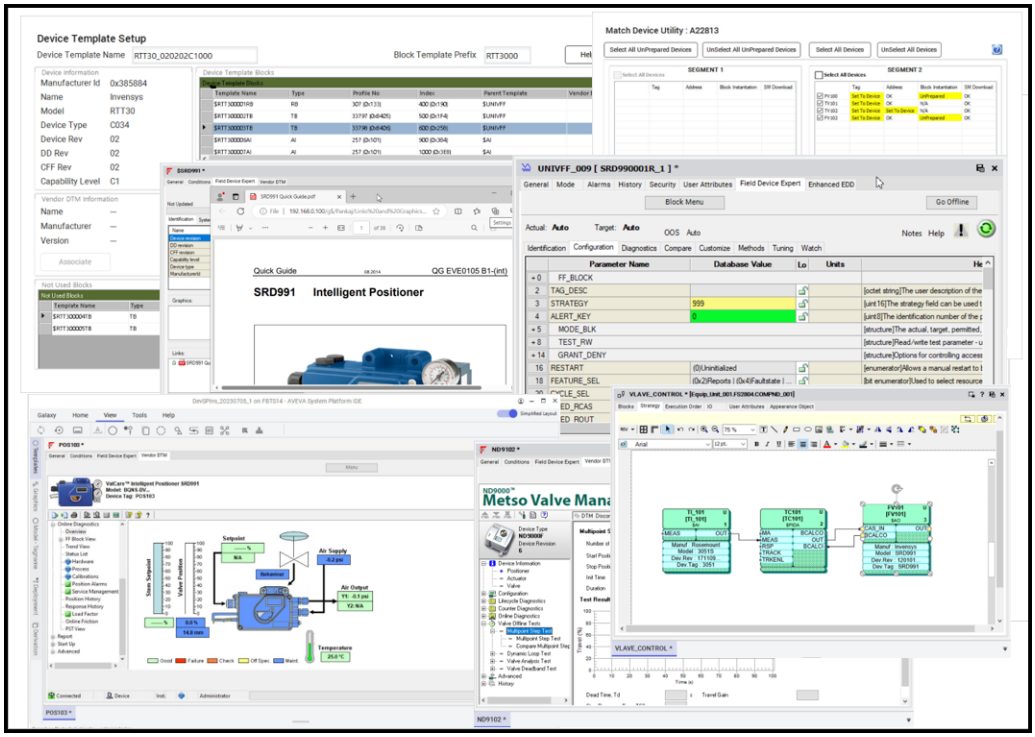
Foxboro™ DCS

Field Device Expert for Foundation Fieldbus

PSS 41S-10FDMFF

Product Specification

February 2024



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Features

The Field Device Expert allows Engineers and Technicians to change and maintain the configuration of Foundation Fieldbus devices from a remote location, typically the system's Engineering Workstation. Tremendous savings in labor and setup time have been realized; no scaffolding to erect, no hot pipe work, troublesome field devices can be adjusted while the plant is in startup or in operation.

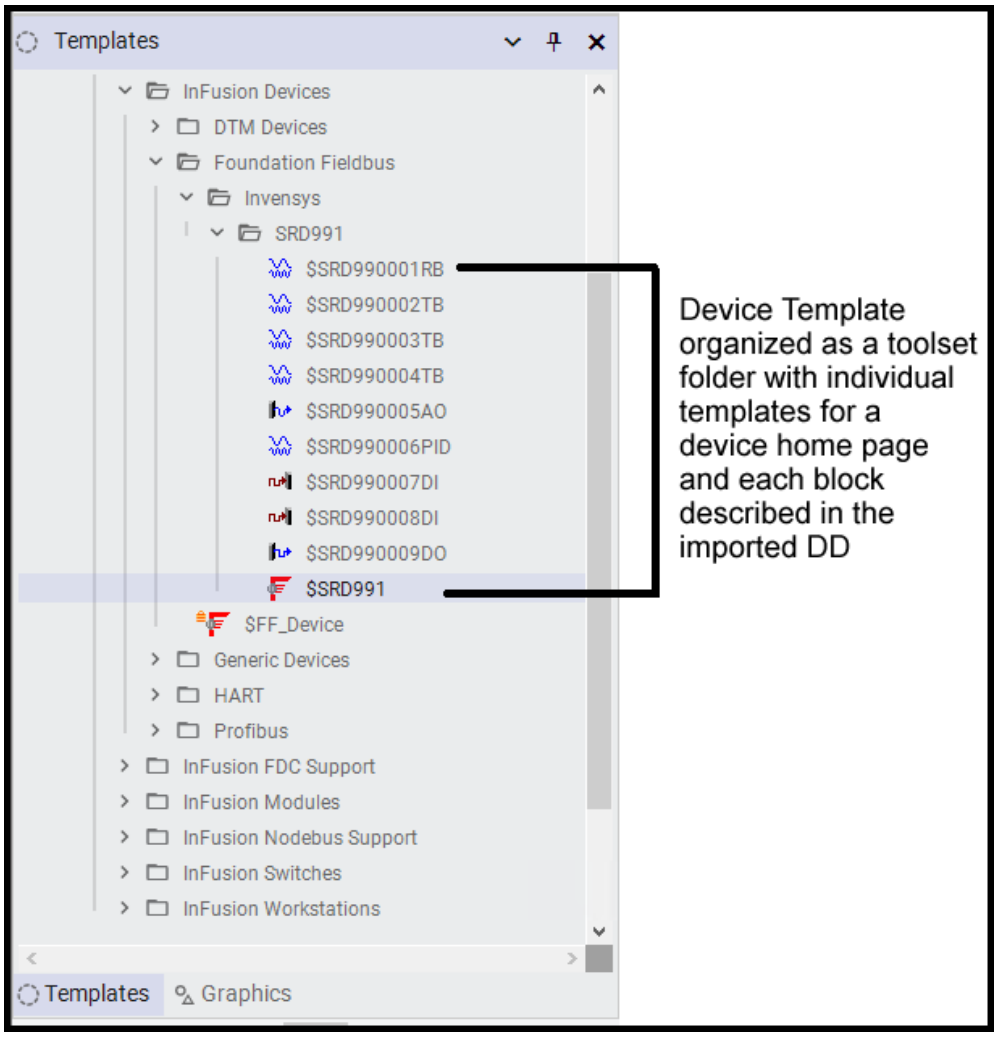
The Field Device Expert is a software application that adds on to the EcoStruxure™ Foxboro DCS Control Editors to manage Foundation Fieldbus devices. The graphical user interface of Field Device Expert opens inside the Control Editors' editor area.

Field Device Expert is DD based. The development of a device database begins with importing Device Description (DD) files into Field Device Expert, creating templates for each model of field device used in the plant. Users can then perform functions such as:

- Creating Smart Device Templates.
- Configuring a field device database, either offline or online.
- Calibrating or starting up a field device by running methods in the DDs.
- Customizing user interface screens for diagnosing and viewing field devices.

Smart Device Templates provide the ability to engineer a typical field device type once, and propagate the user interface, configuration, and download behaviors to each tag of the same device model type, enabling engineering reuse. The templates are made possible by layering Field Device Technology (FDT) on top of DD technology. Starting from the DD file, the designer customizes the template for each model of field device in the plant. Templates are managed as FDT Device Type Managers (DTMs), but they remain linked to the DD files for device description. When you import a DD into the base Foundation Fieldbus device template in the EcoStruxure™ Foxboro™ DCS Control Software, the Control Editors set up a device template folder that includes a device info template and a template for each block described in the DD (Device Template Folder, page 4). These device-specific block templates contain the standard and extended parameters as enumerated by the manufacturer, enabling you to pre-configure device block behavior.

Figure 1 - Device Template Folder



Customization of the block templates includes:

- Creating and naming new Field Device Expert block viewing screens.
- Selecting the parameters to appear on each of those screens.
- Organizing the configuration screens.
- Setting parameters and locking them so each block instance has the value set in the template.
- Selecting the parameters you want to download from the host to the device when the devices are installed on the segment.

Field Device Expert is the first device management system to support the new Enhanced EDDL (Electronic Device Description Language) technology, as adopted by the Fieldbus Foundation's DD Cooperation Project. This technology enhances configuration and online device viewing screens by having the device vendor organize screen menus in a hierarchical fashion, and organizing data presentation and content for a device screen, with items such as gauges, bar indicators, trends, histograms, and embedded graphics.

Field Device Expert excels at in-depth diagnosis of the performance and health of today's sophisticated field devices. This is accomplished with a user interface made specifically for that device model by the device vendor, which plugs-into Field Device Expert. For example, today's valve positioners often capture extensive online diagnostic data, and support running a comprehensive repertoire of online and offline tests to diagnose and maintain the valve, such as multi-point step tests and valve deadband tests. Field Device Expert is the first system application that supports opening FDT compliant DTM plug-ins for Foundation Fieldbus. Like the other user

interfaces, these also open in the editor area of the Control Editors window. To enable this capability, Field Device Expert embeds an FDT compliant frame application inside the Control Editors, and adds a communication DTM that supports the Foxboro® control processors and connected FBM228 Redundant Foundation EcoStruxure™ Foxboro Fieldbus Modules.

Features include:

- Lifecycle coverage of many field device tasks including configuration, commissioning, maintenance, and diagnostics are in one comprehensive tool set.
- Industry-leading capabilities to perform predictive maintenance and diagnostics on field devices, and to improve maintenance staff productivity. Foxboro has produced not only the first Foundation Fieldbus system offering to make use of both the FDT and Enhanced EDDL technologies, but has done so in a unique combination that allows users to customize maintenance user interfaces beyond the definition from the device description, and optionally install and open FDT compliant Device Type Managers (DTMs) for advanced diagnostics and maintenance.
- First Foundation Fieldbus system to offer device interchange capability via Smart Device Template cloning.
- Advanced device-specific user interfaces for diagnosing and managing field devices via FDT compliant DTMs.
- Field Device Expert Frame Application is FDT v2.0 compliant.
- Support for the new format of second-generation device descriptions that offer improvements in configuration and data displays.
- Smart Device Templates for dramatically reduced engineering and device commissioning times.
- User customizable engineering and maintenance displays captured in templates, that increase maintenance productivity and ease of spotting, diagnosing, and correcting device conditions detected.
- Innovative device matching and preparation utilities that automate startup or replacement of field devices.
- Convenient user-defined hyperlinks to all maintenance manuals, procedures, notes, and other documentation.
- Available Instrument Workshop edition for tagging, pre-calibration, testing, and/or pre-commissioning of devices before their plant installation.
- Conversion tools for updating IACC, Foxboro Control Software 2.0 and earlier databases to provide compatibility with the current Control Software and Field Device Expert versions.

