer.
MAIN BOARD SERIAL NUMBER	indicates the serial number of the main board.
ORDERING CODE	indicates the ordering code of the converter.

Sensor

SENSOR SERIAL NUMBER	indicates the serial number of the sensor.

IF302 Configuration Page

The IF302 contains three input transducer blocks. The channel number of the AI block corresponds to the terminal block with the same number.

Figure H.3

Parameters Configuration

PV UNIT	unit of the process variable.
PV LOWER RANGE VALUE	lower limit of the process variable.
PV UPPER RANGE VALUE	upper limit of the process variable.
OUTPUT UNIT	output parameter unit.
OUTPUT 0%	value of the output parameter corresponding to 0%.
OUTPUT 100%	value of the output parameter corresponding to 100%.

IF302 Diagnostics Page

This page displays the device status.

Figure H.4

Diagnosis

Display the diagnostic status of the device, including the status of the function block, mechanical module and sensor.

POWER UP	indicates that the device has executed the power up procedure.
SENSOR FAILURE	indicates the device sensor has failed (pressure exceeded, for example, in a 4-20mA transmitter).
OUTPUT FAILURE	indicates a failure in the output that could be due to the electronic or the mechanical module.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
OUT OF SERVICE	indicates that the function block is out of service.
DEVICE NEEDS MAINTENANCE SOON	the internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance. This diagnostic is related to the 4-20mA calibration.
BLOCK CONFIGURATION ERROR	indicates that there is an error related to the XD_SCALE parameter in the AI function block.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.

SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ELECTRONICS FAILURE	an electronic component has failed.
GENERAL ERROR	a general error related to the device has been detected.

IF302 Calibration Page

This page displays configuration data used in the calibration procedures.

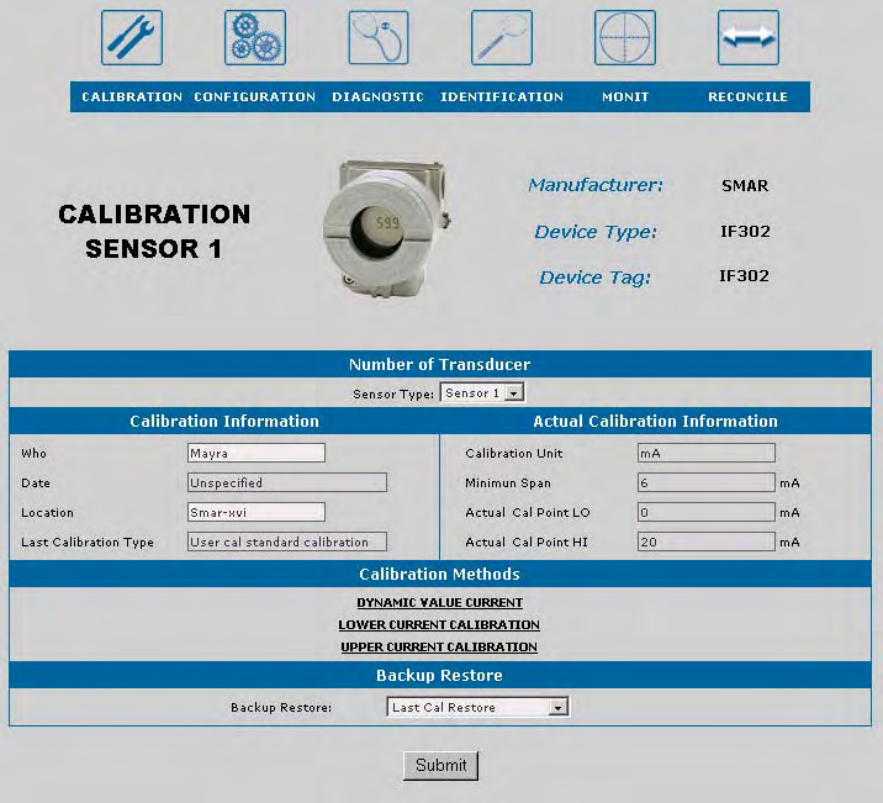


Figure H.5

Number of Transducers

Select the transducer block to be calibrated.

Calibration Information

WHO	indicates the person responsible for the executed calibration.
LOCATION	indicates the location of the calibration.
DATE	indicates the date of the executed calibration.
LAST CALIBRATION TYPE	indicates the method used in the last calibration.

Actual Calibration Information

CALIBRATION UNIT	indicates the unit for the calibration procedure.
MINIMUM SPAN	indicates the minimum value allowed between the lower and upper points of the calibration.
ACTUAL CAL POINT LO	indicates the last lower point of the current calibration.
ACTUAL CAL POINT HI	indicates the last higher point of the current calibration.

Calibration Methods

DYNAMIC VALUE CURRENT: this method shows the current parameters of the converter.

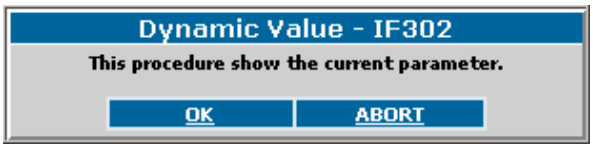


Figure H.6

Click *Ok* to proceed. The dialog box will display the current value measured, as indicated below.

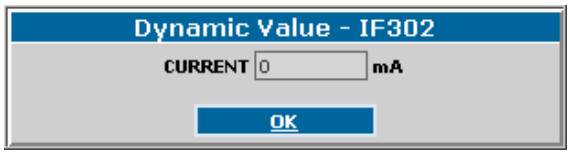


Figure H.7

LOWER CURRENT CALIBRATION: this method is used when the user wants to calibrate the lower current. The user can select the calibration unit and type the value of the applied current to be used as the reference value of the converter, respecting the limits and the minimum span.

Connect the current generator to the IF302's input channel to be calibrated and apply the lower current value.

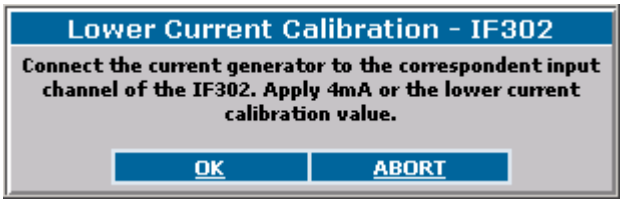


Figure H.8

Click *Ok* and wait until the current value is stable.

Figure H.9

Click *Continue* and the current will be displayed.

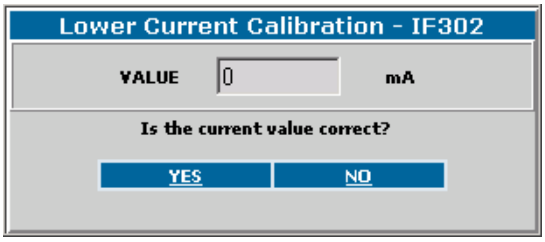


Figure H.10

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the current value:

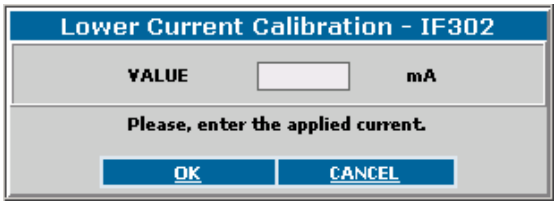


Figure H.11

Click *OK* to apply the new current value and then click *Yes* to confirm the alteration, as shown in Figure H.10.

UPPER CURRENT CALIBRATION: this method is similar to the *Lower Current Calibration* described above.

Connect the current generator to the IF302's input channel to be calibrated and apply the upper current value.

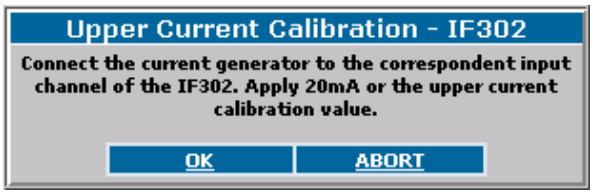


Figure H.12

Click *Ok* and wait until the current value is stable.

Figure H.13

Click *Continue* and the current will be displayed.

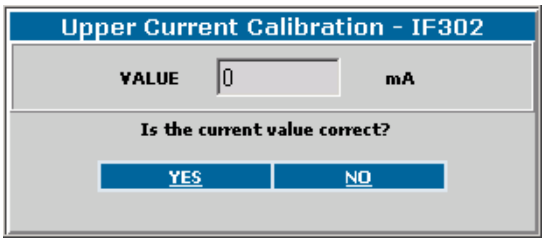


Figure H.14

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the current value:

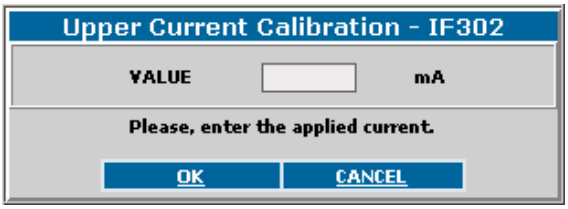


Figure H.15

Click *OK* to apply the new current value and then click *Yes* to confirm the alteration, as shown in Figure H.14.

Backup Restore

Select the method to save the calibration data or restore the configuration data.

NONE	Ok.
FACTORY CAL RESTORE	restores the factory calibration data.
LAST CAL RESTORE	restores data from the last calibration.
DEFAULT DATA RESTORE	restores default data from the flash memory.
SENSOR DATA RESTORE	restores sensor data.
FACTORY CAL BACKUP	saves the factory calibration data.
LAST CAL BACKUP	saves data from the last calibration.
SENSOR DATA BACKUP	saves sensor data.

FI302 Display Page

The user can configure the data shown in the device's display.

