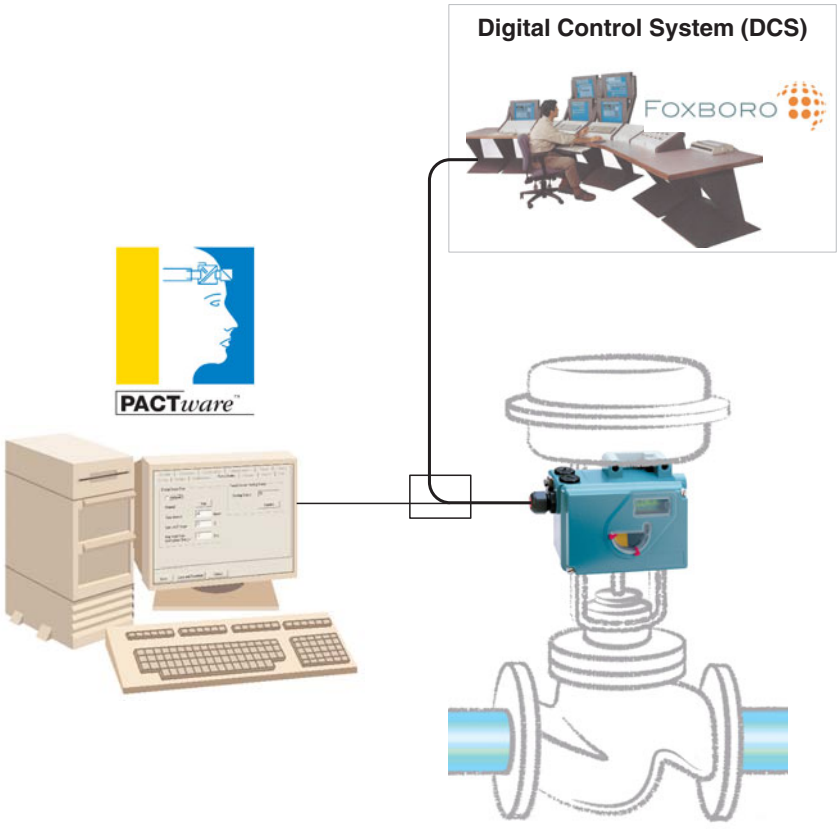
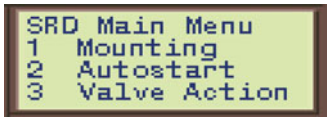
Advanced Diagnostics / Premium Diagnostics for Positioners SRD960 / SRD991



Operation



Configuration

Diagnosis for failed PST or stuck valve

Intelligent Valve Diagnostics for Predictive Maintenance

The valve diagnostic software is available as Device Type Manager (DTM) for integration into control systems based on the Field Device Tool (FDT) technology such as the Foxboro I/A™ Series System. It is designed to support methods for evaluation of the valve health, operation and configuration. The DTMs support the communication protocols HART, Profibus PA, FOUNDATION Fieldbus H1 and FoxCom.

- Predictive Maintenance capabilities
- Intelligent Alarm Management
- Self-surveillance in accordance with NE107
- Service Management
- Histograms for Valve Position- and Response-History
- Data collected up to 60 months
- Data stored inside positioner memory
- Determination of Stem Friction to prevent leakage and stuck stem
- Histogram for Friction-History
- Partial Stroke Test function for ESD applications

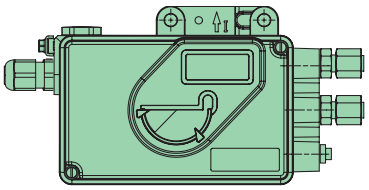
FOXBORO ECKARDT

All-in-one glance!

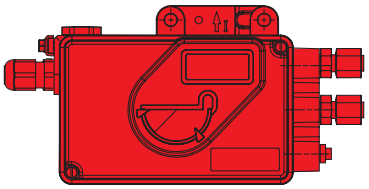
Ease of use and easy to understand are the principal characteristic of the DTM interface.