Tools for Upgrading and Interchanging Devices

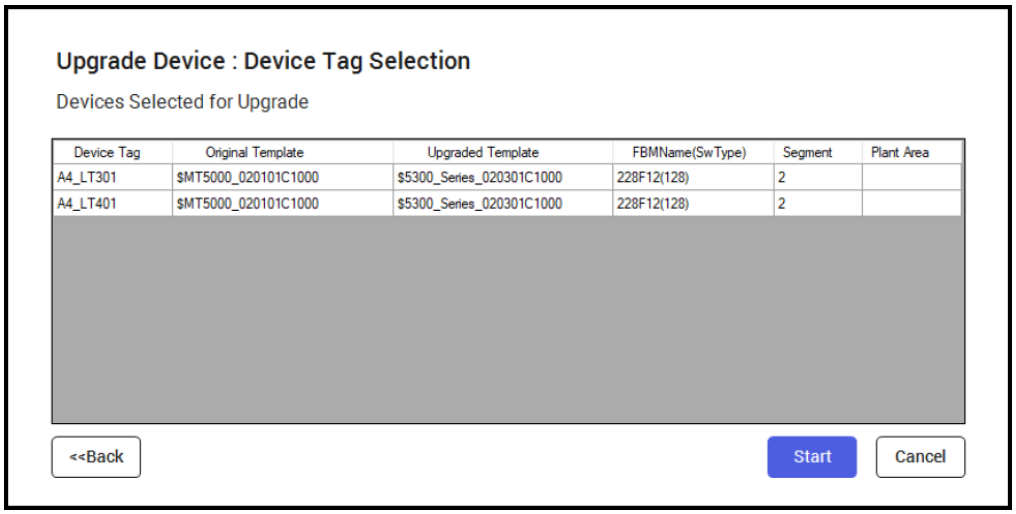
Field Device Expert offers the only device interchange productivity tools on the market for Foundation Fieldbus, and helps to assist a plant in starting up faster during that phase of its life cycle by automating detection, configuration, commissioning, testing and reporting.

During normal operation, it helps to analyze and diagnose Foundation Fieldbus instrumentation in a running plant.

During the maintenance phase of a plant’s lifecycle, it assists with replacement of existing devices with new devices.

Through a cloning process specifically designed to deal with similar yet different block parameter sets, you are able to create a new template toolset applicable to the new device type. You then select specific device tags for upgrading using the Device Tag Selection dialog box shown below.

Figure 2 - Upgrade Device Type Selection



The process of upgrade is semi-automatic in nature. The degree of human intervention and engineering effort varies depending on the degree of similarity between the original and new device.

This table lists the advantages of the Field Device Expert during each phase of a plant's lifecycle:

Lifestyle Stage	Advantages
Startup	• Create and customize Foundation Fieldbus field devices • Create Foundation Fieldbus instrument instances • Develop customizable device configuration screens • Run DD methods • Synchronize the device and host databases
Normal operations	• Analyze and diagnose Foundation Fieldbus field devices, particularly any suboptimal Foundation Fieldbus Instrument conditions detected
Maintenance	• Assists in replacement of Foundation Fieldbus field devices

Control Editors Extensions for Foundation Fieldbus

Several Control Editors extensions are available to assist in your work with Foundation Fieldbus.

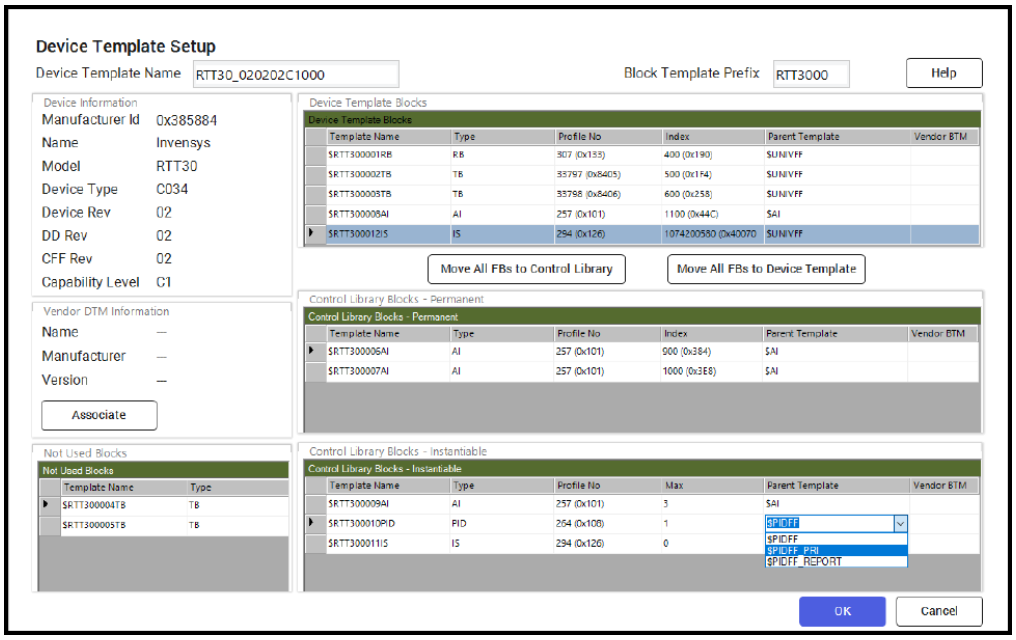
Creating Device Templates

The Control Editors Template Toolbox view contains a hierarchical tree of field device templates. In seconds a user can create the initial templates for each model of field device used in the plant, by browsing to the DD files, confirming the name of the device model, capability level and revisions, and importing the file to the Device Template Setup dialog box (Device Setup Dialog Box, page 7). The dialog box enables you to:

- Specify the block templates that are created from the DD. You can generate a template for each block described in the DD/CFF file, or select only those transducer and function blocks that are actually used in the system.
- Place the function blocks in a library where you can create blocks that are both device-specific (for example, a set of AI blocks that can only be assigned to a specific pressure transmitter model) and application-specific (one AI configured for absolute pressure, another for differential pressure, and so on).
- Create templates for instantiable blocks and specify whether a block is to be instantiated for each instance of the device type or maintained in a library for subsequent assignment to individual devices.
- Name the templates to indicate their type, use in the system or whatever makes them easily recognized by others less familiar with fieldbus ID numbers.
- Associate a manufacturer-supplied DTM with the device template to take advantage of specialized diagnostics and maintenance capabilities in the vendor DTM.

The Control Editors enable you to create multiple application-specific device templates from the same DD, so you can help ensure at the template level that block instances match the different users of the device. To differentiate between different uses of the same device type, you can derive the additional templates from the first-level device template, create multiple first-level templates, or do both.

Figure 3 - Device Setup Dialog Box



The initial templates have built-in configuration and diagnostic displays. The block configuration views default to the parameters that are defined as writable in the DD files. You can then further customize the template as previously discussed.

DD Aware Engineering

As soon as the device template has been added, both the offline and online configuration of a device's blocks is possible. The user can build loops, using the Strategy Editor, adding and editing field device function blocks. The choices of parameter settings are guided by the choice lists the device vendor puts into the DD files.

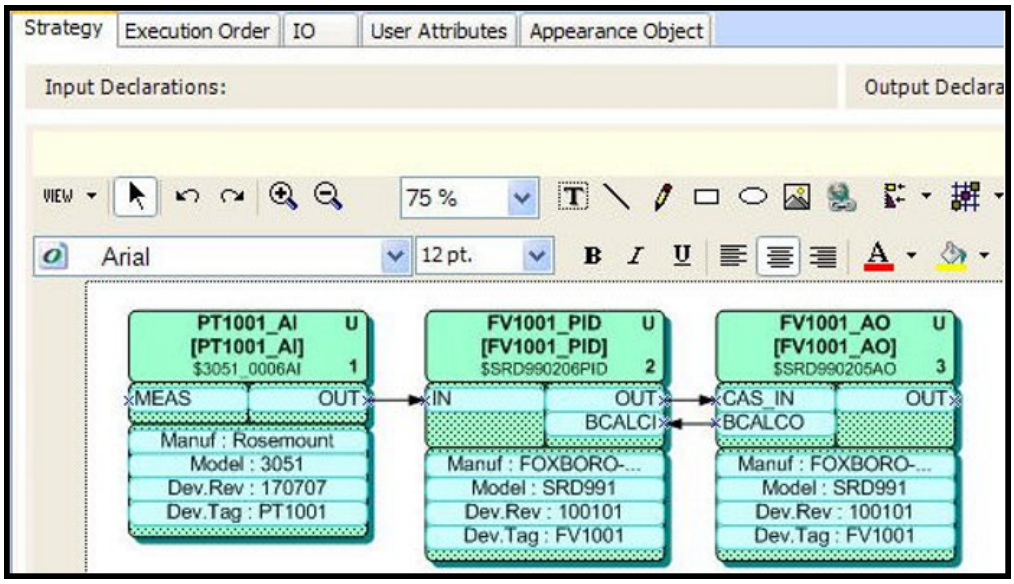
Configuring Loops and Function Blocks

The Strategy Editor lets users draw or bulk generate loop diagrams. These strategies can readily intermix function blocks for fieldbus devices and conventional I/O points. Whether the blocks are fieldbus related or conventional, the drag-and-drop approach to adding blocks and interconnecting them is identical.

The Control Editors and Field Device Expert support configuration and scheduling of fieldbus function block types in the field devices. Function blocks can be connected to other function blocks on the same segment and to control blocks and DCI blocks in the control processor.

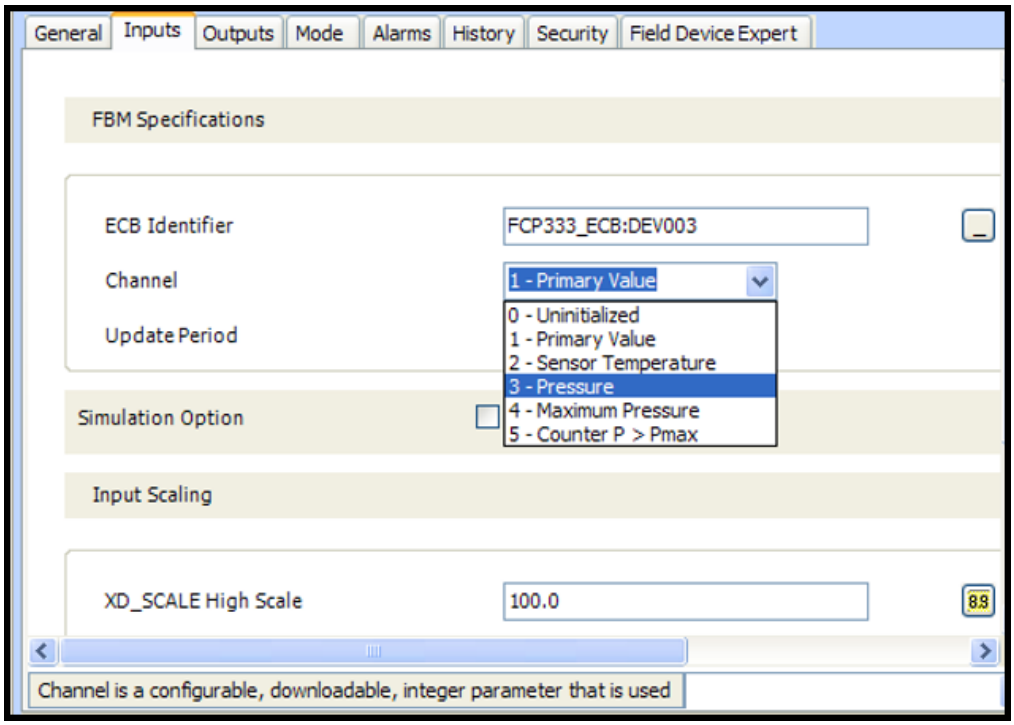
This figure shows a control in the field (CIF) loop with an AI block selected from a device template folder for a pressure transmitter, and PID and AO blocks drawn from a valve positioner template folder. These blocks can only be assigned to device instances derived from their respective template folders, and help ensure an exact match between the block in the strategy and the block in the physical device.

Figure 4 - Control Strategy with FF Blocks



A click of the AI block in the diagram opens the block in an editor. Observe the enumeration of choices for the Channel coming from the DD.

Figure 5 - Editing an AI Block



Configuration of detected alarm limits, alarm priorities, and operator screen alarm destinations is performed identically for fieldbus and traditional function blocks.