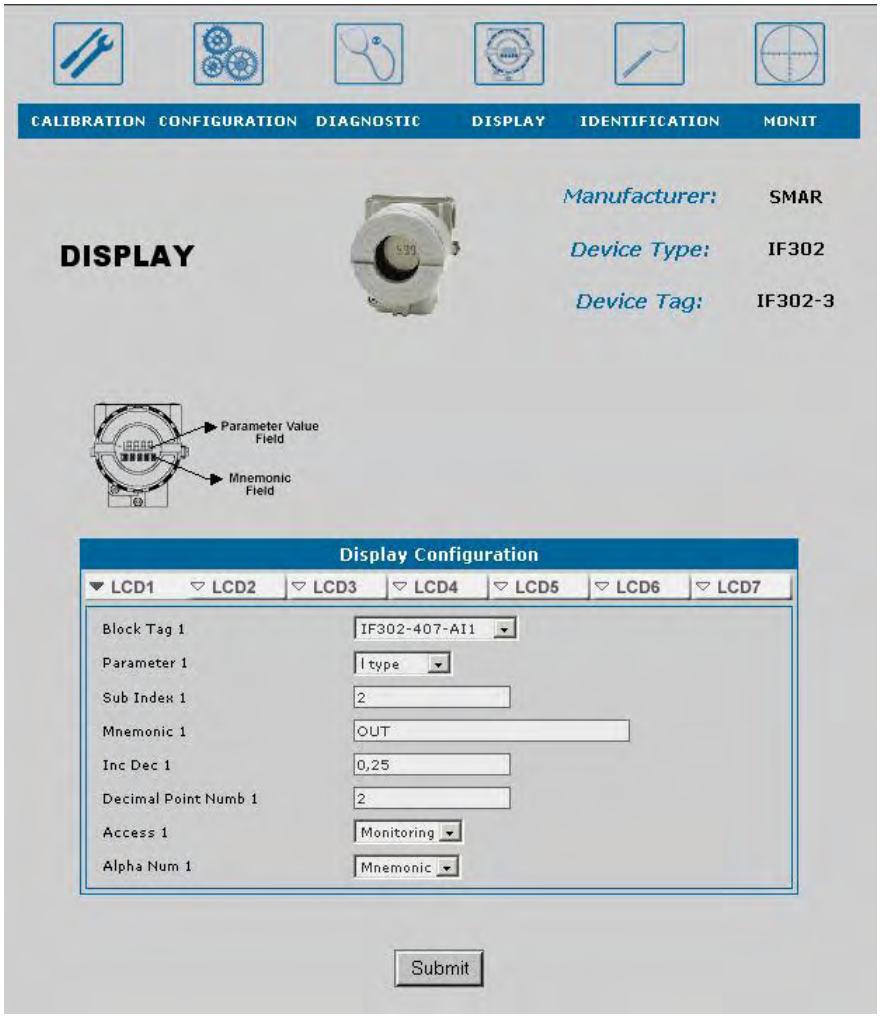


Figure H.16

Display

BLOCK TAG	shows the list of the tags for the instantiated blocks available.
PARAMETER	shows the list of parameters available to be displayed in the LCD for the block selected in the *Block Tag* option.
SUB INDEX	indicates the sub-index of the selected parameter.
MNEMONIC	indicates the mnemonic of the parameter selected in the *Parameter* option.
INC DEC	indicates the value to be added or subtracted when acting the parameter via local tuning.
DECIMAL POINT NUMB	indicates the digits to the right of the decimal point for the parameter being displayed in the LCD.
ACCESS	the user can select the type of access to the selected parameter: monitoring or action.
ALPHA NUM	indicates if the alphanumeric field will be used for the mnemonic or for the value.

IF302 Monitoring Page

This page displays the parameters of the transducer blocks.

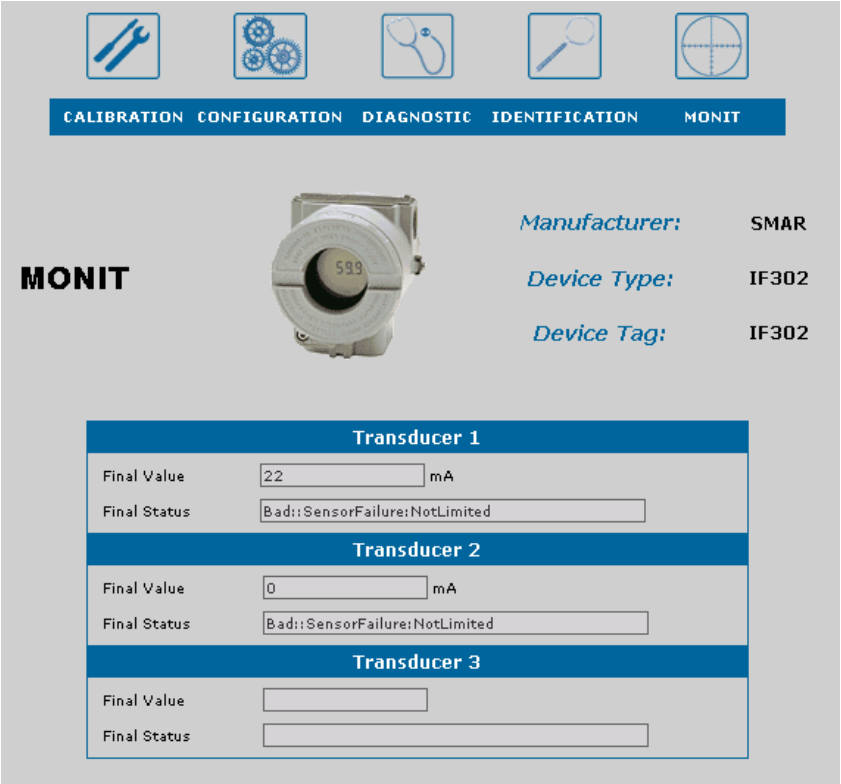


Figure H.17

Measured Transducer

PRIMARY VALUE	indicates the value of the current output in the corresponding transducer block.
PRIMARY VALUE STATUS	indicates the status of the current in the corresponding transducer block.

I. ASSETVIEW & FR302

FR302 Home Page

The figure below shows the ***FR302*** initial page and its options:

Figure I.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

FR302 Identification Page

This page displays information relevant to the fieldbus relay. The user can easily identify and specify the equipment in the physical plant.

Figure I.2

Device

TAG	indicates the tag associated to the device in the physical plant. The tag can use up to 32 characters.
DEVICE ID	identifies the type of the device for a specific manufacturer.
DEVICE TYPE	indicates the serial number of the device.
DEVICE SERIAL NUMBER	indicates the revision of the device.
DEVICE REVISION	indicates the hardware revision of the device.
HARDWARE REVISION	indicates the identification code of the device. This code can use up to 32 characters.
MANUFACTURER	identifies the device manufacturer.
MAIN BOARD SERIAL NUMBER	indicates the serial number of the device main board.
FIRMWARE REVISION	indicates the firmware revision of the device.
DD REVISION	indicates the revision of the DD.
RELAY TYPE	indicates the relay type of the device.

FR302 Configuration Page

There are some parameters in the **FR302** that can be used in the predictive and proactive maintenance.

The user can check the general diagnostic status in the **FR302** *Diagnostic Page* (see the next section). This status is generated according to the user configuration in the **FR302** *Configuration Page*.

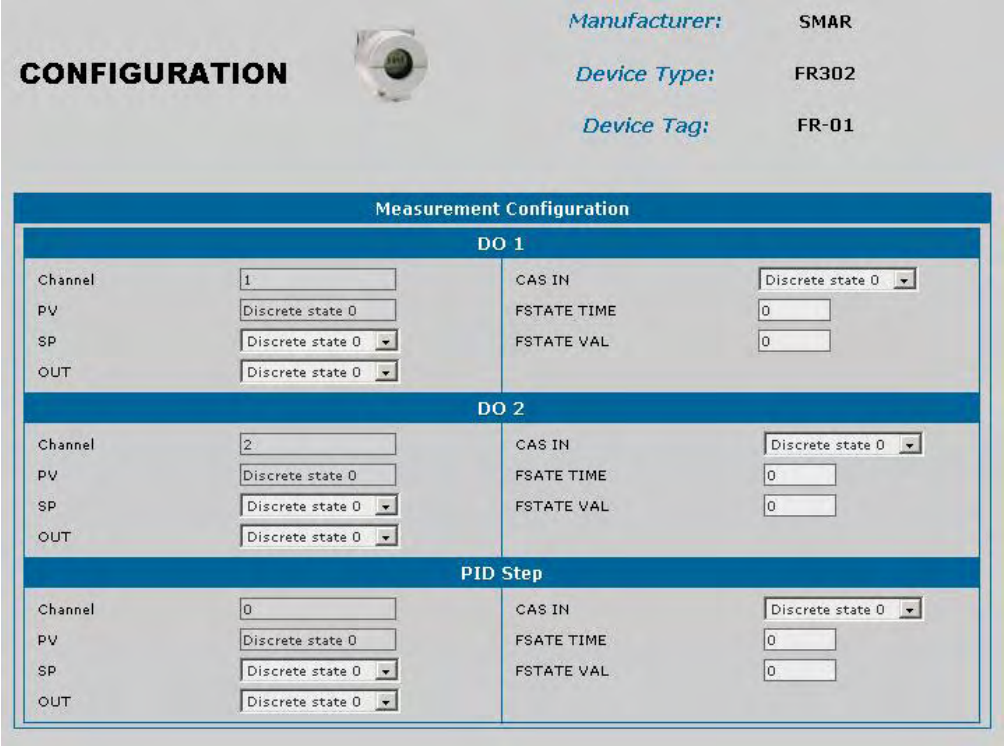


Figure I.3

Measurement Configuration - Digital Outputs 1, 2 and PID Step

CHANNEL	Indicates the relay output channel.
PV	indicates the process variable value.
SP	indicates the setpoint value
OUT	indicates the output value.
CAS IN	Indicates the remote setpoint value, which must come from another Fieldbus block, or a DCS block through a defined link.
FSTATE TIME	Indicates the time in seconds to ignore the existence of a new fault state condition. If the fault state condition does not persist for FSTATE_TIME seconds and while this time does not elapse, the block will execute in the last actual mode.
FSTATE VAL	Indicates the preset analog SP value to use when fault occurs. This value will be used if the I/O option fault state is selected.

FR302 Diagnostics Page

The user can check the general diagnostic status in the *FR302 Diagnostic Page*.

Figure I.4

Diagnostic

BLOCK CONFIGURATION ERROR	indicates the error status of the hardware and software components associated with the block.
LINK CONFIGURATION ERROR	indicates the error status of a link.
SIMULATE ACTIVE	indicates that the device is on simulation mode.
LOCAL OVERRIDE	indicates that the device is being operated manually.
DEVICE FAILSAFE	indicates that the device is in the failsafe mode.
POWER UP	indicates that the device has finalized a power up procedure.
INPUT FAILURE	Indicates a failure in the input variable.
OUTPUT FAILURE	indicates a failure in the output that could be due to the electronic or the mechanical module.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
LOST STATIC DATA	indicates that the device lost data from the flash or the EEPROM memory.
LOST NV DATA	indicates that the device lost data from the RAM memory.
READ BACK CHECK FAILED	indicates a discrepancy in reading the read back value. This could be caused by a hardware failure.
OUT-OF-SERVICE	indicates that the function block is Out-of-Service.
DEVICE NEEDS MAINTENANCE SOON	the internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance.