With one glance, users can identify if the equipment is running well (in green), needs maintenance (in blue), or indicates a failure (in red). The color code complies with NAMUR NE107 standard:

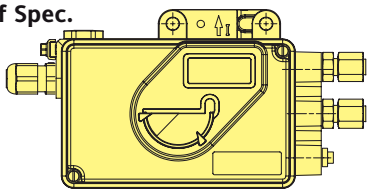
Good



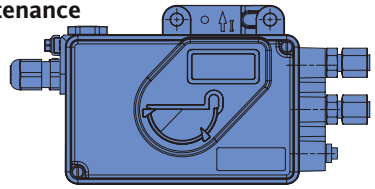
Alarm

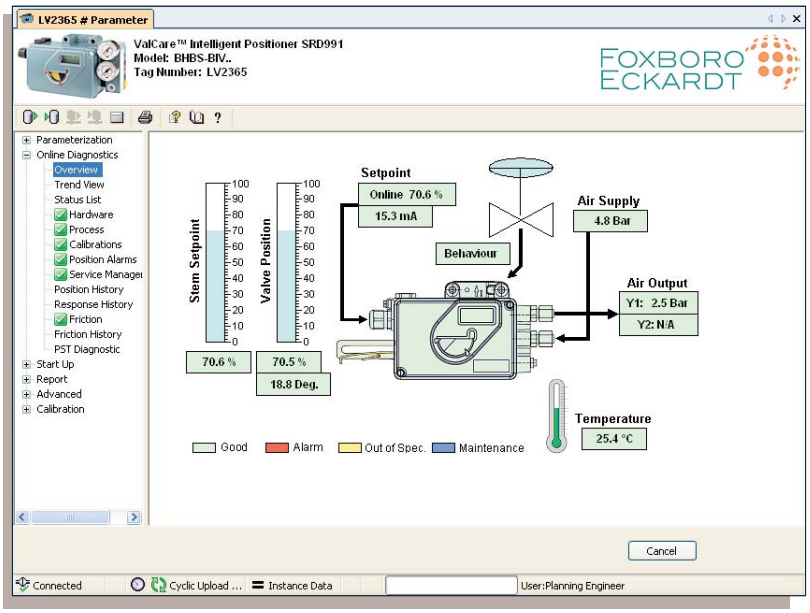


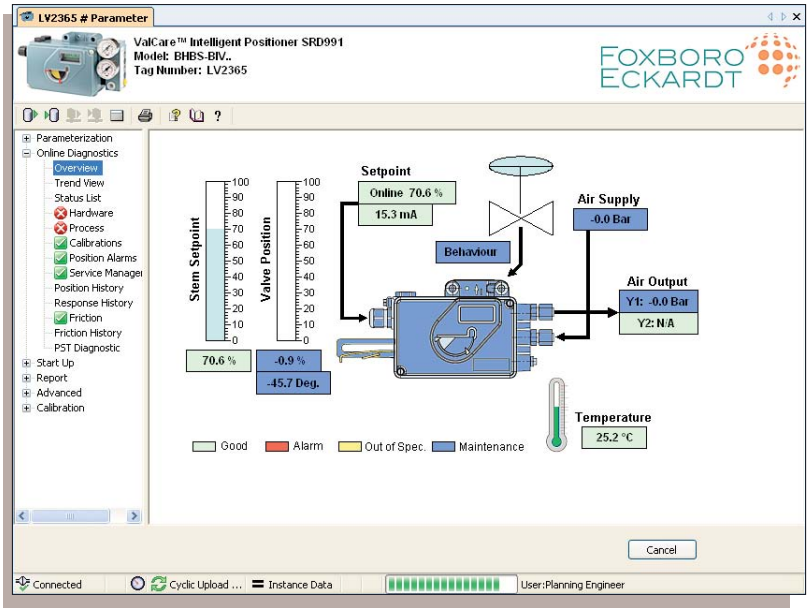
Out of Spec.