Device Identification Page and Device Info Templates

You can build a “home page” for each field device, shown first when the device is invoked in Field Device Expert.

Field Device Expert provides a toolset for building this Device Identification page for each field device, displaying key attributes identifying the device, and system management parameters for the device. The details for each page are stored in a device info template, which can include items such as:

- Graphics and document links to provide configuration guidelines, troubleshooting tips and other help to users.
- Notes that will be inherited by the derived devices. An electronic notepad can be used to provide specific instructions about deploying the device, certain configuration steps, or list tests needed for deployment. For device instances, you can view notes entered at the template level and record information about the specific device.

Bulk Generation of Fieldbus Control Loops

The Control Editors provide two convenient ways to automate the development of control loop databases without drawing each loop.

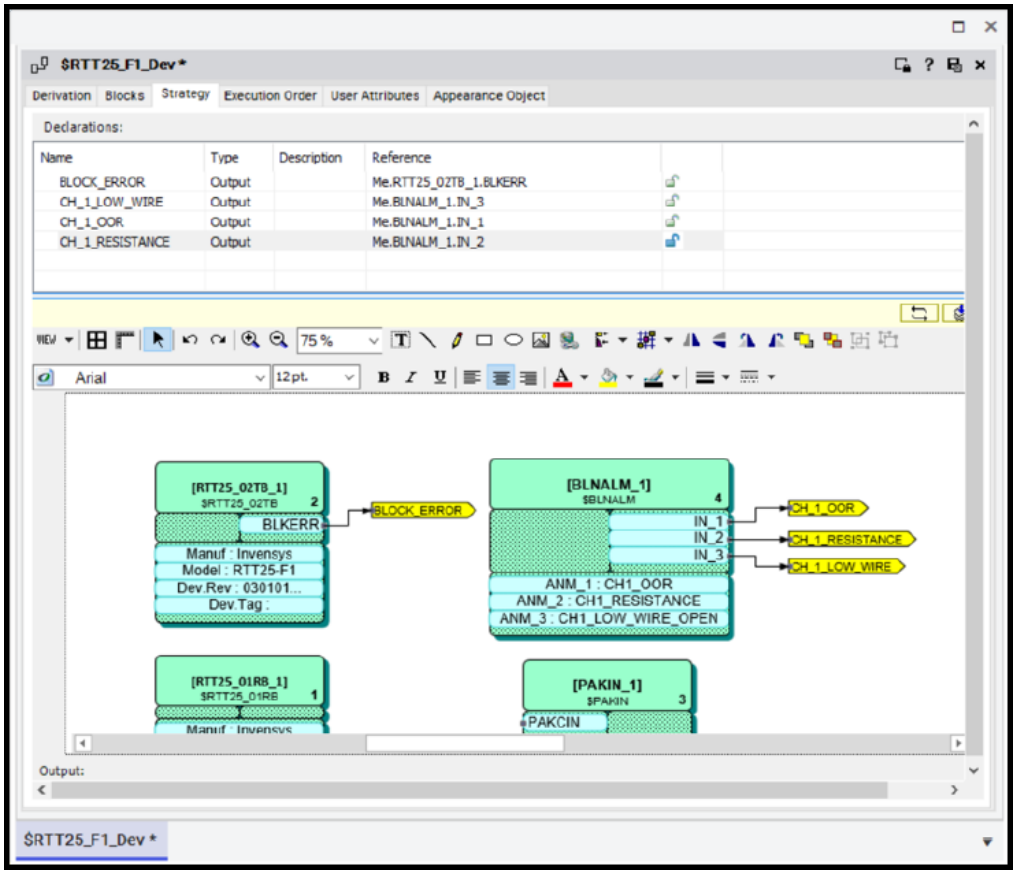
The first technique is to create the strategy instances from a strategy template, followed by user edits as desired.

The second bulk generation approach for optimum productivity is to use both the control strategy templates and the Bulk Data Editor. The editor lists parameter values and specifies the control strategy templates to use. The strategy is automatically constructed, with little or no remaining parameters that need further manual edits.

Device Strategies

Each time you template a device, the Control Software automatically generates a template for a Device Strategy, which enables you to manage the resource and transducer blocks. At your option, these strategies can be customized to include control processor resident blocks that extract diagnostic information from the resource and transducer blocks for proactive maintenance, asset management and other applications. This figure shows a strategy template that provides detected alarms based on a custom diagnostic parameter in the transducer block and the resource block BLOCK_ERR parameter.

Figure 6 - Template for a Device Strategy



Adding Field Devices and Tags to the Database

A new field device and its tag are added by pointing to the FBM228 Fieldbus interface card and choosing the desired device template from which to create the new device instance. The device portion of the template, such as maintenance documentation and image links, are copied to the instance. If the template is associated with a vendor DTM, the instance is automatically associated with the same DTM. When the block instances are created and matched up to the desired block templates for that device type, they inherit the aspects of the block templates. The settings from the device info template are automatically created, saving a large configuration effort.

Accessing Field Devices

Field device tags are found both under the FBM228 in the Network view's navigational tree, and under a user-defined hierarchy of plant units in the Devices view. You can

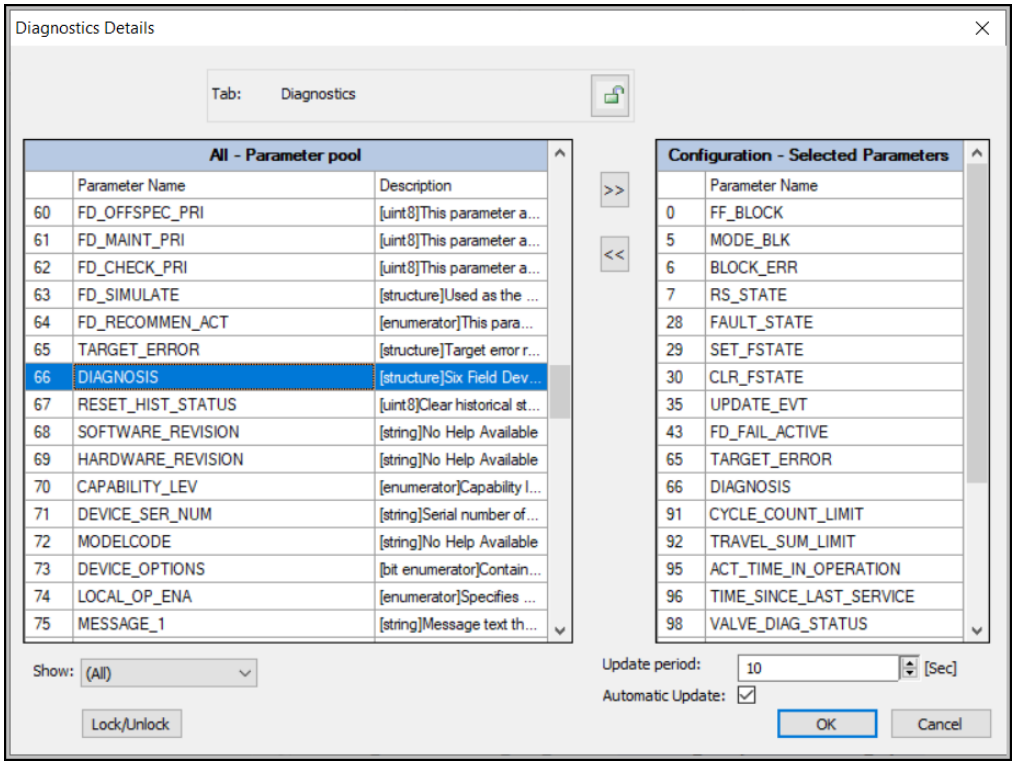
double-click the device tag in either view to open it in the editor window and launch either Field Device Expert or a DTM made by the device vendor. The vendor's DTM can be added to the device template at any time, and is automatically attached to the existing tag instances of that type of device.

Smart Device Templates for Reusable Engineering

Field Device Expert removes repetitive engineering of each and every field device. Most of the engineering is done once in the device info and block templates, which serve as masters for each model of field device. The templates can capture:

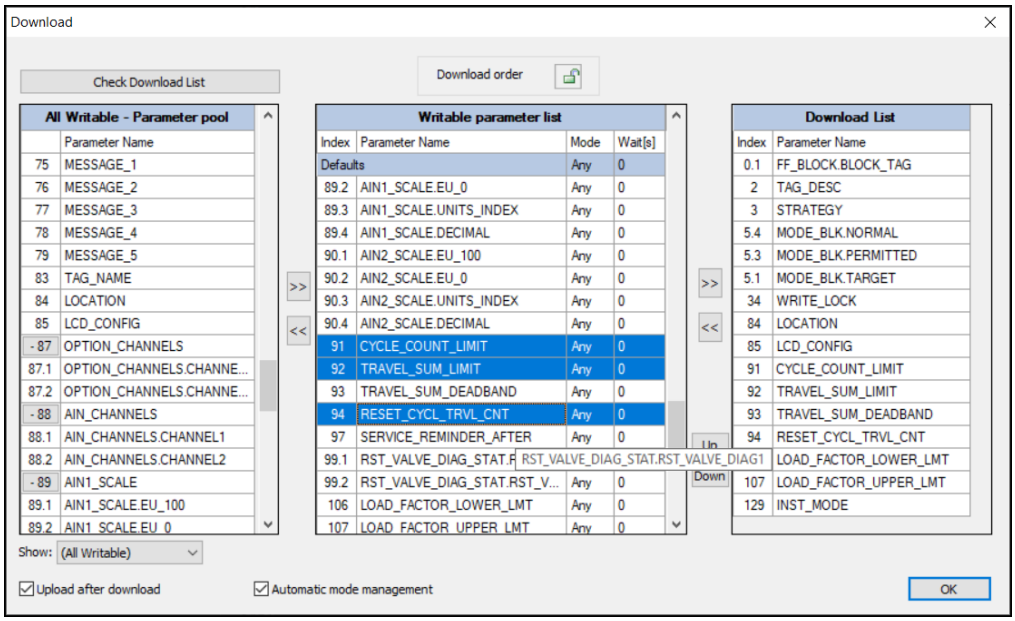
- Typical parameter settings for resource, transducer, and function blocks.
- Links to maintenance manuals, product data sheets, repair procedures, diagrams and other images used for device maintenance.
- Maintenance notes regarding a particular model of field device.
- Customized choices of the list of parameters to appear on Field Device Expert configuration, diagnostic, and watch tab pages.
- Creation of new tab pages in any block view.

Figure 7 - Creating a Custom Diagnostics Tab



- Customization of access privileges to displays and functions by user role.
- Choice of device block parameters to be downloaded when the device is attached to the segment and tagged.

Figure 8 - Specifying Parameters for Download



Templates have an inheritance capability for productivity and engineering management. If a parameter setting is locked by the template, each device tag follows the value in the template. You can go back to the template at any time and change the value. The database for each device is automatically updated to match the change made to the template. On the other hand, if a parameter is set in the template, but not locked by the template, the first time a device database is created, the device equals the template but is not forced to subsequently follow the template. In a similar fashion, customization of viewing screens can be set and locked within the templates if desired.