FR302 Display Page

The user can configure the data shown in the device's display.

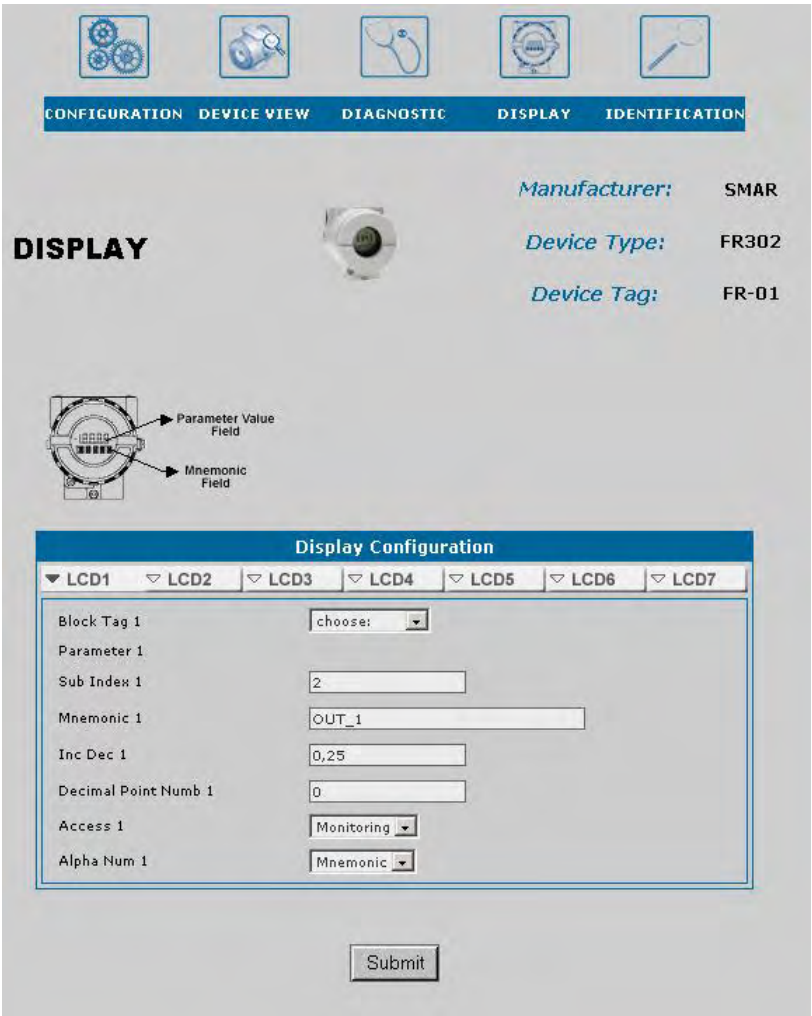


Figure I.5

Display Configuration

BLOCK TAG	shows the list of the tags for the instantiated blocks available.
PARAMETER	shows the list of parameters available to be displayed in the LCD for the block selected in the Block Tag option.
SUB INDEX	indicates the sub-index of the selected parameter.
MNEMONIC	indicates the mnemonic of the parameter selected in the Parameter option.
INC DEC	indicates the value to be added or subtracted when acting the parameter via local tuning.
DECIMAL POINT NUMB	indicates the digits to the right of the decimal point for the parameter being displayed in the LCD.
ACCESS	the user can select the type of access to the selected parameter: monitoring or action.
ALPHA NUM	indicates if the alphanumeric field will be used for the mnemonic or for the value.

FR302 Device View Page

The user can monitor the device's data opening the *Device View* page.

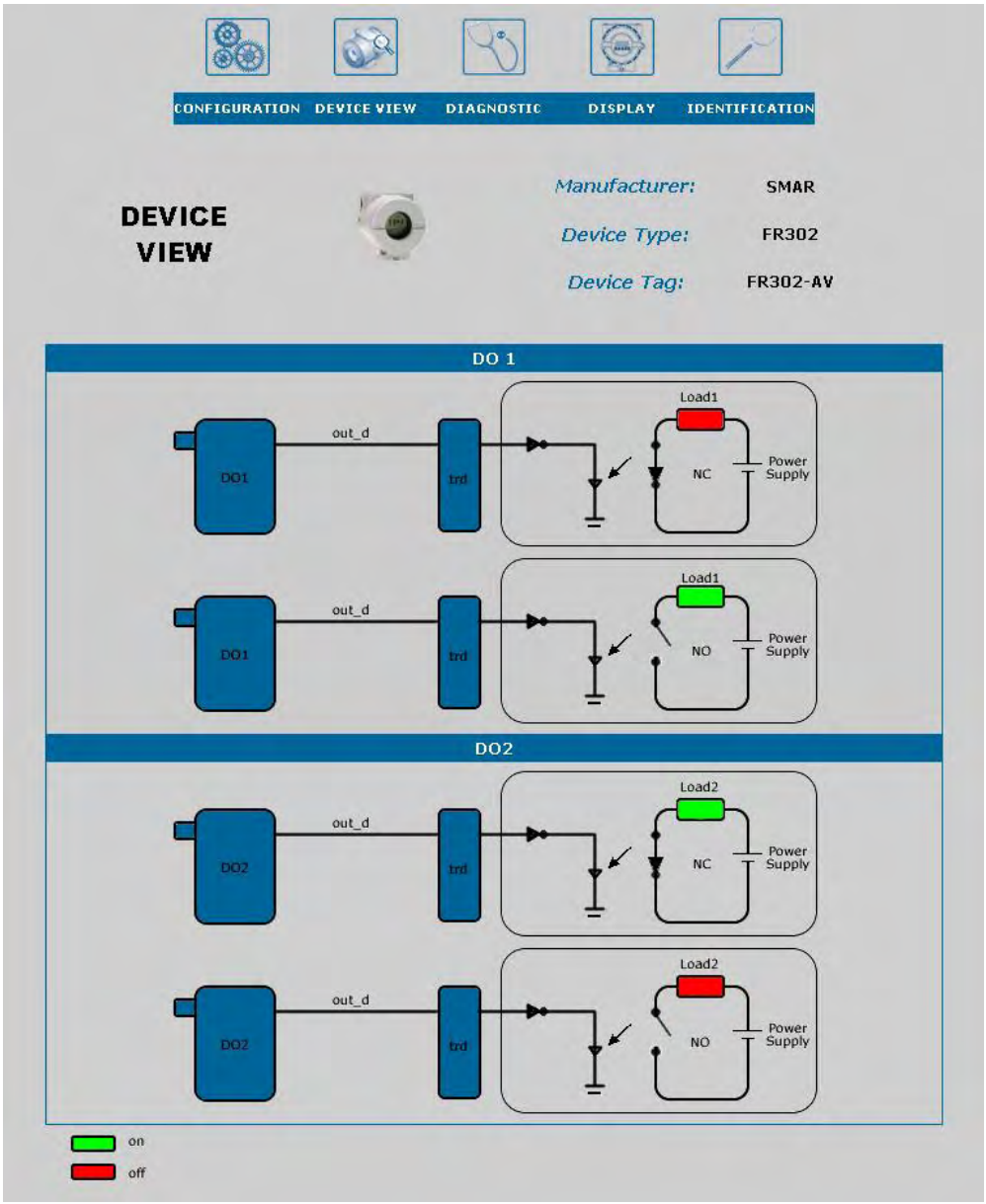


Figure I.6

J. ASSETVIEW & TP302

TP302 Home Page

The figure below shows the ***TP302*** initial page and its options:

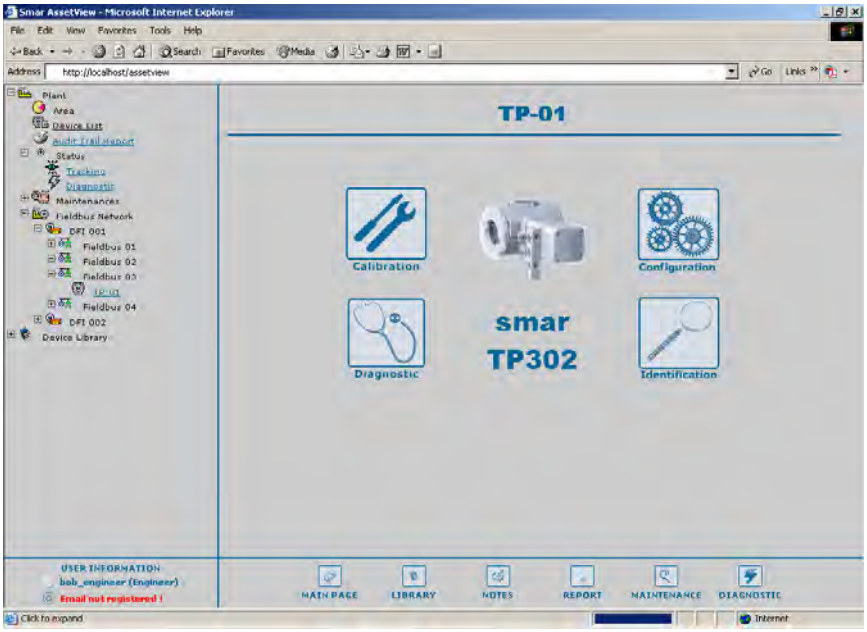


Figure J.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

TP302 Identification Page

This page displays information relevant to the transmitter. The user can easily identify and specify the transmitter in the physical plant.