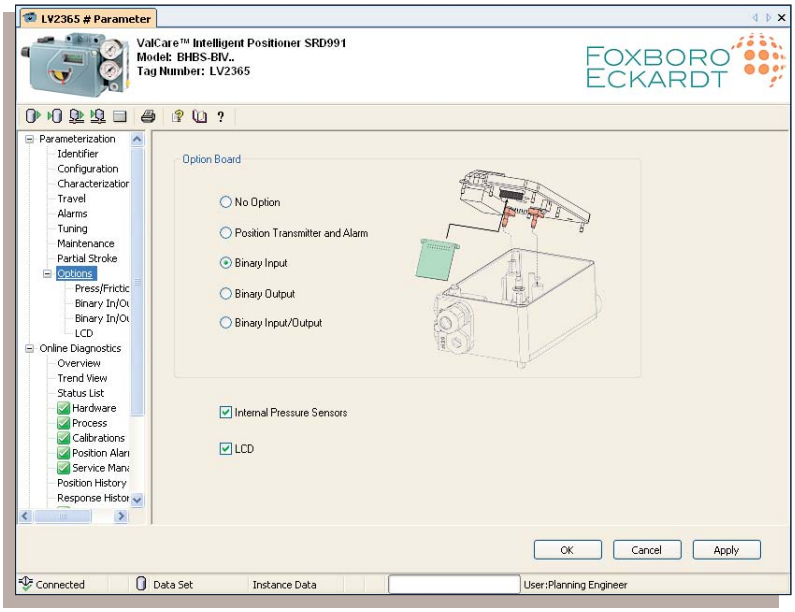


Maintenance







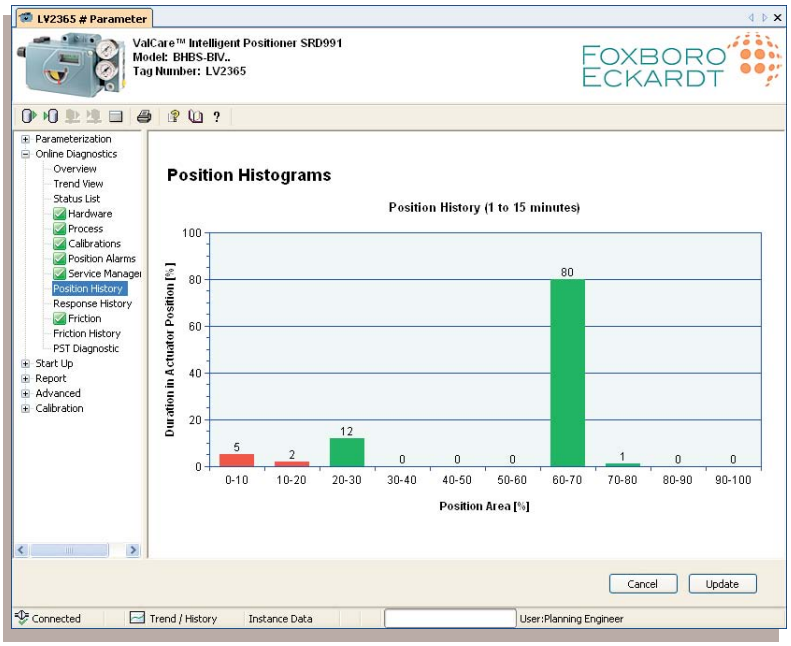


Simple Configuration

The easiest way to configure a valve positioner.

All configuration screens have been optimized with intuitive input and graphical elements that make it easy for anyone to configure a valve positioner while minimizing configuration errors.

Predictive Maintenance



The DTM goes beyond the typical function of displaying a setpoint and measured values as it offers enhanced internal applications and methods to analyze valve data. The onboard functionality automatically retrieves and stores all important valve performance data collected by the positioner during operation.

Diagnostic valve data is refreshed every 200ms which enables software to run on demand. As a result it is not required to run continuously on the control system and therefore can reduce unnecessary traffic on the communication signal.

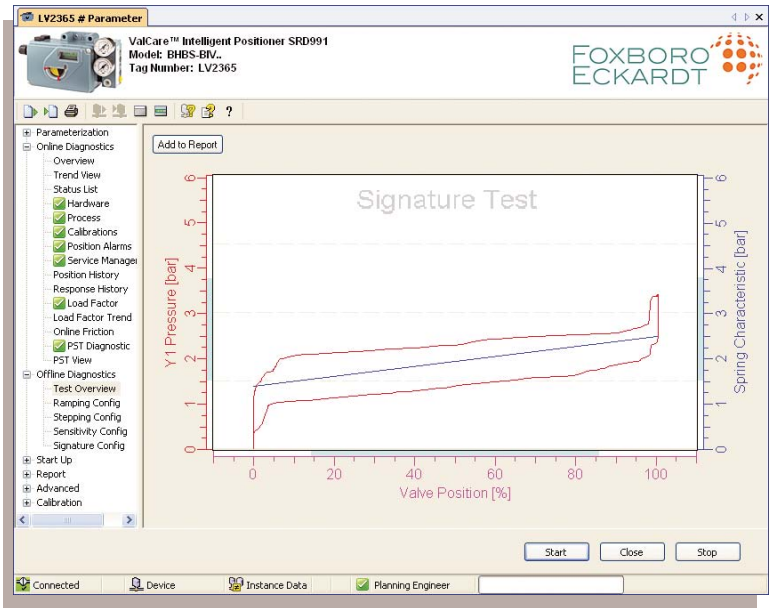
The internal diagnostic-routines continuously evaluate the state of the valve and inform an operator of any irregularities by executing a status alarm or diagnostic-message. The self-surveillance mechanism complies the NAMUR – N107 standard.