Linking Supporting Device Maintenance Documentation

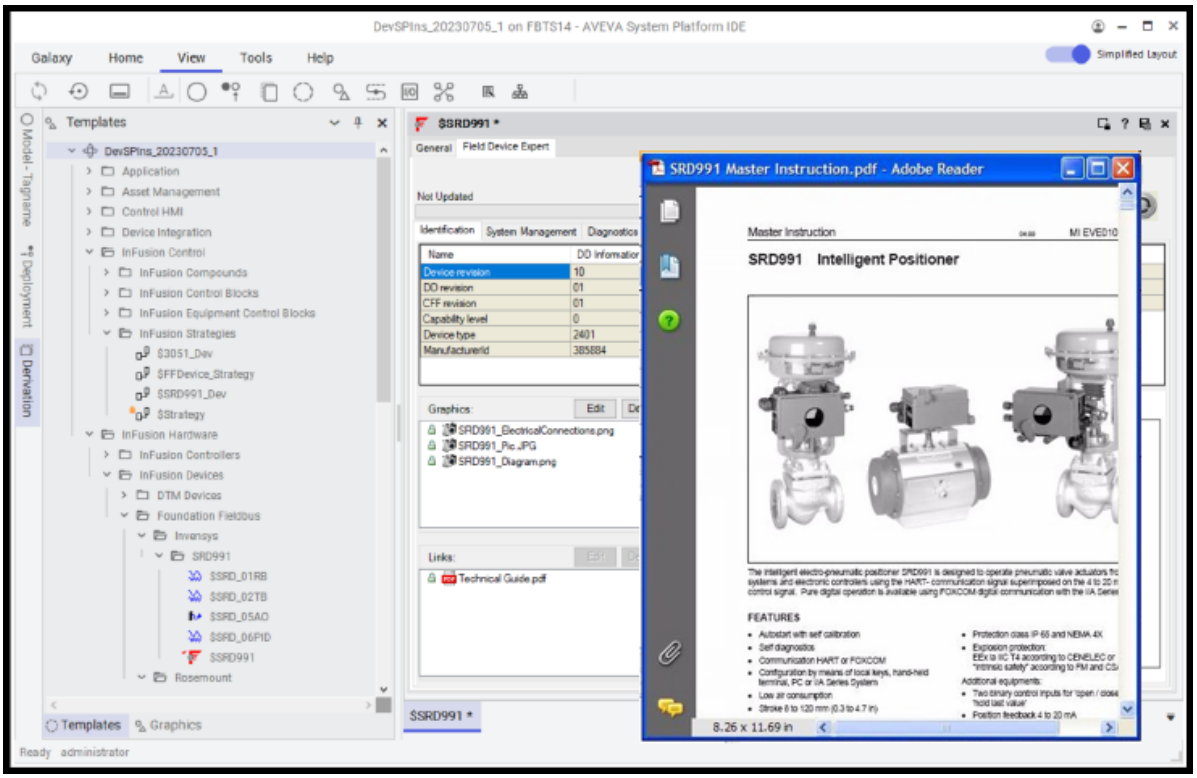
Field Device Expert provides quick and easy access to any document, image, or file useful in engineering or maintaining a field device. The documents are linked to the Identification tab in the device info template. If desired, other documents can be linked to individual tagged instances, as well as to any block template.

The document linkage system opens files in the same fashion as the My Computer functionality of a PC. The linked document may be of any Windows® file type, including Adobe® Acrobat portable documents (.pdf), Microsoft® Word documents (. doc or .docx), Excel® spreadsheets (.xls or .xlsx), text files (.txt), and PowerPoint® slide shows (.ppt). A click of the link opens the file in its native application, as shown by the pdf opened in Acrobat Reader in Identification Page with Linked Document, page 13.

As diagrams and pictures are often useful in managing a device, a second file linkage area in the upper left allows connection of JPEGs and bitmap images, which are opened in the lower right area of the Identification tabs of the device and block views.

Do you ever find it useful to leave notes for others in your plant about a specific model or tag of a field device? Field Device Expert allows notes about the device and its blocks to be attached at the template level, or added in at the tag level for a specific device or block instance. Both the Control Editors and Field Device Expert have built-in user help systems to guide you in their use.

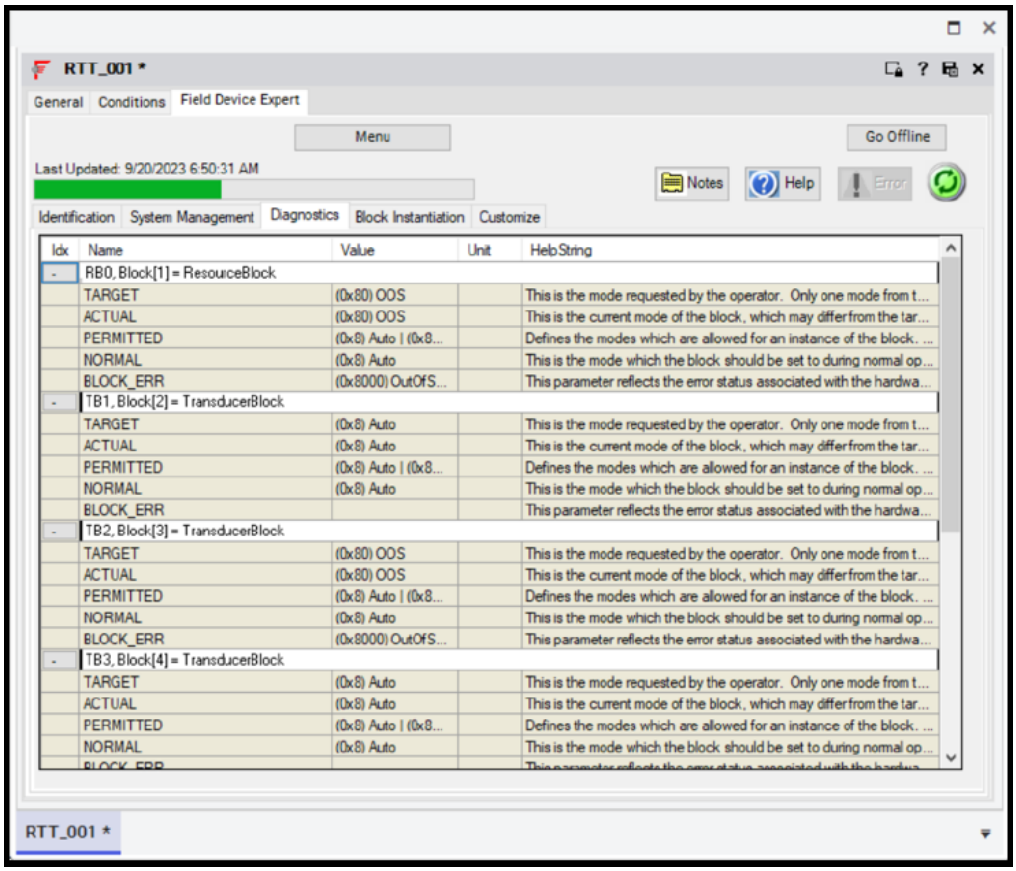
Figure 9 - Identification Page with Linked Document



Customizable Device and Block Views

Field Device Expert offers many displays beyond the traditional configuration screens. Device information is organized into separate displays for the device itself and for each device block. For devices, the Field Device Expert Diagnostics tab is a real-time composite display of user-selected parameters for each block type.

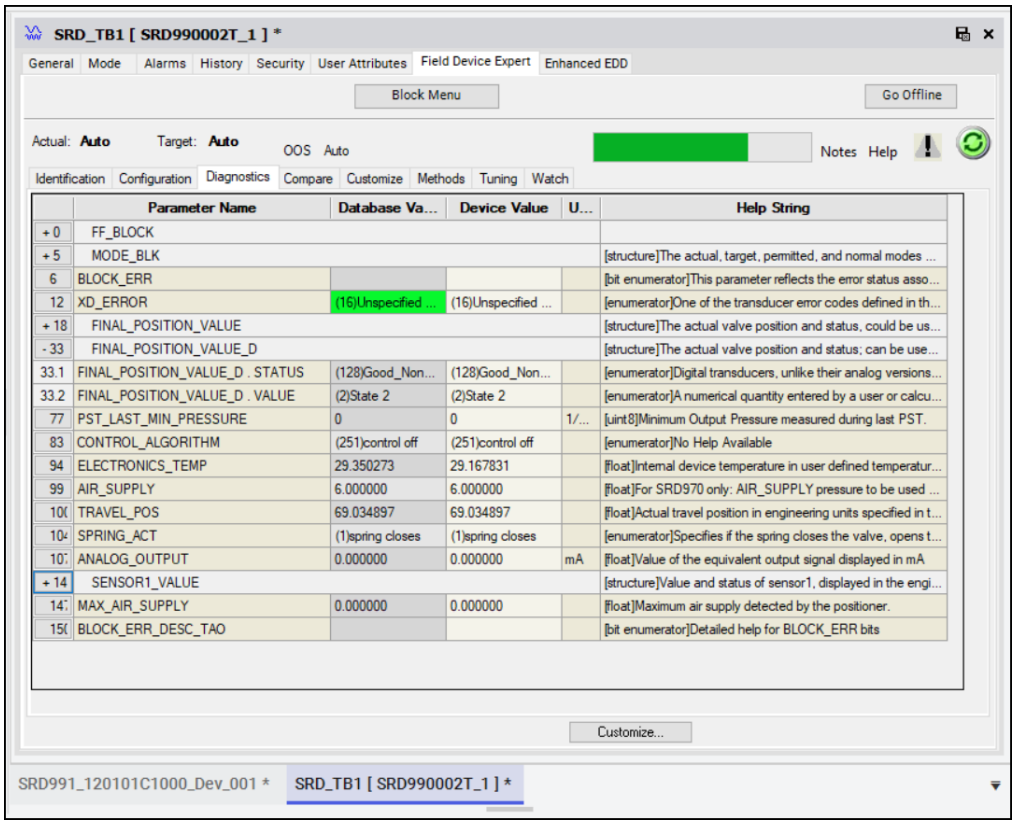
Figure 10 - Device Diagnostics Tab



For each block template and instance, Field Device Expert contains a set of standard and user-defined tab pages: Identification, Configuration, Diagnostics, and Compare tabs. The user can set up as many, or as few, custom tabs for each block as desired. Typically, most customization is done in the block templates in the device template folder. The types of tabs supported are:

- The Diagnostics Tab is an online continuously updating screen showing the most recent data values from the device.

Figure 11 - Transducer Block Diagnostics Tab

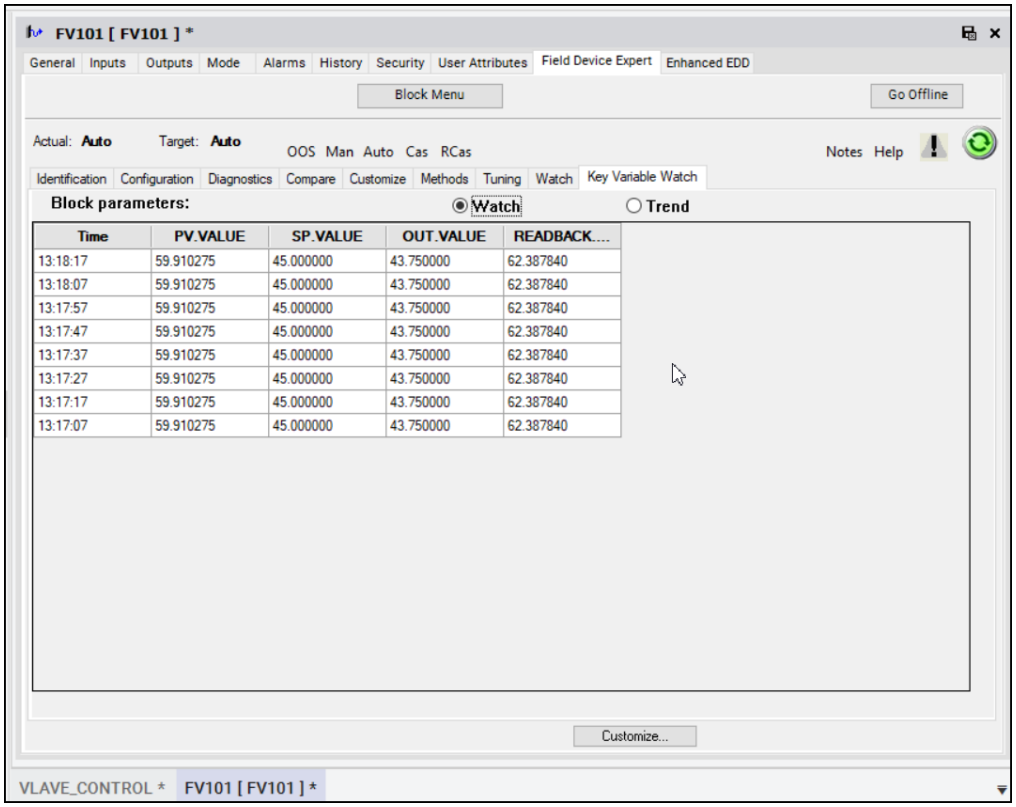


- The Watch Tab with Trend Format displays a real-time trend of up to eight parameters of a device block.