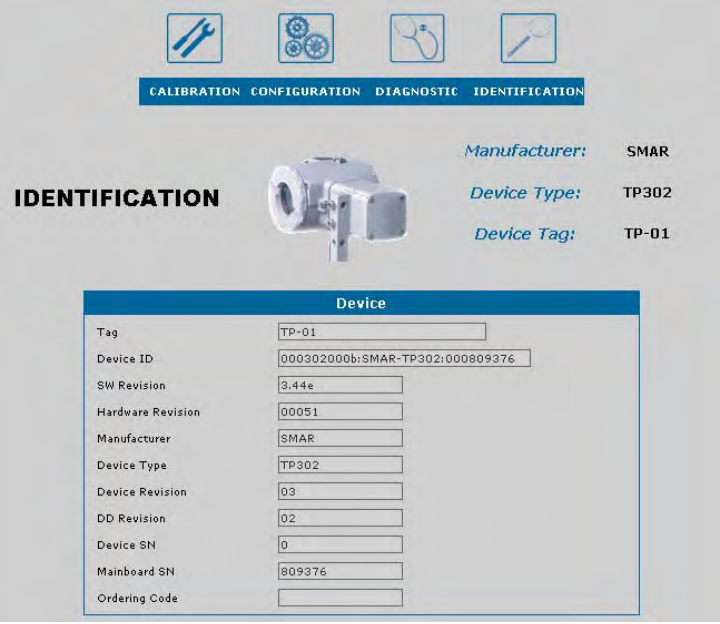


Figure J.2

Device

TAG	indicates the tag associated to the transmitter in the physical plant. The tag can use up to 32 characters.
DEVICE ID	indicates the identification code of the transmitter.
SW REVISION	indicates the serial number of the transmitter.
DEVICE REVISION	indicates the revision of the transmitter.
HARDWARE REVISION	indicates the hardware revision of the transmitter.
MANUFACTURER	identifies the transmitter manufacturer
DEVICE TYPE	identifies the type of the transmitter for a specific manufacturer.
DD REVISION	indicates the revision of the DD.
DEVICE SERIAL NUMBER	indicates the serial number of the transmitter.
MAIN BOARD SERIAL NUMBER	indicates the serial number of the transmitter main board.
ORDERING CODE	indicates the ordering code of the transmitter.

TP302 Configuration Page

This page configures some parameters of the TP302 input signal. It is possible to configure the channel, type of measurement, unit and alarms.

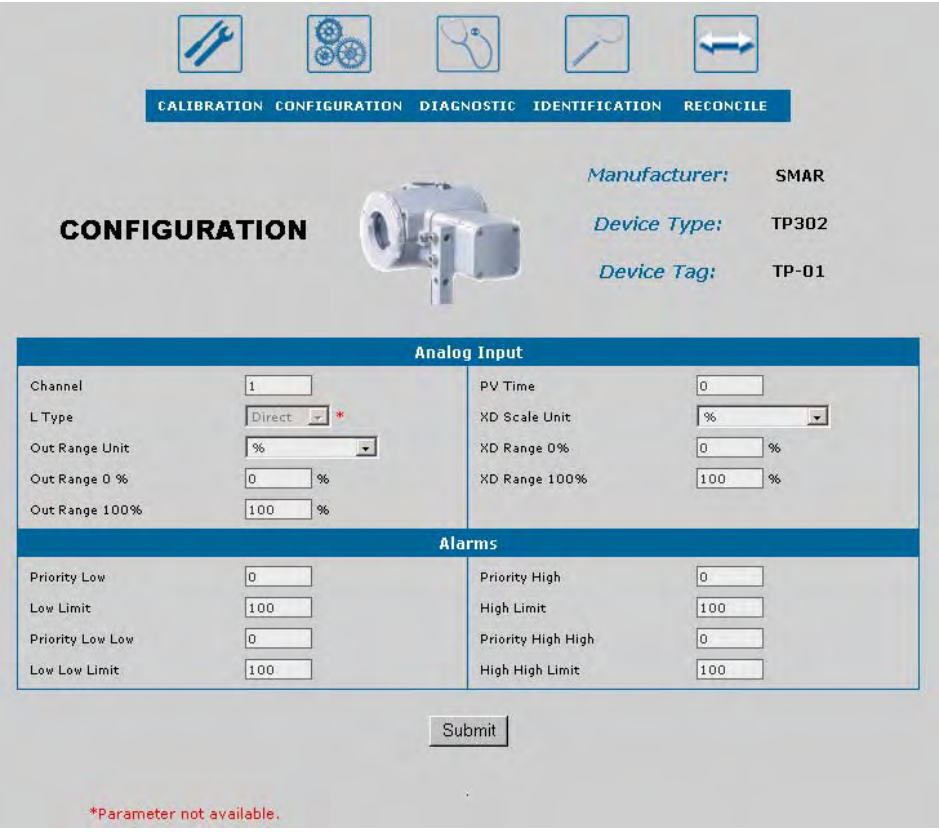


Figure J.3

Analog Input

CHANNEL	indicates the input channel of the transmitter.
L TYPE	indicates how the output values from transducer block will be used (direct, indirect or square root)
OUT RANGE UNIT	indicates unit of the process variable.
OUT RANGE 0%	lower limit of the process variable.
OUT RANGE 100%	upper limit of the process variable.
PV TIME	time constant in seconds to the exponential filter to PV.
XD SCALE UNIT	engineering unit.
XD RANGE 0%	value of the measurement corresponding to 0%, in EU.
XD RANGE 100%	value of the measurement corresponding to 100%, in EU.

Alarms

PRIORITY LOW	priority of the low alarm.
LOW LIMIT	limit of the low alarm.
PRIORITY LOW LOW	priority of the low low alarm.
LOW LOW LIMIT	limit of the low low alarm.
PRIORITY HIGH	priority of the high alarm.
HIGHLIMIT	limit of the high alarm.
PRIORITY HIGH HIGH	priority of the high high alarm.
HIGH HIGHLIMIT	limit of the high high alarm.

TP302 Diagnostic Page

The user can check the general diagnostic status in the *TP302 Diagnostic Page*.

Figure J.4

Diagnostic Status

SATURATED HALL VALUE	indicates value above or below of the calibration values of the hall sensor.
TEMPERATURE OUT OF WORK RANGE.	indicates that the temperature measured is out of the work limits.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
INPUT FAILURE	indicates that there is a failure in the position sensor (HALL).
OUT OF SERVICE	indicates that the function block is out of service.

Alarms

LOW LIMIT	Indicates that a low alarm has occurred.
LOW LOW LIMIT	Indicates that a low low alarm has occurred.
HIGHLIMIT	Indicates that a high alarm has occurred.
HIGH HIGHLIMIT	Indicates that a high high alarm has occurred.

TP302 Calibration Page

This page displays configuration data used in the calibration procedures.

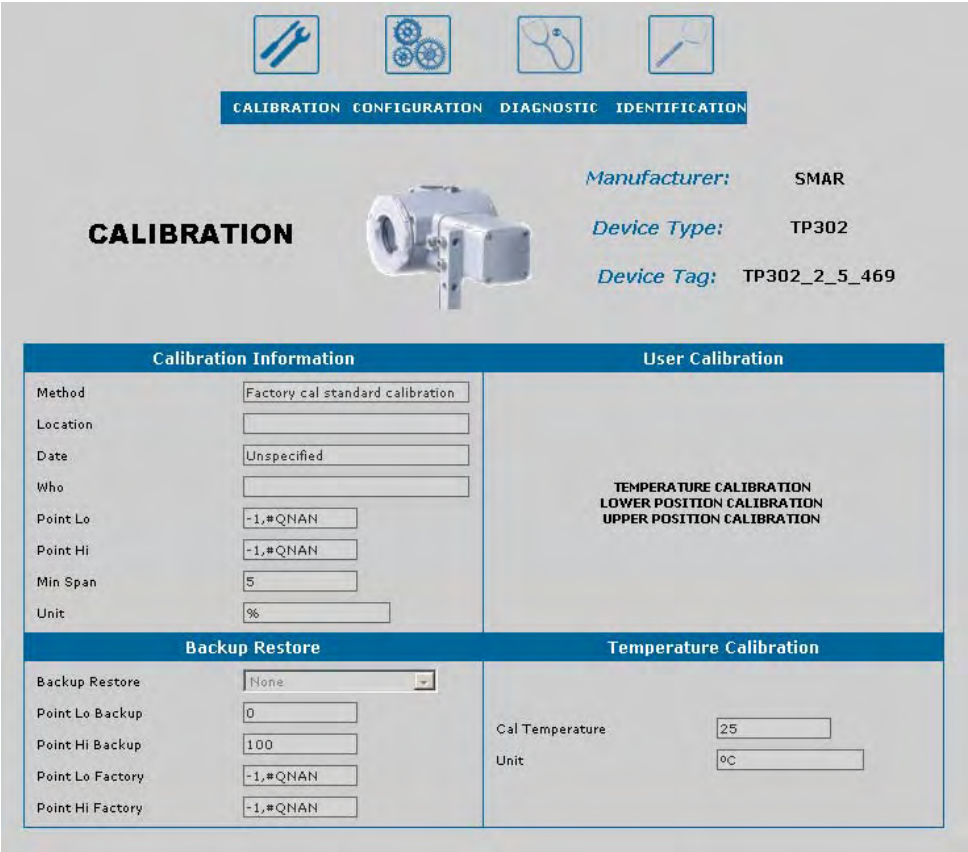


Figure J.5

Calibration Information

METHOD	indicates the calibration method used.
LOCATION	indicates the local of calibration
DATE	indicates the date of the executed calibration.
WHO	indicates the person responsible for the executed calibration.
POINT LOW	indicates the lower calibration value
POINT HI	indicates the upper calibration value
MIN SPAN	indicates the smallest difference allowed between the calibration lower position and the calibration upper position.
UNIT	indicates the unit to the position calibration procedure

Temperature Calibration

CAL TEMPERATURE	indicates the value of the last temperature calibration.
UNIT	indicates the unit for the temperature calibration procedure.

User Calibration

TEMPERATURE CALIBRATION: this method is used to calibrate the temperature sensor.

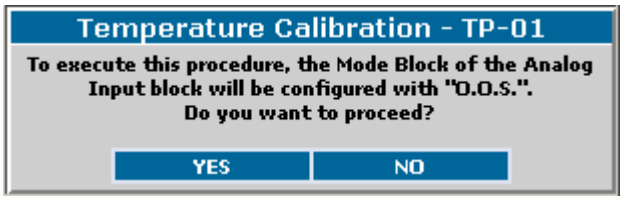


Figure J.6

Click *Yes*, the following picture will appear

Figure J.7

Click *OK* and wait the sensor stabilization.