Total hours of operation of the device can be displayed, and service intervals can be timed accordingly using the Service Management screen. A set of histograms show Valve Position History and Valve Response History which can depict a valve performance over time. The Stem Friction histogram is an additional tool that can be used to identify valve stickiness which is a common valve problem.

Valve Friction

Stem friction greatly impacts valve performance. As such, tracking valve friction has become indispensable information in order to accurately develop predictive maintenance schemes for any control valve. Tracing valve friction allows identification of possible pneumatic leakages or stuck valves while preventing dangerous spills, injuries to personnel, or damage to plant equipment.

Internal pressure sensors measure the output pressure for each setpoint change. In milliseconds, the microprocessor of the positioner calculates the friction of the stem against the packing. The actual friction value is then displayed as Measured- and Average-Value with additional drag-pointers for the Maximum- and Minimum-Value.



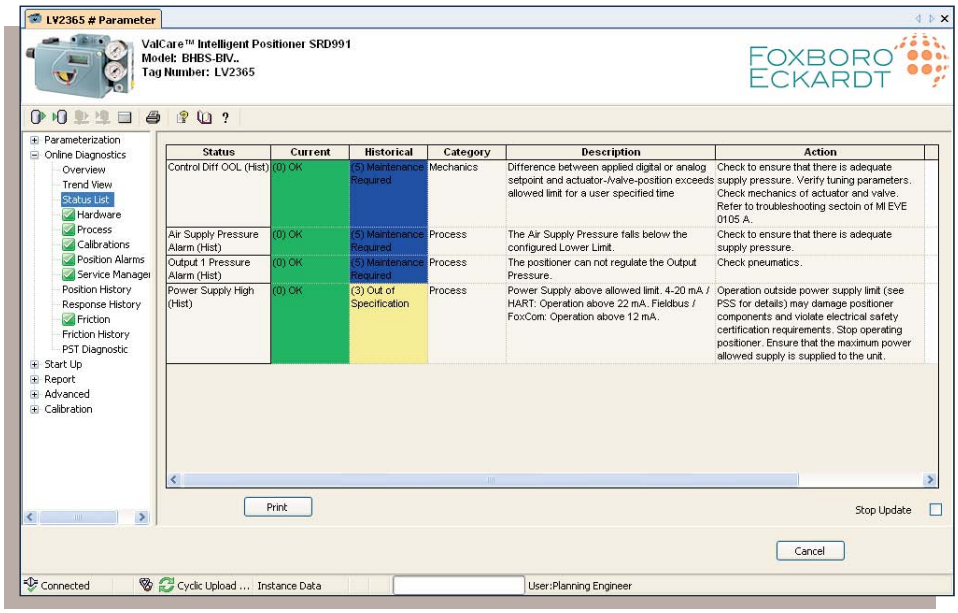
Valve Signatures

Valve Signature is an off-line function that defines a reference behavior of the valve/actuator/positioner entity. Several types of signatures are available to define precisely the overall characteristic of the final control element such as:

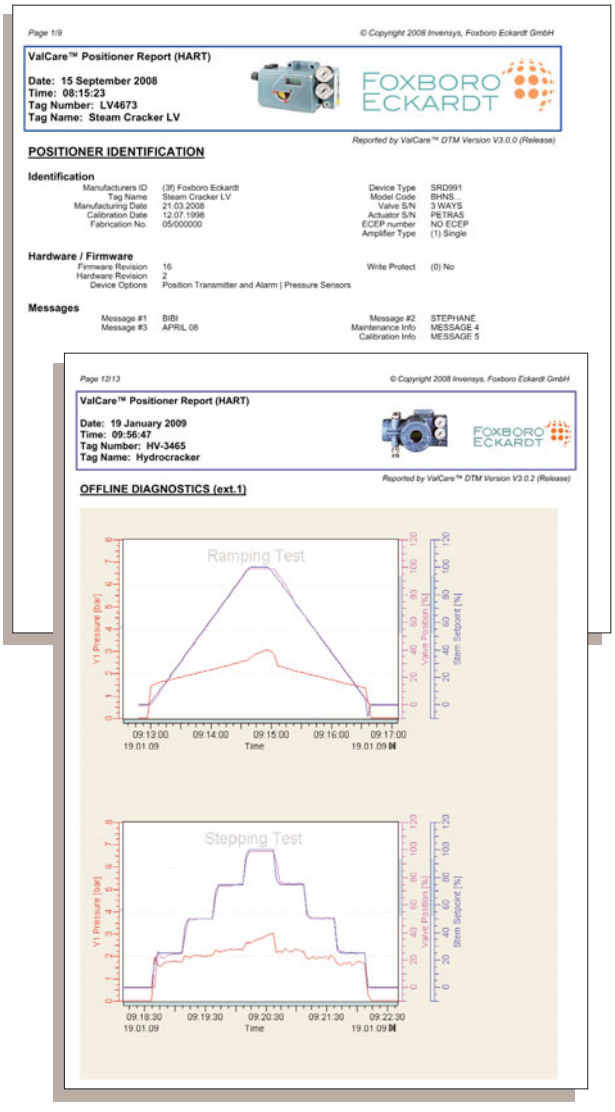
- Stepping signature
- Ramping signature
- Sensivity signature
- Valve signature