Figure 12 - Watch Tab with Trend Format

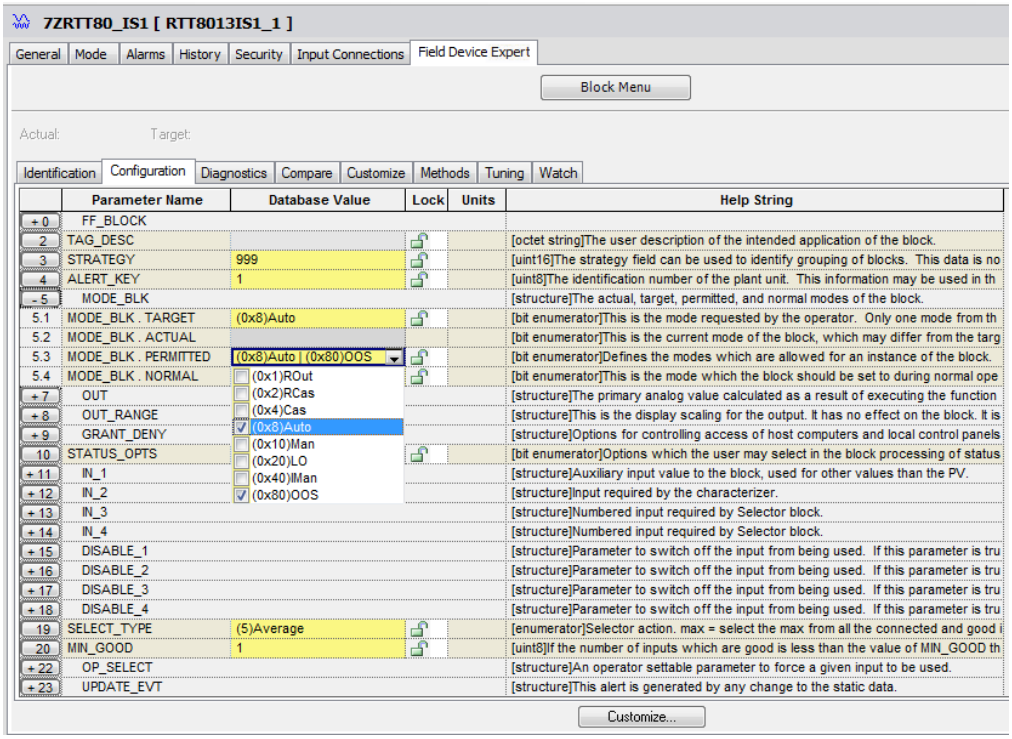
- The Watch Tab with Table Format displays sampled parameter data, with each row of the table representing a scan of the device.

Figure 13 - Watch Tab in Table Format



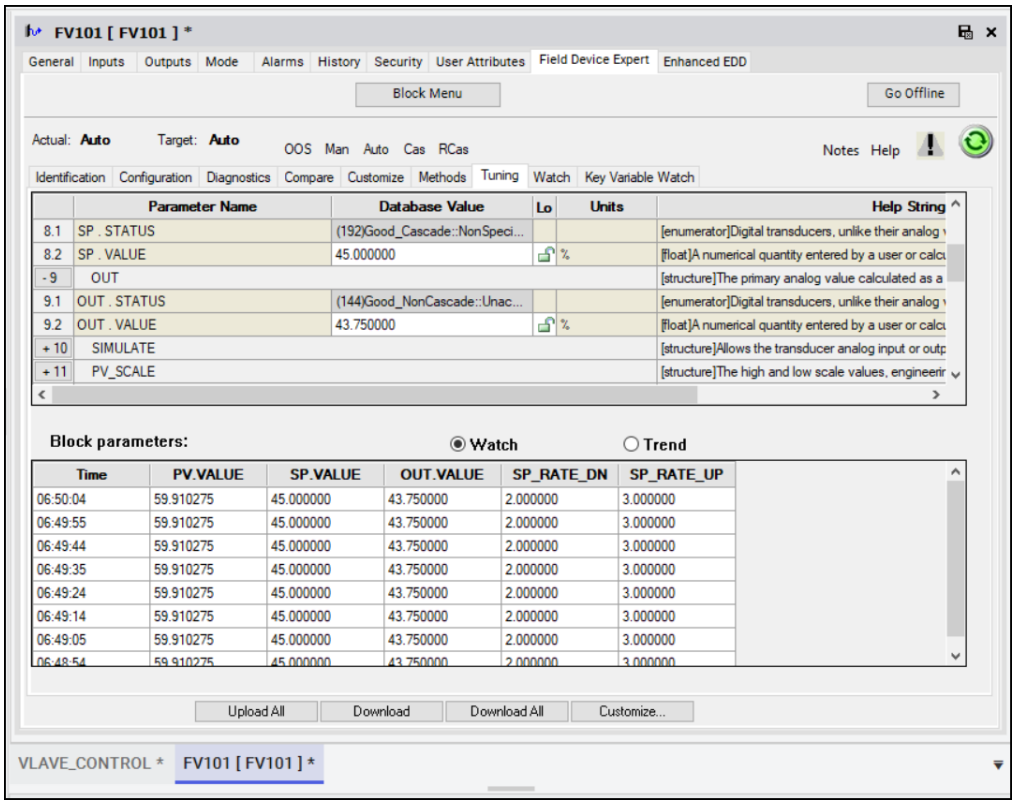
The Configuration Tab is used either offline or online to enter device block parameter settings into the Field Device Expert database, and online to download those changes to the device.

Figure 14 - Configuration Tab



Tuning Tab is an online display having an upper portion that allows setting parameters in the device block and a lower portion where the response of up to eight dynamic parameters can be watched in either tabular or trend format. Typically, the set parameter is not a static parameter (that is, configured once), but rather a state command or tuning type parameter. In this example, the user has given a valve positioner an autostart command to begin the valve's self-calibrate routine, and is now watching the auto initiate status, block errors and transducer errors in the lower half of the tab.

Figure 15 - Monitoring Tuning Changes



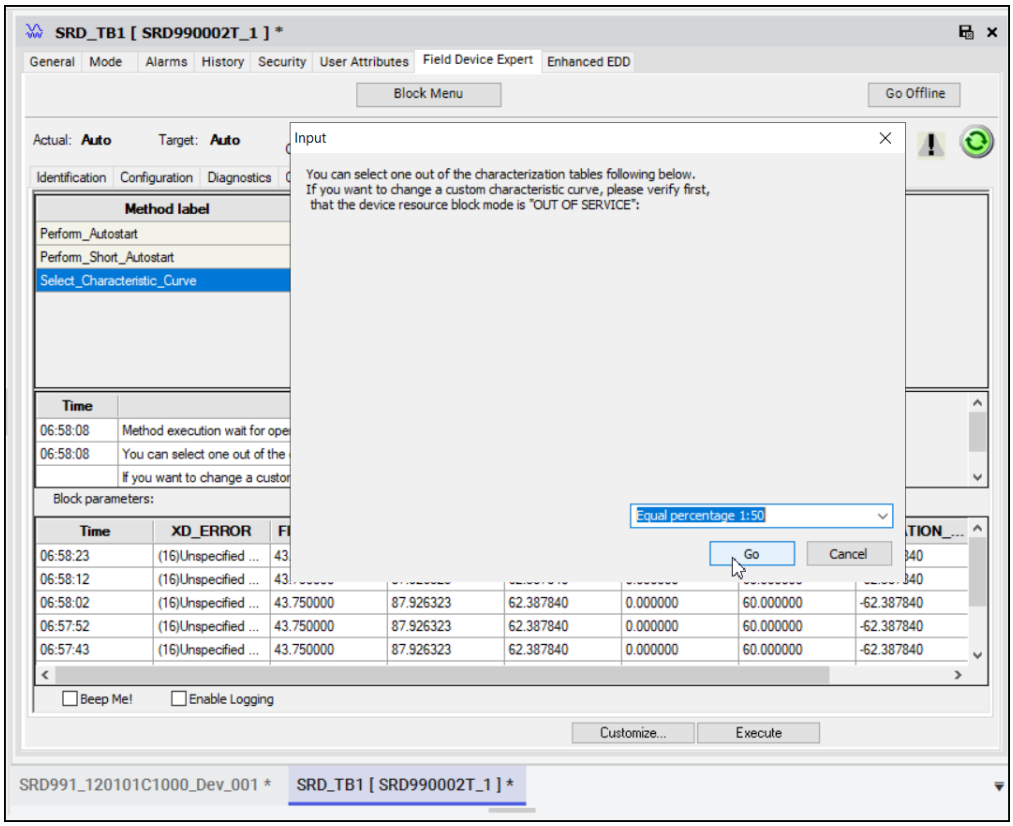
Running DD Methods

Each block view also includes a dedicated built-in user interface for running and interacting with DD method execution. Typically these methods are device calibration and commissioning routines. The Methods tab are divided into three areas:

- The upper portion lists the method choices available.
- The middle portion shows progress of the method execution in the form of messages to and from the device.
- The lower portion is a configurable watch window displaying up to eight block data variables in either trend or table format.

Methods typically need user interaction, as evidenced by the dialog box in this figure where the user has to confirm that everything is ready for the device to go out of service and begin its self-calibration routine.

Figure 16 - Executing Device Methods



Device Commissioning Made Easy

Field Device Expert provides intuitive and highly automated utilities to make device commissioning fast and efficient, removing the need to download block parameter settings one device at a time.