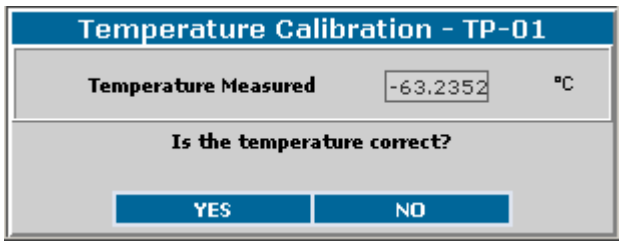


Figure J.8

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the temperature value:

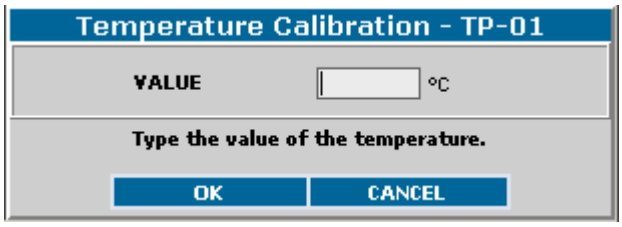


Figure J.9

Click *OK* to apply the new temperature value and then click *Yes* to confirm the alteration, as shown in Figure J.8.

LOWER POSITION CALIBRATION: this method is used when calibrating the lower position point. The user can select the calibration unit and type the value of the position applied as a reference value to the transmitter, observing the sensor limits and the minimum span.

When this method is selected, a message box appears warning the user that in this procedure must be executed when the process stops or the plant control is set to manual. Click *Yes* to continue.

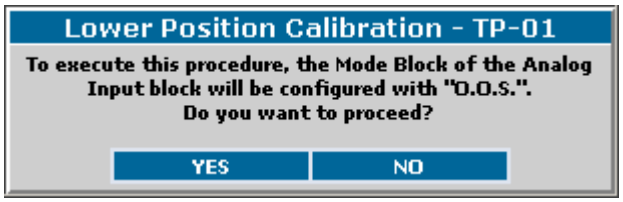


Figure J.10

Put the position 0%, click *Ok* and wait until the sensor stabilization.

Figure J.11

Click *OK* and the position in percentage will be displayed:

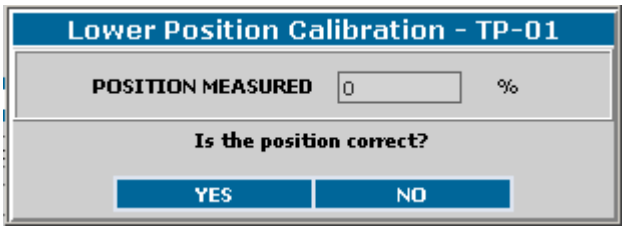


Figure J.12

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the position value:

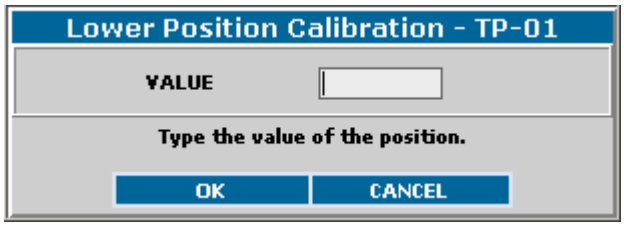


Figure J.13

Click *OK* to apply the new position value and then click *Yes* to confirm the alteration, as shown in Figure J.12.

UPPER POSITION CALIBRATION: this method is similar to the *Lower Position Calibration* procedure described above. It is used when calibrating the position with the user's reference instead of the manufacturer's reference.

When this method is selected, a message box appears warning the user that in this procedure must be executed when the process stops or the plant control is set to manual. Click *Yes* to continue.

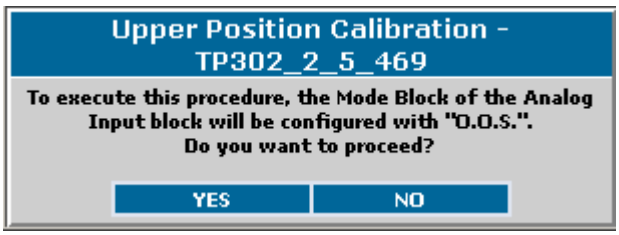


Figure J.14

Put the position in 100%, click *Ok* and wait until the sensor stabilization.

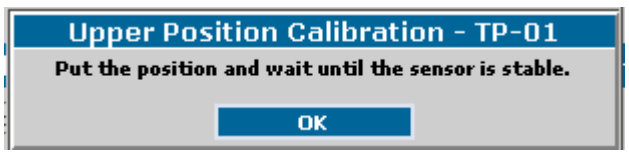


Figure J.15

Click *OK* and the position measured in percentage will be displayed:

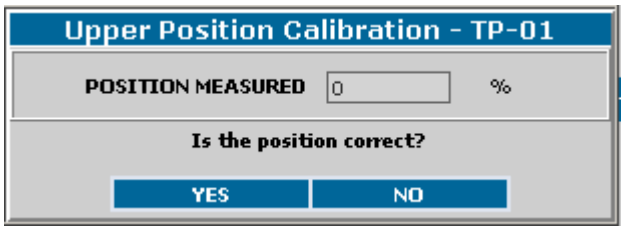


Figure J.16

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the position value:

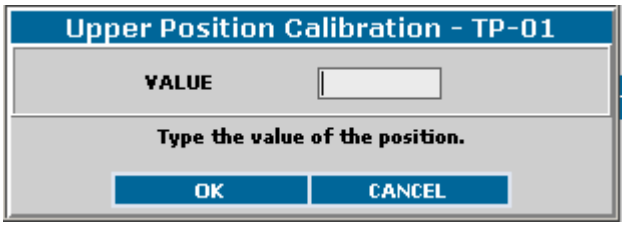


Figure J.17

Click *OK* to apply the new position value and then click *Yes* to confirm the alteration, as shown in Figure J.16.

Backup Restore

BACKUP RESTORE	select the option to save the calibration data or restore de configuration data
POINT LO BACKUP	lower point of the last calibration.
POINT HI BACKUP	upper point of the last calibration.
POINT LO FACTORY	lower point of the factory calibration.
POINT HI FACTORY	upper point of the factory calibration.

K. ASSETVIEW & FP302

FP302 Home Page

The figure below shows the ***FP302*** initial page and its options:

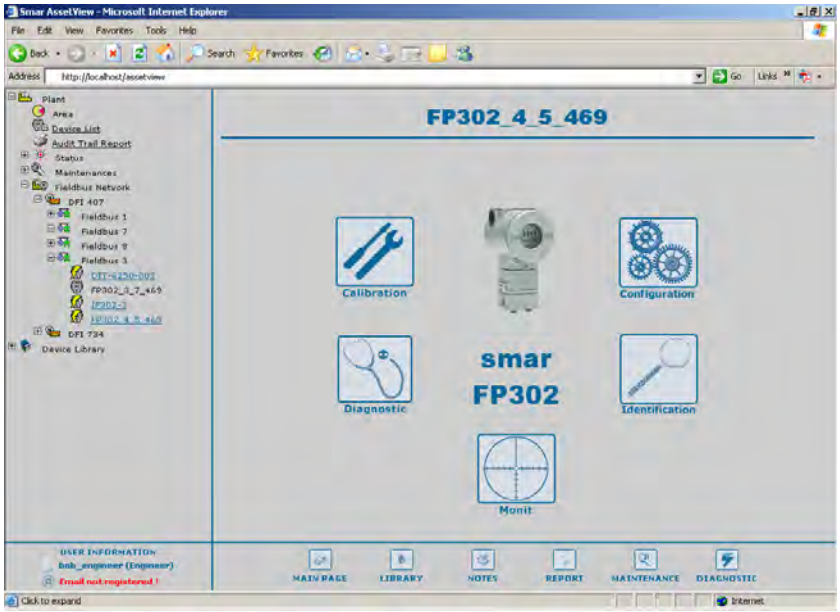


Figure K.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

FP302 Identification Page

This page displays information relevant to the Foundation fieldbus to pneumatic signal converter. The user can easily identify and specify the transmitter in the physical plant.

Figure K.2

Device

TAG	indicates the tag associated to the device in the physical plant. The tag can use up to 32 characters.
DEVICE ID	indicates the identification code of the device.
DEVICE SERIAL NUMBER	indicates the serial number of the device.
DEVICE REVISION	indicates the revision of the device.
DD REVISION	indicates the revision of the DD.
FIRMWARE REVISION	indicates the firmware revision of the device.
HARDWARE REVISION	identifies the hardware device manufacturer
DEVICE TYPE	identifies the type of the device for a specific manufacturer.
MANUFACTURER	identifies the device manufacturer
MAIN BOARD SERIAL NUMBER	indicates the serial number of the device main board.
TRANSDUCER SEREAL NUMBER	indicates the serial number of the transducer.
ORDERING CODE	indicates the ordering code of the device.

Actuator

ACT MAIN ID	indicates the identification number of the actuator manufacturer.
ACT MODEL NUMBER	indicates the identification number of the actuator model.
ACT SERIAL NUMBER	indicates the serial number of the actuator.

Valve

VALVE MAIN ID	indicates the identification number of the valve manufacturer.
VALVE MODEL NUMBER	indicates the identification number of the valve model.
VALVE SERIAL NUMBER	indicates the serial number of the valve.

FP302 Configuration Page

This page configures some parameters of the FP302 output signal. It is possible to configure the type of measure, unit, limits, set point and others.

The user can check the general diagnostic status in the *FP302 Diagnostic Page* (see the next section). This status is generated according to the user configuration in the *FP302 Configuration Page*.