Unified self-surveillance (NE107)

The Status List screen is a conglomeration of all status messages of the field device. All messages comply with the NAMUR – NE107 standard which helps users adhere to consistent visual format and allows the integration to external alarm systems. The available information provides clear indication of activate alarms, possible root cause, and corrective actions to restore normal operating state. All alarms are generated in the positioner and can be uploaded at any time.

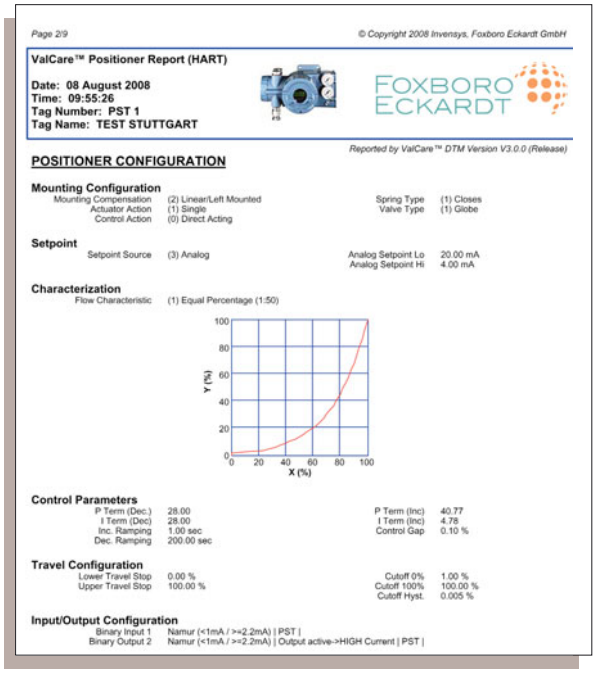


Positioner Report



With two simple clicks, you can generate a comprehensive and functional valve/positioner report.

The 8-page report covers all information regarding the identification, configuration, status, and diagnostic state of the positioner-valve combination. For ease of portability and archiving, this report can be printed or stored in PDF format for future reference