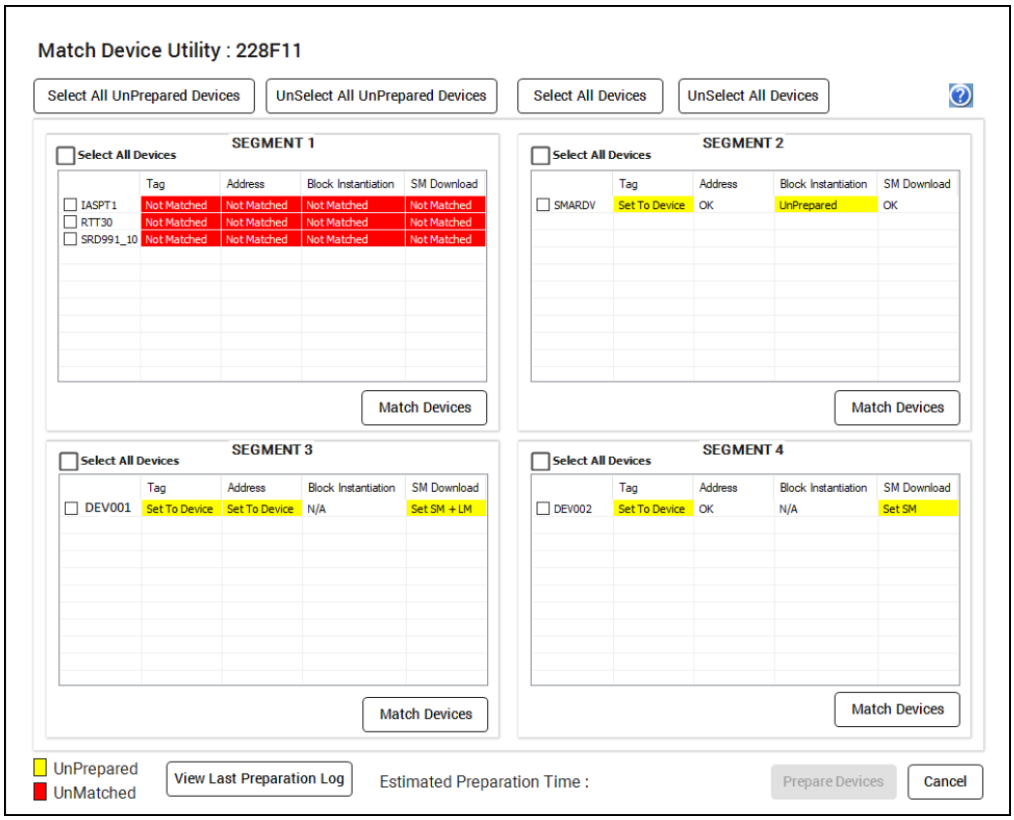
Automated Matching of Tags with Devices

The Match Device Utility dialog box displays the tags assigned to each segment and shows if they have been matched with an installed device. It also identifies the given tasks that need to be performed to finish device commissioning:

- Setting the device PD_Tag to match the database tag name.
- Moving the device from a temporary address to a permanent location.
- Instantiating blocks that are in the device configuration (and removing instantiated blocks that are not in the configuration).
- Downloading system management parameters specified for download in the configuration.
- Assignment of the Link Master role if specified in the device configuration.

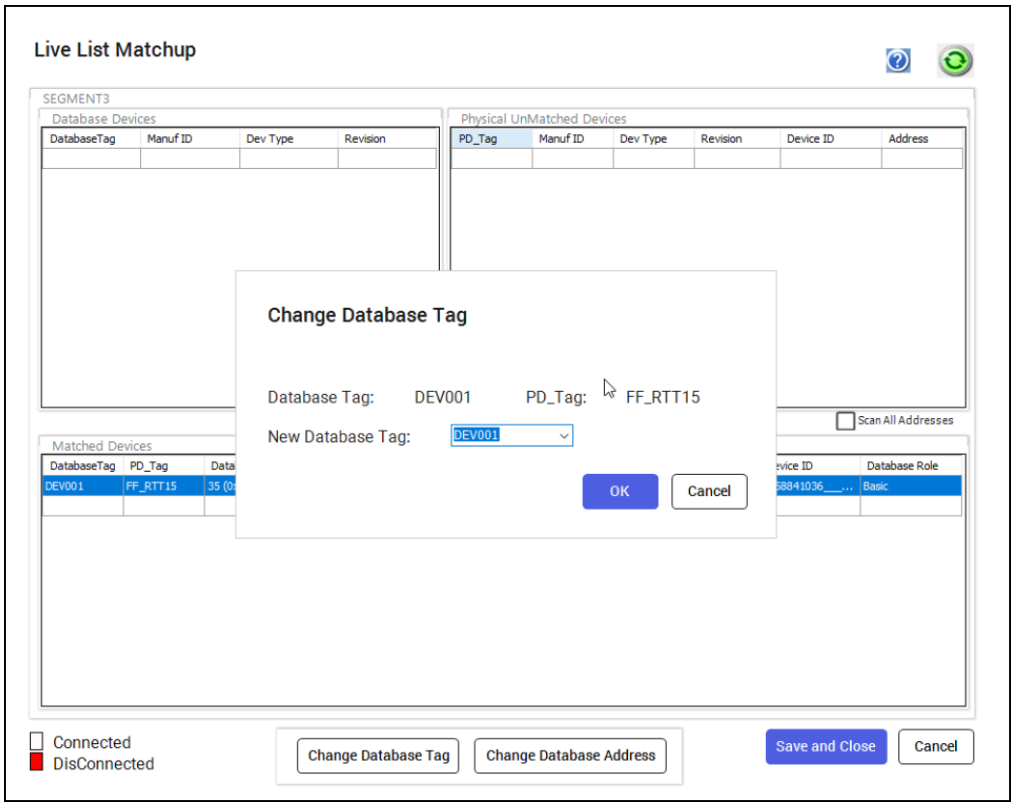
(The Prepare Device Utility performs the first four tasks. The Link Master assignment is part of control database deployment.)

Figure 17 - Match Device Utility



From the dialog box, you can open a live list for each segment which automatically matches database tags with physical devices, and for each matched device enables you verify the fieldbus connection, specify a permanent device address, and change the database name to be set in the device.

Figure 18 - Live List Matchup Dialog Box



Bulk Device Preparation

While device matching is performed one segment at a time, final device preparation can be accomplished in a single automated session that puts multiple FBMs to work preparing devices for one or more control processors. This bulk device preparation performs the device preparation tasks needed for each device (usually setting the PD_Tag and PD_Address, but if needed, instantiating blocks and downloading System Management parameters), bypasses fully prepared devices and unmatched devices, and creates a log of the entire session.

Control Database Deployment

Once the H1 devices have been properly tagged, you can enable control for devices one at a time, or preferably enable control for the devices attached to an FBM228. When control is enabled, the FBM automatically configures each device as follows:

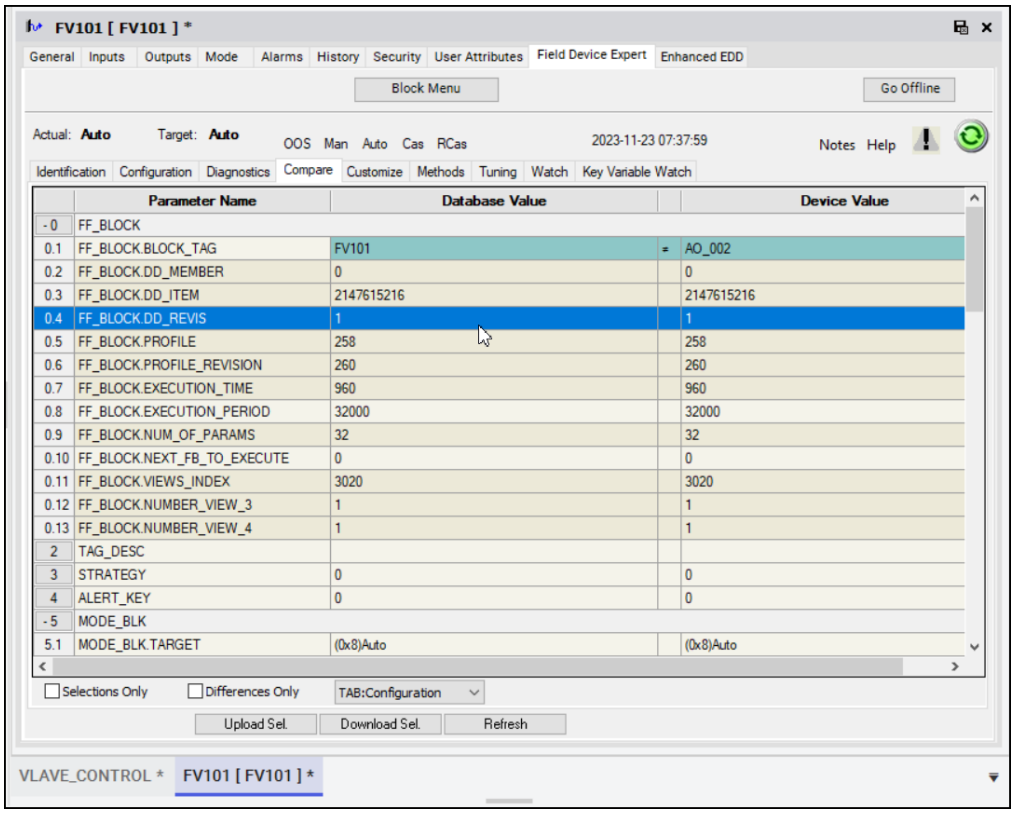
- Sets the device's boot operational class according to the configuration in the Control Editors, and restarts the device if needed to implement a change.
- Downloads resource and transducer block parameters.
- Downloads standard parameters and extended parameters on the user-defined download list for each function block assigned to the device.

Synchronization of Device and Host Databases

The host and the device both agree on how the device is configured. Each block view in Field Device Expert has a Compare tab, which is used for manual comparison and

synchronization between the host database and device database. A pull-down menu allows various sets of parameters to be displayed for comparison, including the device parameters. Synchronization is accomplished by selecting one or more parameters, and then either uploading the device value into the host database or downloading the host database value to the device.

Figure 19 - Comparing the Host and Device Database



Diagnosing Detected Field Device Problems

The largest economic benefit of Foundation Fieldbus technology is the ability to achieve operational savings by better managing, diagnosing, and maintaining field devices. With traditional instrumentation and maintenance tools, many customers report they spend more than 50% of their device maintenance effort on routine instrument checks and callouts where no detected problems are found.

Field Device Expert leads to dramatic improvements in the uptime and performance of the field devices themselves, as well as improved productivity of the instrument maintenance personnel.

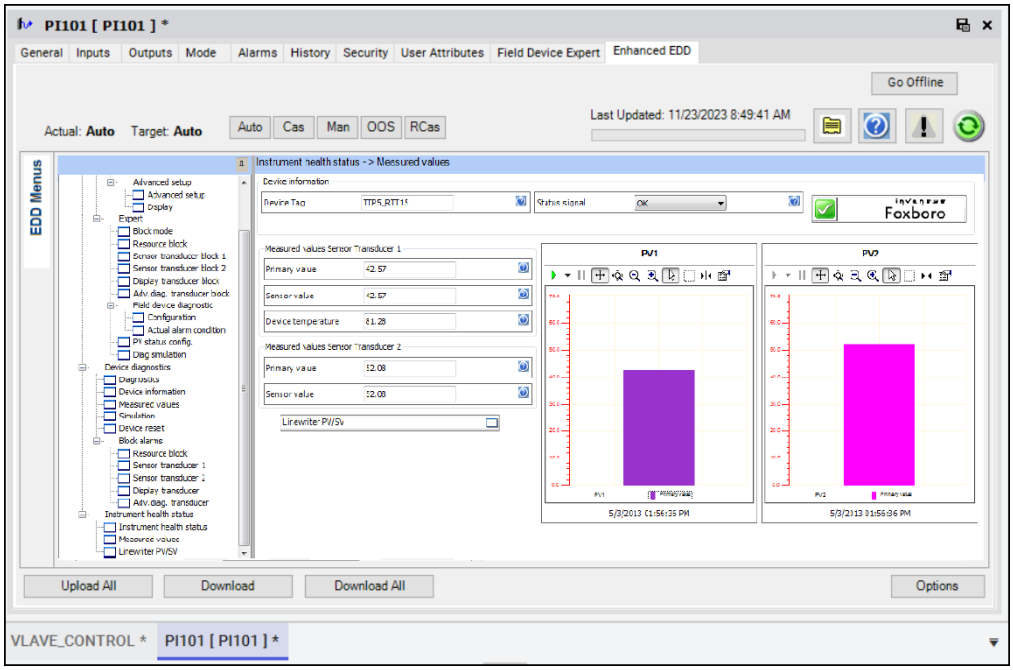
Maintenance staff can quickly examine device status and diagnose detected problems. Activities can be performed at PCs located conveniently in areas where maintenance staff work, removing the need to make trips out to the device. Field Device Expert screens can be customized to optimally present the right information to the maintenance personnel. Trend and tabular watch screens can be particularly useful in dynamically observing device behavior.