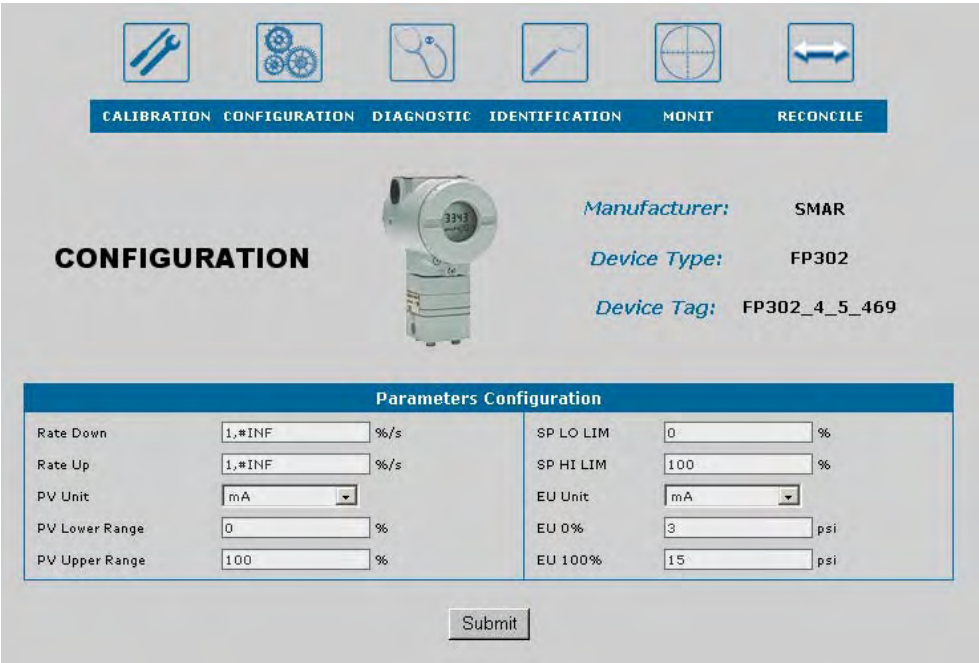


Figure K.3

Parameters Configuration

RATE DOWN	It indicates the output pressure increase rate, in the event of an input variation, in percentage (of the process variable) per second. It is disabled if on zero or +INF. Rate limiting will apply only in AUTO mode.
RATE UP	It indicates the output pressure decrease rate, in the event of an input variation, in percentage (of the process variable) per second. It is disabled if on zero or +INF. Rate limiting will apply only in AUTO mode.
PV UNIT	unit of the process variable.
PV LOWER RANGE VALUE	lower limit of the process variable.
PV UPPER RANGE VALUE	upper limit of the process variable.
SP LOW LIM	lower limit of the set point.
SP HI LIM	upper limit of the process set point.
EU UNIT	engineering unit
EU 0%	value of the pressure corresponding to 0%, in EU.
EU 100%	value of the pressure corresponding to 100%, in EU.

FP302 Diagnostic Page

The user can check the general diagnostic status in the *FP302 Diagnostic Page*.

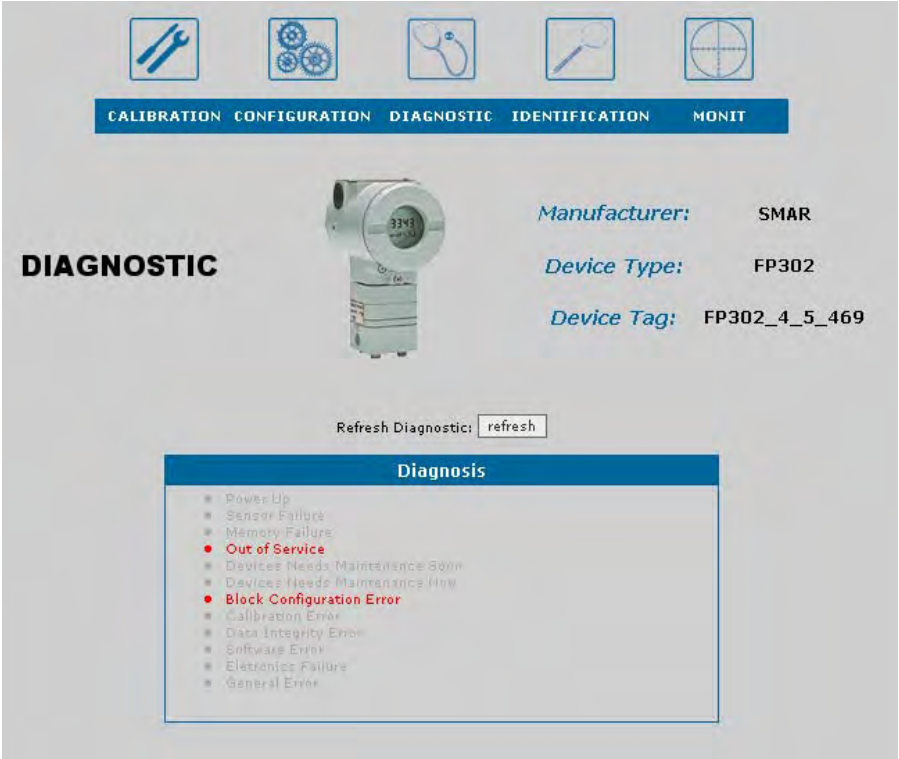


Figure K.4

Diagnosis

Shows the status of the continuous diagnostic for the device, including the condition of the function block, the electronic module and the sensor.

POWER UP	indicates that the device has executed the power up procedure.
SENSOR FAILURE	indicates a failure in the sensor, such as burnout or overpressure.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
OUT OF SERVICE	indicates that the function block is out of service.
DEVICE NEEDS MAINTENANCE SOON	the internal diagnostic according to the user configuration or device internal checkup has detected that the device will need maintenance soon. This diagnostic is related to overpressure in the sensor.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance. This diagnostic is related to the sensor of the calibration.
BLOCK CONFIGURATION ERROR	indicates that there is an error related to the XD_SCALE parameter in the AI function block.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.
SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ELECTRONICS FAILURE	an electronic component has failed.
GENERAL ERROR	a general error related to the device has been detected.

NOTE
To update the diagnostic data click in the button *REFRESH*.

FP302 Calibration Page

This page displays configuration data used in the calibration procedures.

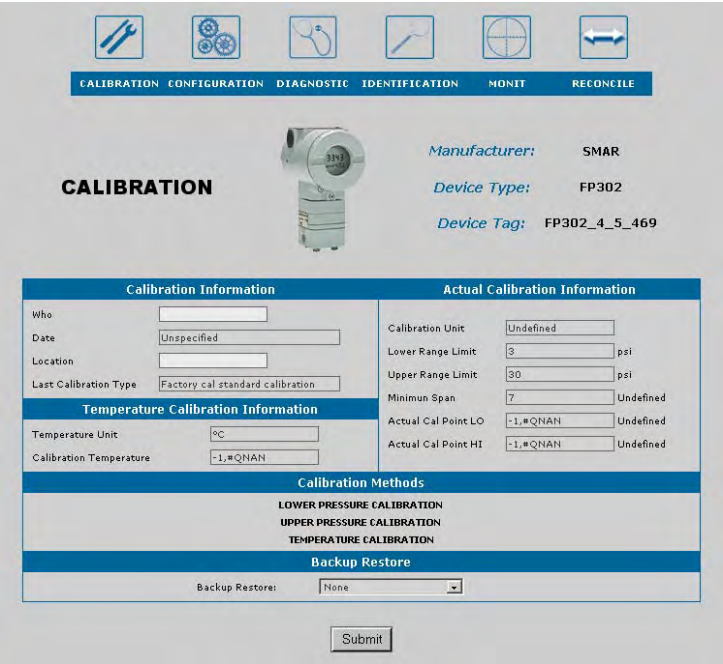


Figure K.5

Calibration Information

WHO	indicates the person responsible for the executed calibration.
DATE	indicates the date of the executed calibration.
LOCATION	indicates the location of the calibration, such as a laboratory, area 1, etc.
LAST CALIBRATION TYPE	indicates the calibration method. Before the device is released, it is calibrated according to the manufacturer criteria. If the user calibrates the converter, it will indicate that the user executed the calibration.

Temperature Calibration Information

TEMPERATURE UNIT	indicates the unit for the temperature calibration procedure.
CALIBRATION TEMPERATURE	indicates the value of the last calibration of the temperature.

Actual Calibration Information

CALIBRATION UNIT	indicates the unit for the pressure calibration procedure.
LOWER RANGE LIMIT	indicates the lower limit for the converter.
UPPER RANGE LIMIT	indicates the upper limit for the converter.
MINIMUM SPAN	indicates the minimum value allowed between the lower and upper points of the calibration.
ACTUAL CAL POINT LO	indicates the last lower point of the pressure calibration.
ACTUAL CAL POINT HI	indicates the last higher point of the pressure calibration.

Calibration Methods

LOWER PRESSURE CALIBRATION: this method is used when calibrating the lower pressure point. The user can select the calibration unit and type the value of the pressure applied as a reference value to the transmitter, observing the sensor limits and the minimum span.

When this method is selected, a message box appears warning the user to apply a pressure.

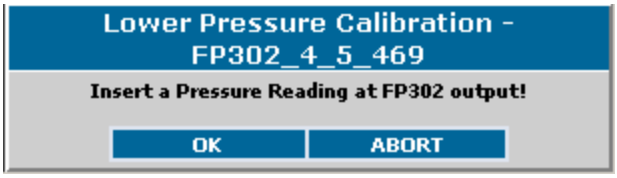


Figure K.6

Click *OK* and wait until the pressure stabilization.

Figure K.7

Click *OK* and the pressure measured will be displayed.

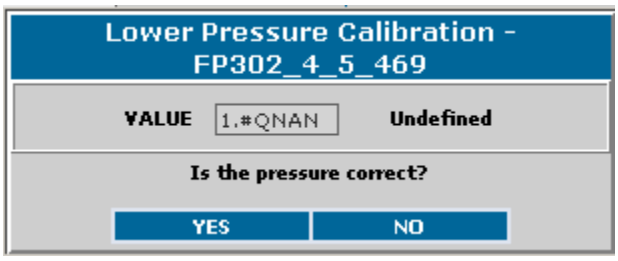


Figure K.8

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the pressure value:

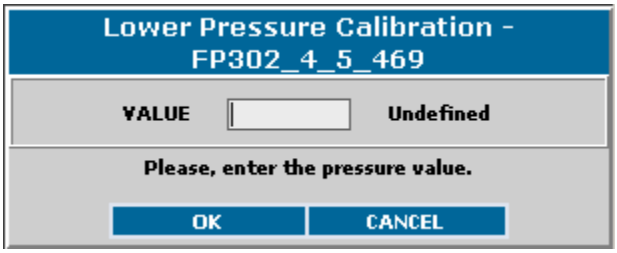


Figure K.9

Click *OK* to apply the new pressure value and then click *Yes* to confirm the alteration, as shown in Figure K.8.

UPPER PRESSURE CALIBRATION: this method is similar to the *Lower Pressure Calibration* procedure described above. It is used when calibrating the pressure with the user's reference instead of the manufacturer's reference.