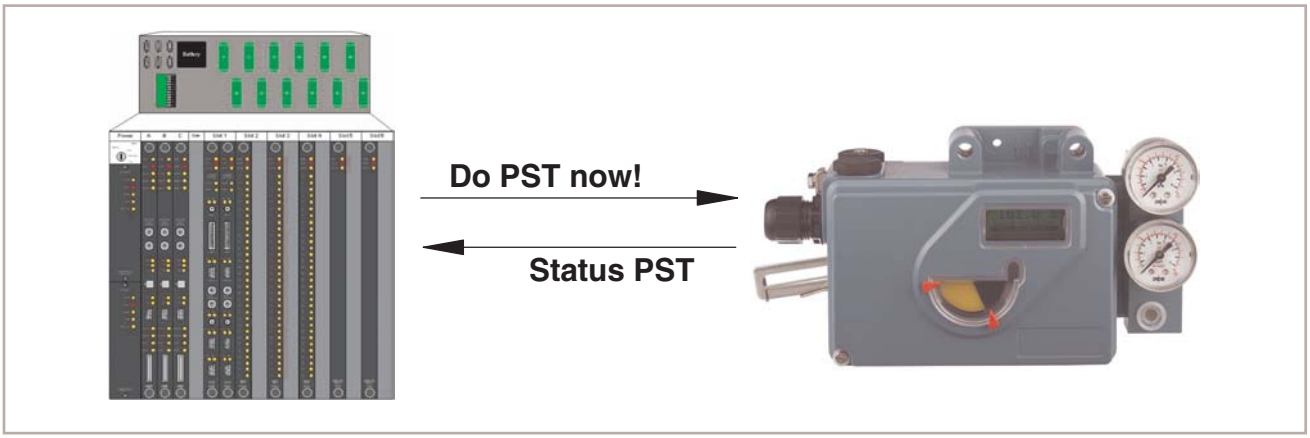
IPS Partial Stroke Testing Solution

Final control elements in Emergency Shutdown (ESD) applications such as ON-OFF-, Blow Down and Venting-Valves remain in one position over a long time without any mechanical movement. These valves can show the tendency to get stuck and as a result may not operate upon demand. This can have a severe impact on the functionality of a Safety System and could result in adverse conditions to operating personnel, plant equipment and the environment.

Partial Stroke Test (PST) offers operators a tool to identify the troubleshooting function of ESD valves. The test can be easily executed via the FDT-DTM based configuration and diagnostic tool.

The test can also be requested by an SIS Logic Solver and the result of the test can be read by the Logic Solver.

This architecture has been developed in conjunction with Triconex and eliminates the possibility of human error while reaching the high level of safety as described by IEC 61508 and IEC 61511.



Sequence of events inside the Triconex memory, for a safe tracability of all done tests

Triconex Sequence of Events Recorder - [SOE Retrieve: PST.SED]

Date	Time	Alias	TagName	Variable State	Node
12/07/2006	11:58:13.805	10003	PST_LAUNCH	TRUE	01 - trinode01
12/07/2006	11:58:26.456	10003	PST_LAUNCH	FALSE	01 - trinode01
12/07/2006	11:58:26.856	10001	PST_STATUS	TRUE	01 - trinode01
12/07/2006	11:58:26.856	15001	PST_COMPLETED	TRUE	01 - trinode01
12/07/2006	11:58:33.906	15001	PST_COMPLETED	FALSE	01 - trinode01

Features of Partial Stroke Test

PST Activation	Manually
	Automatically
	By means of separate Binary Input for SIS Logic Solver
Configuration	Test Interval
	Setpoint Change
	Maximum Wait Time
	Minimum Pressure
	Soft PST
	PST Setpoint Change • Fixed • Random
Action	PST for single or double acting actuator
Audit trail	In DCS by means of communication
	In SOE of Triconex by means of a digital output
Alarms	Minimum Pressure
	Time to perform PST
Trends	Break Pressure
	Time to re-inflate
Local Control Panel LCP960	with push button to launch PST
	LCD with PST Status
	Timer for last PST done

LCP960 Local Control Panel for PST

FDT/DTM-Technology

The Field Device Tool (FDT) concept specifies a “frame application” with a uniform platform for software tools. It also provides a simple standardized implementation and engineering environment to integrate field devices into any FDT compliant control system. The byproduct of the FDT platform is Device Type Manager (DTM) which is simply a driver that describes the field device specific software component.

The SRD DTM is the specific driver for the SRD series positioner supporting state-of-the-art features and all major communication protocols: HART, Profibus PA, FOUNDATION Fieldbus and FoxCom.

DTMs for HART, Profibus PA, FF H1 are certified by FDT organisation, to ensure the perfect integration into any FDT Frame.

SRD DTM Versatility

The DTM can be used in any supported communication protocol such as HART, Profibus PA, FOUNFATION Fieldbus or FoxCom providing users with identical configuration and diagnostic windows. Additional protocol specific screens may also be available for proper configuration.

Providing a consistent look-and-feel, the DTM can be used in any FDT compliant host system such as a stand alone PC for maintenance, dedicated PC with Multiplexer or in a DCS workstation.

The DTM also enables users to configure and read diagnostics of any SRD series positioner through a built-in service port or wirelessly via an infrared port.

How to get the SRD DTM

The DTM can freely be downloaded from our website under: http://www.foxboro-eckardt.com/ download/ FDT-DTMselector.html
If CD-ROM is necessary, the DTM on CD-ROM can be ordered under VALCARE.

SRD/DTM features

The diagnostics display by the DTM depends of the hardware/firmware of the positioner SRD Series.
To have access at the highest level of features please order SRD positioner with “Premium Diagnostics”.

For more information
Please contact us by email: valcare@ips.invensys.com

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