Enhanced EDDL

One of the benefits of the enhancements to the DD language is that the language allows the device vendor to organize and define content of screens used for online viewing of field devices at a block or device level. It now becomes possible to define gauges, trends, histograms, and embedded graphic images in the DD files.

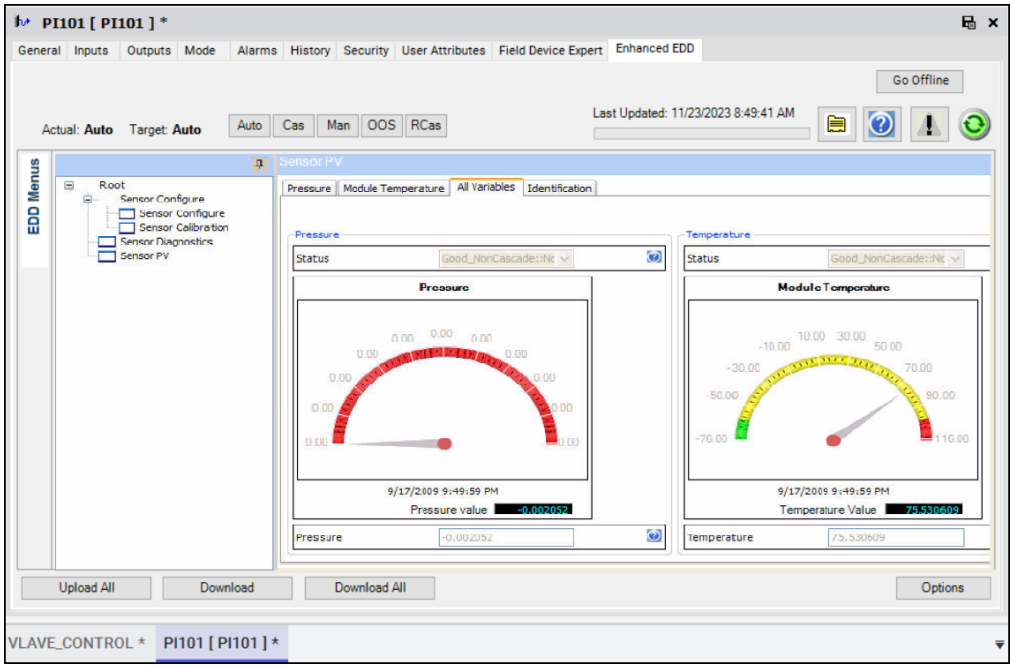
This figure shows a trend view of two different input blocks of a field device, and a menu of screens to see process variables, sensor diagnostics and other screens.

Figure 20 - Trends From Two Different Input Blocks Viewed From the Device Level



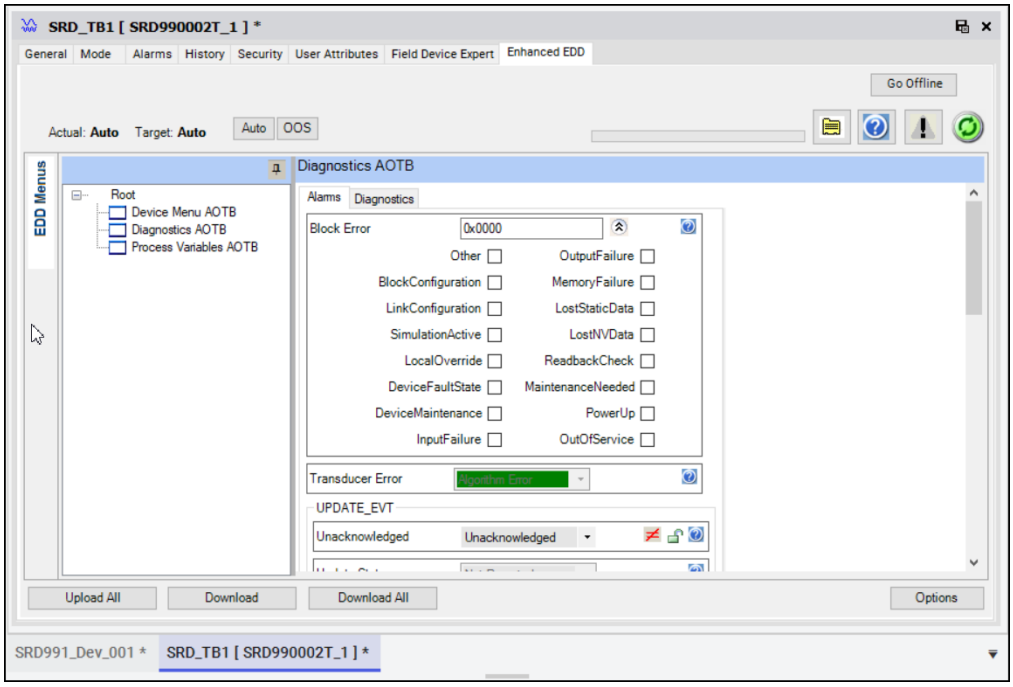
This figure shows a gauge display.

Figure 21 - EDDL Gauge



This figure shows a comprehensive device diagnostic page.

Figure 22 - EDDL Diagnostic Page

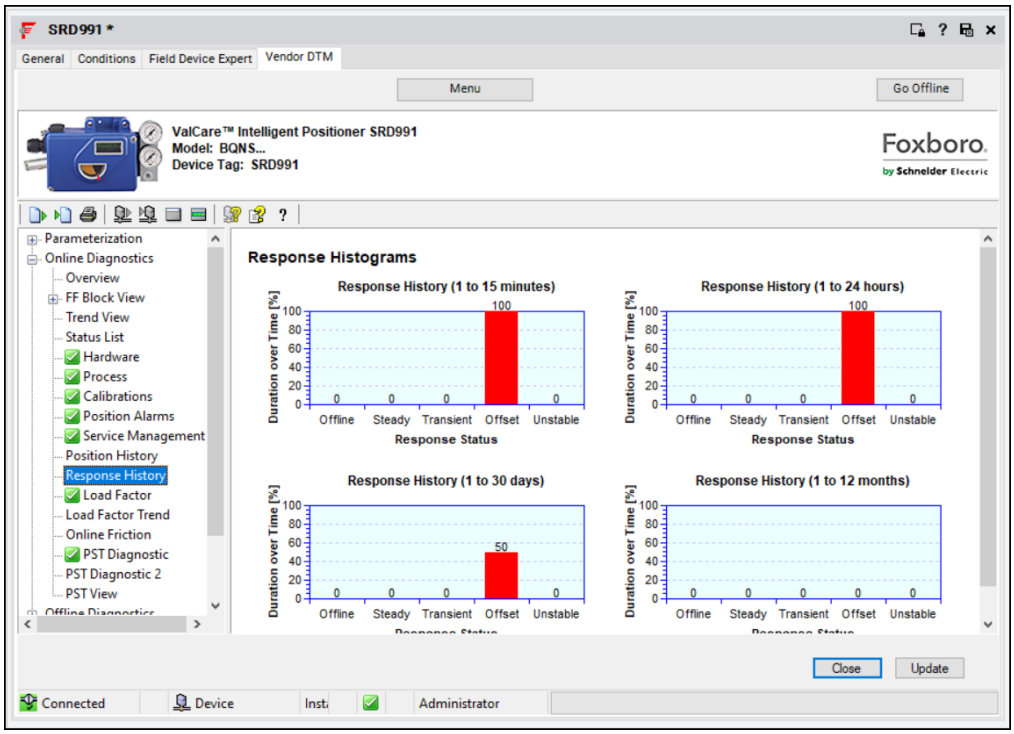


Even when using Enhanced DDs, definition of additional displays and their customization are possible through Field Device Expert.

Advanced Device Specific Diagnostics and FDT Compliant DTMs

Often the most dramatic improvements in device uptime are achieved through the use of device-specific user interfaces that allow executing, viewing, and documenting online and offline tests of control valves. The DTMs offered by vendors of valve positioners are an excellent example, as they offer capabilities to perform continuous online examination of valve and positioner health and performance data, and also provide offline tests for in-depth diagnostic evaluation.

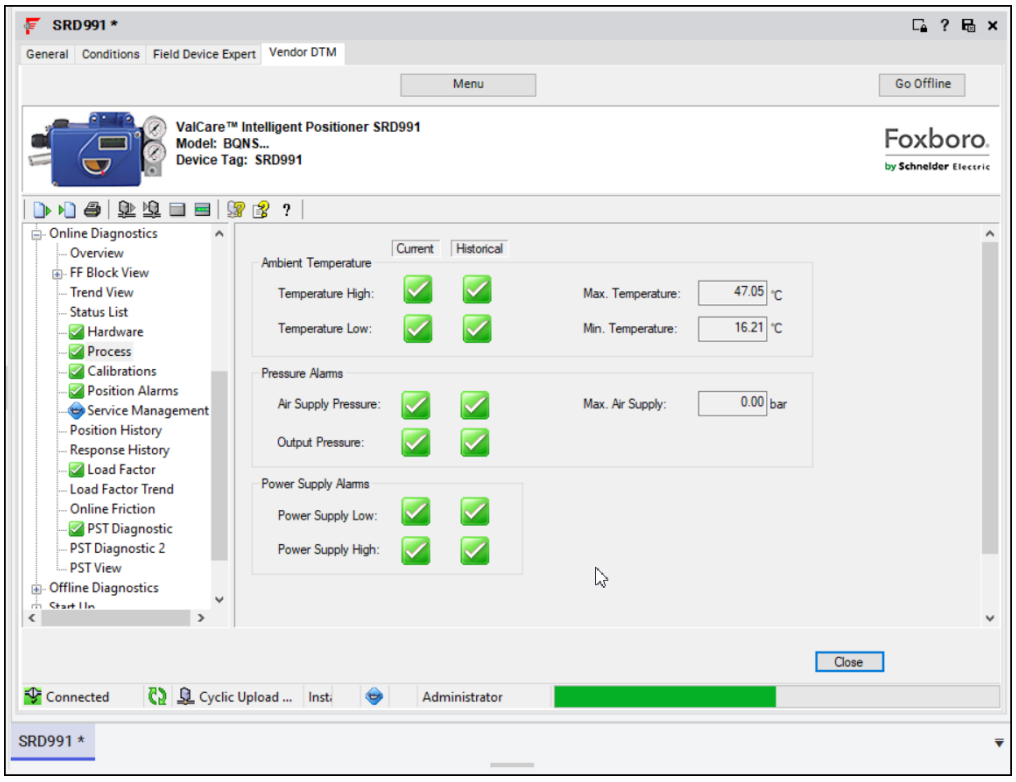
Figure 23 - Valve Response History



Online tests in these DTMs can provide these indicators:

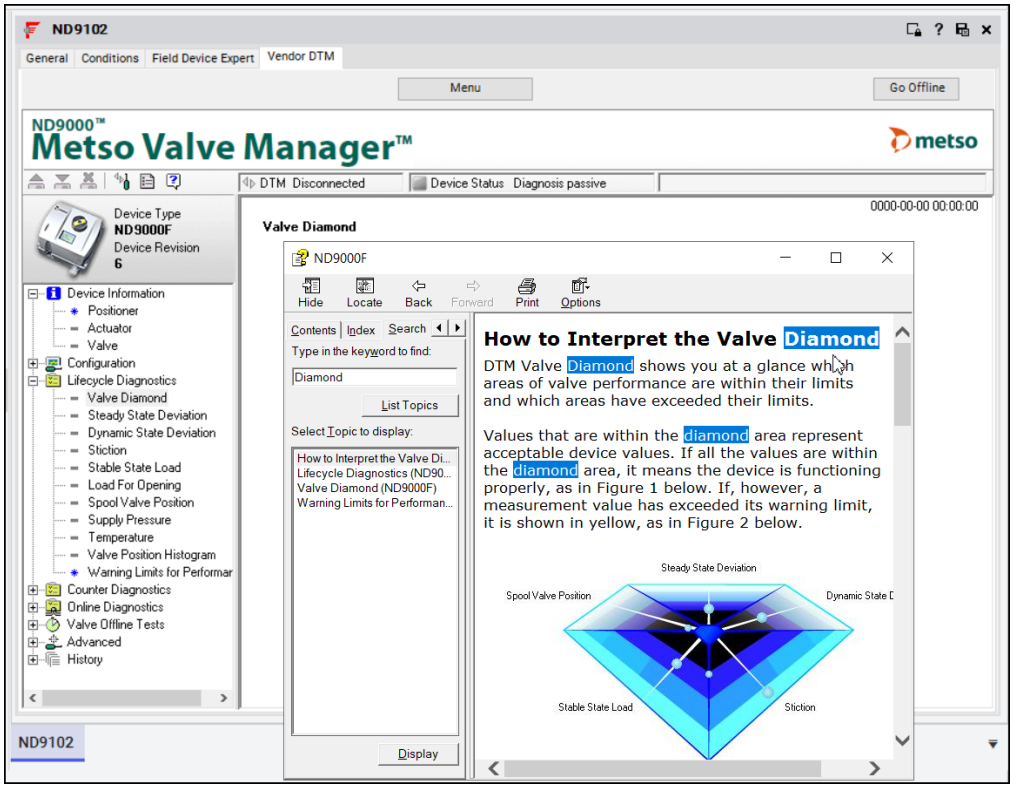
- Load for opening can indicate seat wear in butterfly valves or crystallization in ball valves.
- Increased stem friction can indicate a sticking valve, and is a predictive indicator of inaccurate readings or valve unavailability.
- Decreased stem friction can point to excessive wear or a valve shaft break.
- Abnormal changes in spool valve position may evidence problems such as an air leak in the actuator.
- Dynamic deviation can help you assess how responsive the valve is.
- Steady state deviation can indicate how accurately the valve achieves setpoint.
- Partial stroke testing of valves in ESD applications can indicate if the valve is able to operate on demand.

Figure 24 - Valve Process and Partial Stroke Status



Many vendors provide a built-in help system to guide use of their DTMs.

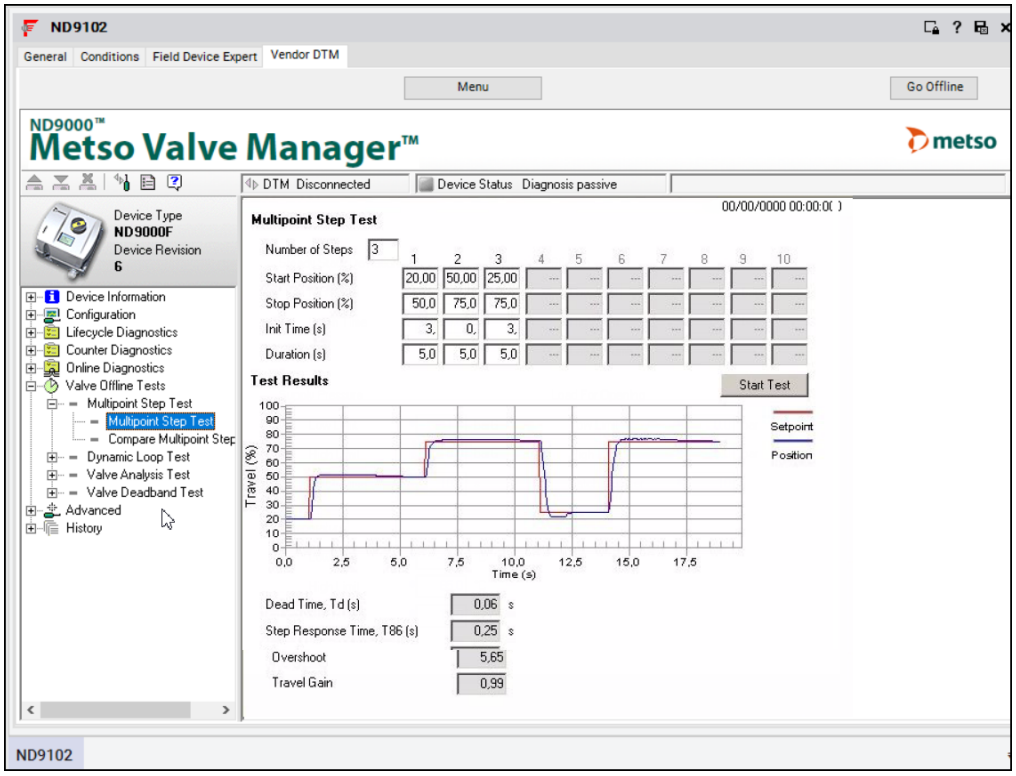
Figure 25 - Help File Explains Valve Diamond Analysis



Vendors typically provide offline tests that can drill down even deeper into suboptimal valve conditions and performance. For example:

- Step response tests can indicate how well the valve follows setpoint, and validate how well the positioner is tuned.

Figure 26 - Multipoint Step Response Test



- Signature tests can validate valve performance. The ability to archive and restore past valve signatures can help benchmark valve performance changes.

Field Device Expert Workshop Edition

The entire Control Room edition of Field Device Expert has the features previously described. This edition is used on workstations running the Control Software with Foxboro Control Processors and FBM228 H1 interface cards.

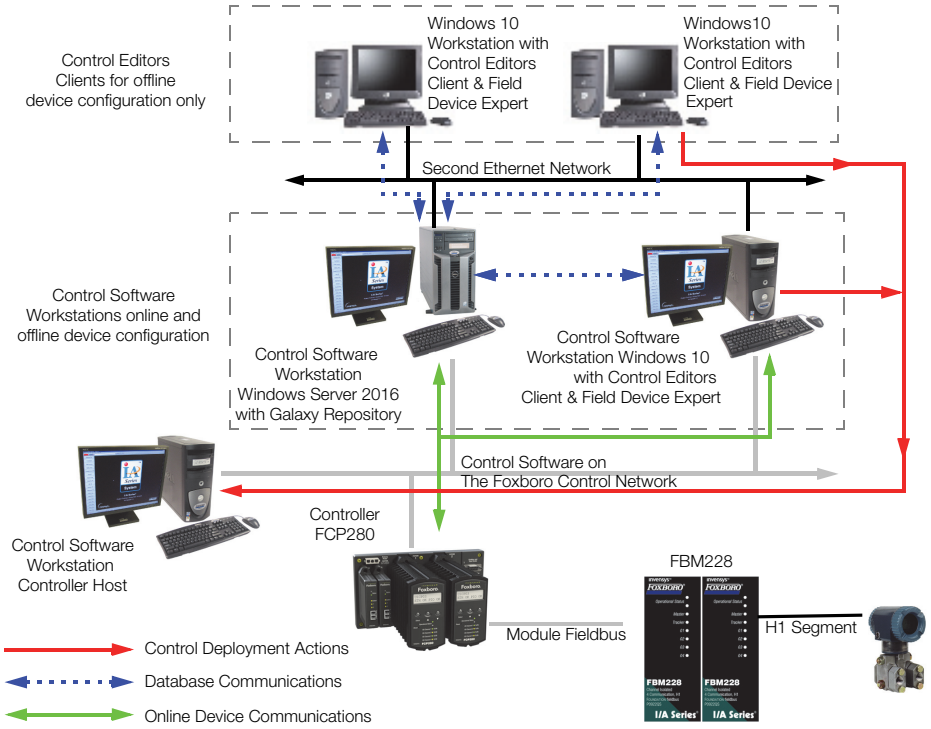
In addition, the Control Editors and Field Device Expert are offered in a bundled Instrument Workshop edition. This edition is used off platform to calibrate, pre-commission, and test instrumentation prior to installation and connection to the FBM228. This edition interacts with the resource and transducer blocks of the field device for these functions:

- Running methods in the DD files through Field Device Expert.
- Exercising offline diagnostic tests, or running commissioning or calibration functions contained in an FDT compliant DTM made by the device vendor.
- Diagnosing the device using the universal screens of the Field Device Expert.
- Setting or changing the tag of the device.
- Running the Device Preparation Wizard to tag a device prior to connection to the automation system.

System Architecture

This figure illustrates the entire Control Room edition of Field Device Expert.

Figure 27 - Typical System Architecture of Control Editors and Field Device Expert



A computer on the EcoStruxure™ Foxboro DCS Control Network has to be used for the workstation having the Galaxy Repository.

Field Device Expert can be installed on any computer having a Control Editors client.

If the Control Editors client is on the control network, the Field Device Expert has online interaction capability with field devices.

If the Control Editors client is off the control network, the Field Device Expert has only offline configuration capability with respect to field devices.

Hardware and Software Requirements

These are the hardware and software requirements for the Field Device Expert.

Control Room Edition

Hardware Requirement

Follow the hardware requirements for the Control Editors as specified in *Control Editors* (PSS 41S-10EDITOR).

Software Minimum Requirement

- Workstation Software License for both the Control Editors and Field Device Expert
- Computers having the Control Editors Server license has to be sized for the I/O points of the control processors for which the Control Editors keep the database.

Instrument Workshop Edition

Hardware Requirements

- Laptop, desktop, or server class computer with 2.18 Ghz (or faster) Intel Pentium® 4 processor (or higher), minimum of 16.0 GB free hard disk space, and minimum of 2.0 gigabytes RAM.
- DVD or CD drive
- Video Graphic Accelerator Card: 32 MB of memory
- Communications Network: 100 MHz TCP/IP Switched Ethernet with National Instruments H1 interface card for one H1 segment compatible with the computer.
- H1 junction devices, power supplies, and fieldbus terminations to connect the field device.

Software Requirements

- Windows 10 Enterprise 2016 LTSB, Windows Server 2016 operating system, Windows 7 Professional operating system with Service Pack 1, or Windows Server 2008 R2 Standard operating system.
- Field Device Expert Workshop edition V2.0 or later media kit including licenses for one install of Microsoft SQL Server™ database software, Microsoft Visio® drawing software, the Galaxy Repository, Control Editors and Access Manager, Field Device Expert, and the Control Software support for Foundation Fieldbus.

Related Product Specification Sheets

For an overview of the Schneider Electric Foundation Fieldbus solution, see *Control Software with Foundation™ Fieldbus* (PSS 41S-10FF).

For detailed information about the FBM228, see *FBM228 FOUNDATION fieldbus Module for Control in the Field Applications* (PSS 41H-2S228).

WARNING: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.p65warnings.ca.gov/.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

PSS 41S-10FDMFF, Rev B