When this method is selected, a message box appears warning the user to apply a pressure.

Figure K.10

Click *OK* and wait until the pressure stabilization.

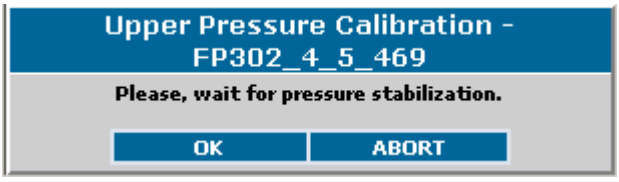


Figure K.11

Click *OK* and the pressure measured will be displayed.

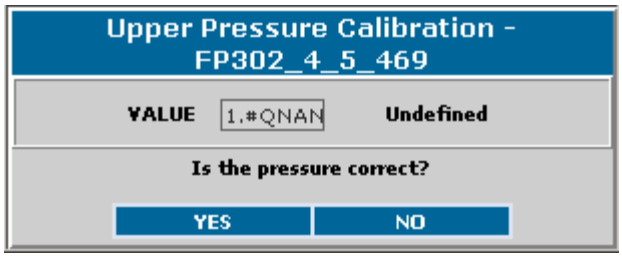


Figure K.12

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the pressure value:

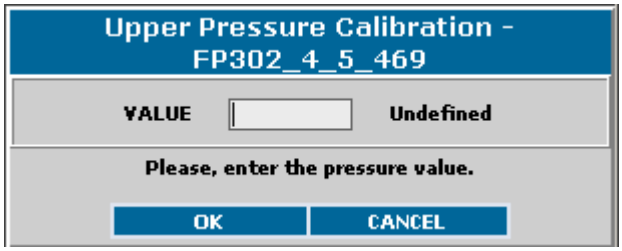


Figure K.13

Click *OK* to apply the new pressure value and then click *Yes* to confirm the alteration, as shown in Figure K.12.

TEMPERATURE CALIBRATION: this method is used to calibrate the temperature sensor.

Click *Yes*, apply the temperature and wait for the sensor to stabilize.

Figure K.14

Click *Ok* to start the calibration. The temperature measured will be displayed:

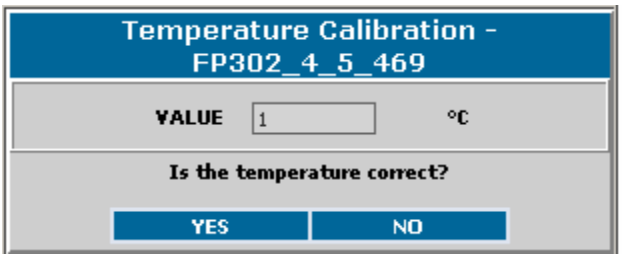


Figure K.15

If the value displayed is correct, click *Yes* to conclude this procedure. Otherwise, click *No* and type the temperature value:

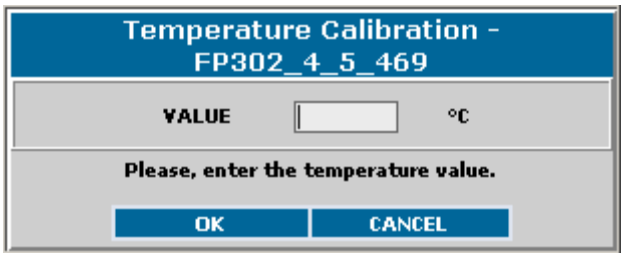


Figure K.16

Click *OK* to apply the new temperature value and then click *Yes* to confirm the alteration, as shown in Figure K.15.

FP302 Monitoring Page

This page monitors the transducer block parameters of the converter.

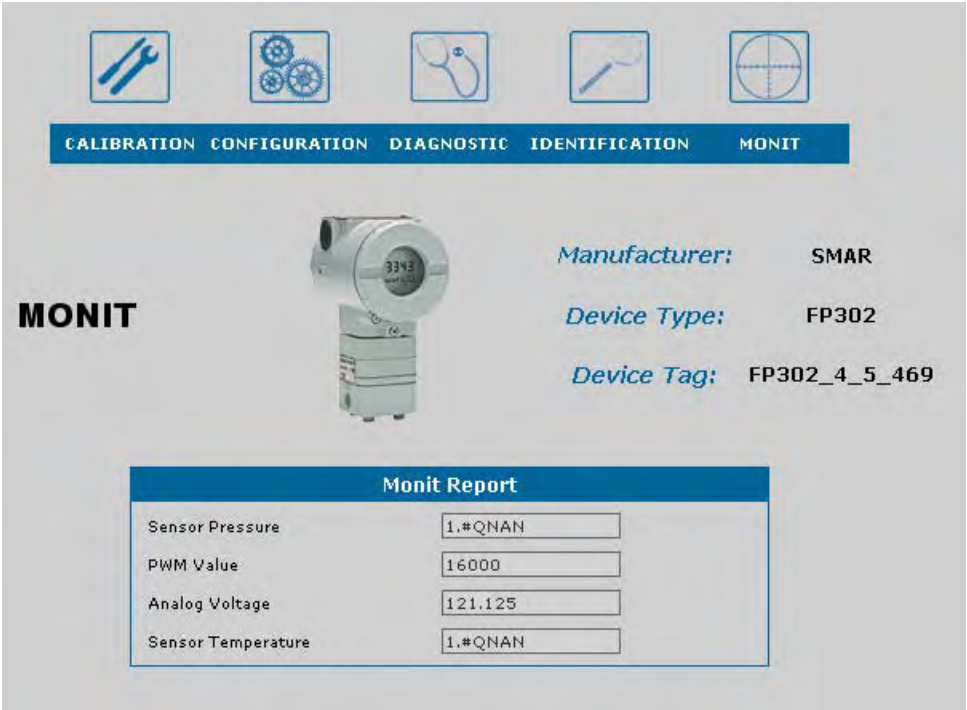


Figure K.17

Monit Report

SENSOR PRESSURE	Indicate the pressure of the sensor.
PWM VALUE	indicates the value PWM (Pulse Width Modulation) to generate the piezo voltage.
ANALOG VOLTAGE	indicates the voltage value.
SENSOR TEMPERATURE	indicates the temperature of the sensor.

L.ASSETVIEW & MAGNETROL PULSAR™

Magnetrol Pulsar™ Home Page

The figure below shows the ***Magnetrol Pulsar™*** initial page and its options:

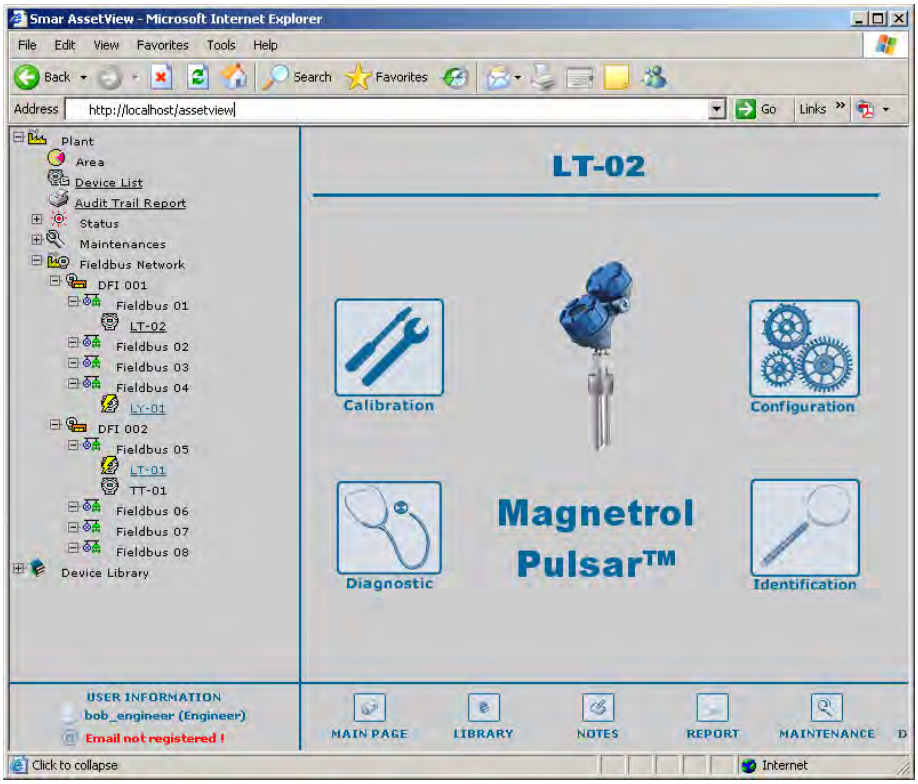


Figure L.1

The following sub-sections will describe each one of the pages developed for the *Device* maintenance.

Magnetrol Pulsar™ Identification Page

This page displays information relevant to the equipment. The user can easily identify and specify the transmitter in the physical plant.

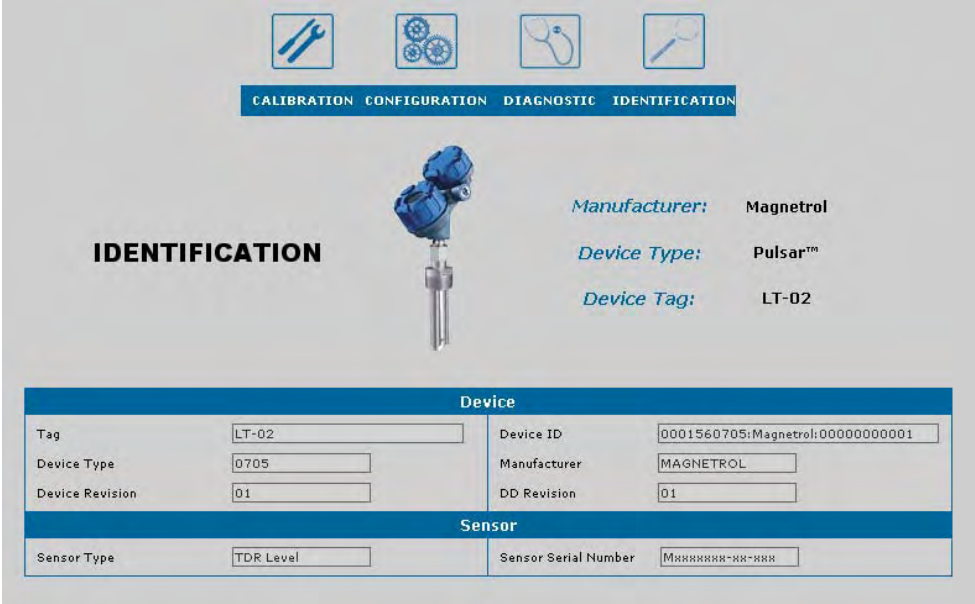


Figure L.2

Device

TAG	indicates the tag associated to the transmitter in the physical plant. The tag can use up to 32 characters.
DEVICE TYPE	identifies the type of the transmitter for a specific manufacturer.
DEVICE REVISION	indicates the revision of the transmitter.
DEVICE ID	indicates the identification code of the transmitter. This code can use up to 32 characters.
MANUFACTURER	identifies the transmitter manufacturer.
DD REVISION	indicates the revision of the DD.

Sensor

SENSOR TYPE	indicates the sensor type of the transmitter.
SENSOR SERIAL NUMBER	indicates the sensor serial number of the transmitter.

Magnetrol Pulsar™ - Configuration Page

This page configures some parameters of the Magnetrol Pulsar™. It can be configured the measurement type, engineering unit, cutoff and functions used by the equipment.

The user can check the general diagnostic status in the *Magnetrol Pulsar™ Diagnostic Page* (see the next section). This status is generated according to the user configuration in the *Magnetrol Pulsar™ Configuration Page*.

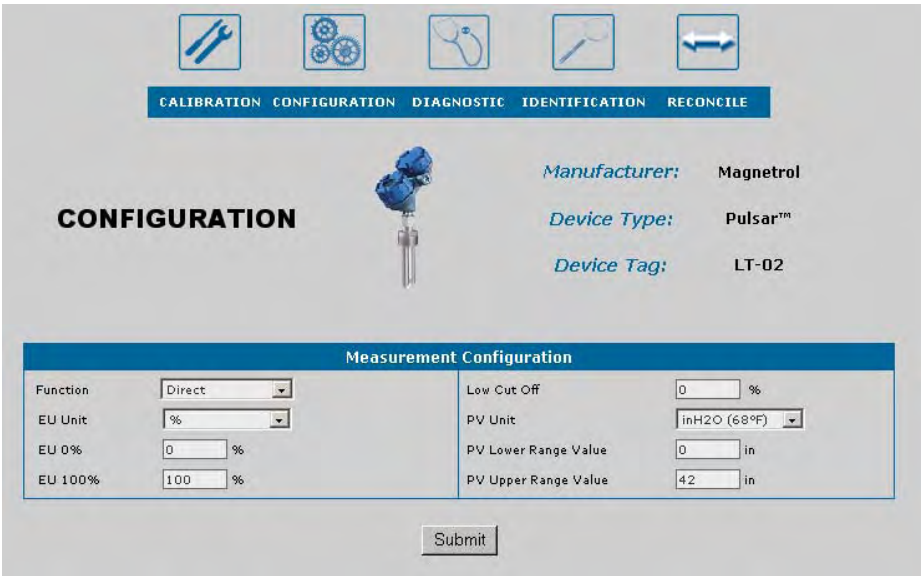


Figure L.3

Measurement Configuration

FUNCTION	Indicates the function that acts in the *Primary Value*: *Linear* or *Table*.
EU UNIT	engineering unit.
EU 0%	value of the pressure corresponding to 0%, in EU.
EU 100%	value of the pressure corresponding to 100%, in EU.
LOW CUT OFF	indicates the value of the pressure cutoff. If the pressure value is lower than the value indicated by *Low Cur Off*, zero (“0”) will be displayed.
PV UNIT	unit of the process variable.
PV LOWER RANGE VALUE	lower limit of the process variable.
PV UPPER RANGE VALUE	upper limit of the process variable.

Magnetrol Pulsar™ Diagnóstic Page

The user can check the general diagnostic status in the *Magnetrol Pulsar™ Diagnostic Page*.

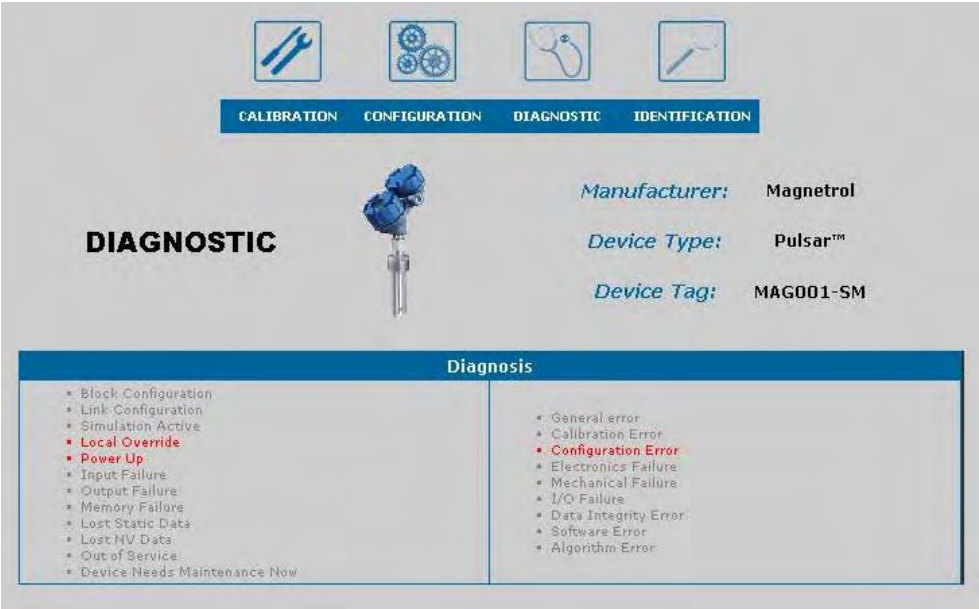


Figure L.4

Diagnosis

Shows the status of the continuous diagnostic for the device, including the condition of the function block, the electronic module and the sensor.

BLOCK CONFIGURATION ERROR	indicates that there is an error related to the XD_SCALE parameter in the AI function block.
LINK CONFIGURATION	indicates the error status of a link.
SIMULATION ACTIVE	indicates that the device is on simulation mode.
LOCAL OVERRIDE	indicates that the device is being operated manually.
POWER UP	indicates that the device has finalized a power up procedure.
INPUT FAILURE	indicates failure in the input signal.
OUTPUT FAILURE	indicates failure in the output signal.
MEMORY FAILURE	indicates an electronic failure according to the internal checkup process, such as an incorrect checksum detected in the main memory.
LOST STATIC DATA	indicates that the device lost data from the flash or the EEPROM memory.
LOST NV DATA	indicates that the device lost data from the RAM memory.
OUT OF SERVICE	indicates that the function block is out of service.
DEVICE NEEDS MAINTENANCE NOW	the internal diagnostic according to the user configuration or device internal checkup has detected that the device needs maintenance. This diagnostic is related to the sensor of the calibration.
GENERAL ERROR	a general error related to the device has been detected.
CALIBRATION ERROR	indicates that an error occurred during the calibration of the device, or that a calibration error has been detected while operating the device.
CONFIGURATION ERROR	an error occurred during the configuration of the device or a configuration error has been detected while operating of the device.
ELECTRONICS FAILURE	an electronic component has failed.
MECHANICAL FAILURE	E a mechanical component has failed.
I/O FAILURE	Indicates that an I/O failure has occurred.
DATA INTEGRITY ERROR	indicates that data stored in the system may be no longer valid, for example, because the checksum of the data in the RAM memory has failed when compared to the data in the non-volatile memory.
SOFTWARE ERROR	the software has detected an error that could have been caused by an improper interruption of a service routine, an arithmetic overflow, a watchdog timer, etc.
ALGORITHM ERROR	the algorithm used in the transducer block generated an error. This could be due to an overflow, data reasonableness failure, etc.

Magnetrol Pulsar™ Calibration Page

This page displays configuration data used in the calibration procedures.

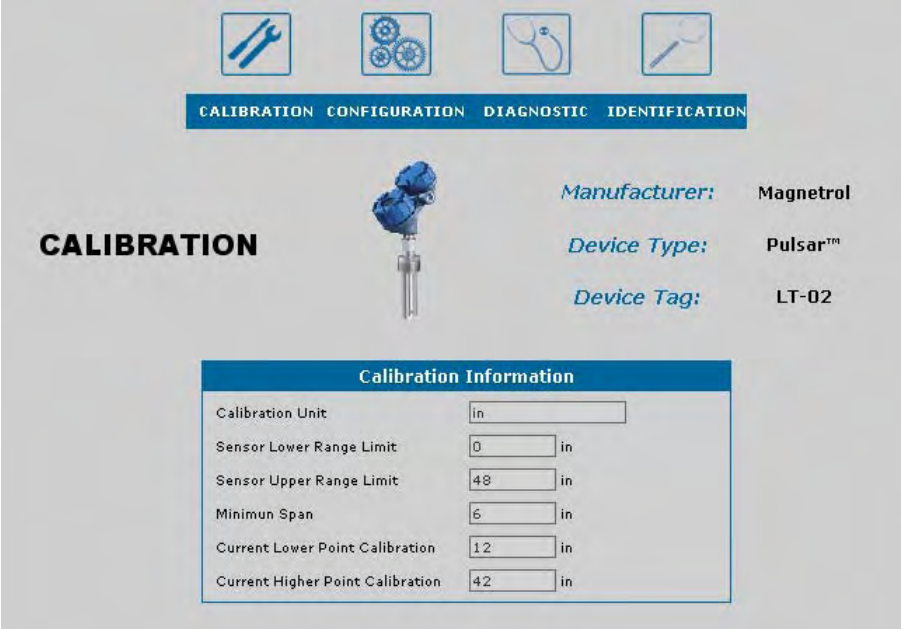


Figure L.5

Calibration Information

CALIBRATION UNIT	indicates the unit for the pressure calibration procedure.
SENSOR LOWER RANGE LIMIT	indicates the lower limit for the sensor.
SENSOR UPPER RANGE LIMIT	indicates the upper limit for the sensor.
MINIMUM SPAN	indicates the minimum value allowed between the lower and upper points of the calibration.
CURRENT LOWER POINT CALIBRATION	indicates the unit for the pressure calibration procedure.
CURRENT HIGHER POINT CALIBRATION	indicates the last higher point of the pressure calibration.