FLOWSERVE®

Logix 500 Series
Digital Positioner - Prevention Delivered

Experience In Motion

Logix 500 Series Digital Positioner

The Logix 500 series now in its third generation of the successful digital positioner series. The Logix 500 Series fulfils the ever growing requirements for modularity and flexibility without losing the advantages and features of the previous Logix 500 design.The Logix 500 series positioners are designed to cover a wide range of applications. Due to their modular concept they are extremely versatile. The Logix 505si serves the non-communication basic market with analog input signal to take advantage of new electronical technology. One step above is the Logix 510si as the basic platform for a digital positioner without communication. With a required voltage of less than 6V the Logix 505si and 510si fulfil all the requirements to replace traditional IP positioners with the many additional enhancements and features of a digital device.

Features and Options

The Logix 520MD is a "smart" positioner using the HART protocol for communication. Status information, configurations and diagnosis options are easy and convenient to access. With the latest members of the Logix family the Logix 520MD's the users have the full palette of diagnostic functuality built in. Flowserve's *ValveSight™* communication tools which uses FDT/DTM displays all the information on demand. All Logix 500 positioners use the same housing and the same actuating system. For this reason almost all optional accessories such as limit switch units or the side mounted double acting module can be used on all models of the Logix 500 family. Of course this principle will be valid for all future developments of the Logix 500 series. Modularity is our strength.

Features and Benefits

Feature	Benefits	Logix				
		505si	510si	520MD	521MD	522MD
Easy commissioning	Commissioning is performed by simply setting a few switches and pressing the Quick-Cal button. The direct User Interface allows local access to positioner control without requiring multi-level menus, a handheld communicator or a laptop computer.	x	x	x	x	x
Local status LED	LEDs visible from a distance, indicate positioner's current status without removing the cover.	x	x	x	x	x
Internal diagnostic codes	LEDs providing instant information relating to internal diagnostic codes. These codes indicate to the user positioner status and alarms without the need for a handheld communicator or a laptop computer.	x	x	x	x	x
Fast and simple configuration	With its unique Direct User Interface, Logix 500 positioners provides fast and easy configuration. Local configuration switches allow the user to set all basic parameters for positioner operation.	x	x	x	x	x
Jog calibration	The Jog calibrate function allows the user to easily and quickly calibrate the positioner on all actuators without physical stroke stops.		x	x	x	x
Auto tune	A simple press of a button starts the self-calibration and auto-tune process, speeding up commissioning procedure and ensuring consistancy between one valve and the next (regardless of who performs the procedure). Additionally, a gain selector allows the user to modify the calculated auto tune result.	x	x	x	x	x
HART communication	Using industry standard HART protocol and FDT/DTM technology the Logix 500 can use existing handheld communicators and supplies extensive information to maintenance database software packages. With *ValveSight™* Software, the Logix 500 can be monitored through any connected computer.			x	x	x
Low air consumption	State-of-the art piezo technology combined with inner-loop feedback procedures provides high-performance control with minimal air consumption.	x	x	x	x	x
21-point characterization	With *ValveSight™* software or a handheld communicator, a custom 21-point characterization curve can be generated which can be used to change the response of the positioner to meet the process requirements.			x	x	x
Standard diagnostic	Standard diagnostic functionality through ValvSight software such as cycle limit alarms, health dashboard, signatures and many more.			x	x	x
Advanced diagnostic	All of the functionally of the standard diagnostic version plus additional build-in pressure sensors to be able to determine what and when a problem occurred and how to fix it.				x	x
Pro diagnostic	All of the advanced diagnostic functionality including pressure sensors and full ValveSight connectivity and On-Line diagnostic. All options from ValveSight can be used with the Logix 522MD.					x
Two stage control design	Logix 500 positioners are using two-stage control to provide faster respons and tighter control.	x	x	x	x	x
Configuration lockout	Local configuration lockout switch permits users to perform automatic quick-calibration procedures without modifying existing configuration and tuning settings.			x	x	x
Mounting	IEC534 (NAMUR) mounting as well as VDI/VDE 3845 and 3847 mounting options allows the Logix 500 to be mounted on almost all actuators available on the market. With its unique Flowserve direct mounting option the Logix 500 can be mounted directly without tubing to Flowserve's single acting diaphragm actuators.	x	x	x	x	x
Limit switch options	Modular design allows reliable, inexpensive, non-contact, high resolution, build-in limit switches		x	x	x	x

Logix 505si - Basic

The Logix 505si is the basic positioner for most of the simple control loops. It has a easy to use microprocessor on board with basic settings such as air-to-close or air-to-open and split range setting. The Logix 505si is the positioner to replace standard IP positioners in a 4-20 mA loop with standard per-formance. However, the Logix 505si is one step ahead of a traditional 4-20 mA transducer. The Logix 505si has a Quick-Cal button for self calibration. The Logix 505si is the first member in the Logix 500 family.

Logix 510si - Digital

The Logix 510si series are single acting, user-friendly digital positioners. As with all the positioners within the Logix 500 family the Logix 510si uses the latest pie-zo-technology with inner-loop feedback to produce an improved dynamic behaviour. The complete configuration can be made by DIP switches on the device. Different gain values allow the best setup for each individual actuator size. Three coloured LED indicators continuously indicate the positioner status. Fast calibration and setup can be made by simply pressing the Quick-Cal button. Interchangeable components such as circuit board, piezo drivers etc. allow an easy and economical upgrade or repair. An optional 4 - 20 mA analog feedback and proximity limit switches complete the Logix 510si.

Logix 520MD with HART

The Flowserve Logix 520MD series are digital positioners with standard diagnostic functionality. The Logix 520MD positioner is quickly and easily configured on the valve. The essential configuration settings do not require a hand-held device or a host system. Readily visible LED status indicators allow the user to diagnose the condition of the valve at a glance. At the same time with Flowserves *ValveSight™* communication software all of the basic diagnostic functions can be displayed on a connected computer. The Logix 520MD positioner can be easily configured on the valve with or without HART communication, or with *ValveSight™* software for diagnostics, alarms and communications.

Featuring all of the advantages of an analog I/P positioner, the Logix 520MD positioner provides quick setup and calibration,as well as high-performance digital communications. With its versatile mounting options, the Logix 520MD offers a cost-effective retrofit solution for applications requiring communication (HART protocol) and base diagnostics for single-acting actuators from any manufacturer.

Logix 521MD and 522MD Digital with HART and Diagnostic

The Logix 521MD and 522MD are the high class positioners in the 500 family. Using the HART protocol to communicate in cooperation with FDT/DTM technology, the Logix 521MD and 522MD become the "Medical Doctors" for your process. With built-in pressure sensors and decades of experience in valve maintainance included in the intelligent software, the package Logix 521MD/522MD and *ValveSight™* becomes unbeatable. Featuring all options of the HART communication together with latest piezo technology and two-stage control, the Logix 521MD/522MD is one of the best performing digital positioners for control valves. High control performance and sophisticated software helps the user to make the decisions needed to optimize the process and reduce life cycle cost by planning shutdowns and not be surprised by unexpected failures. Optional limit switches and analog feedback and various mounting options make the Logix 520MD your premium choice.
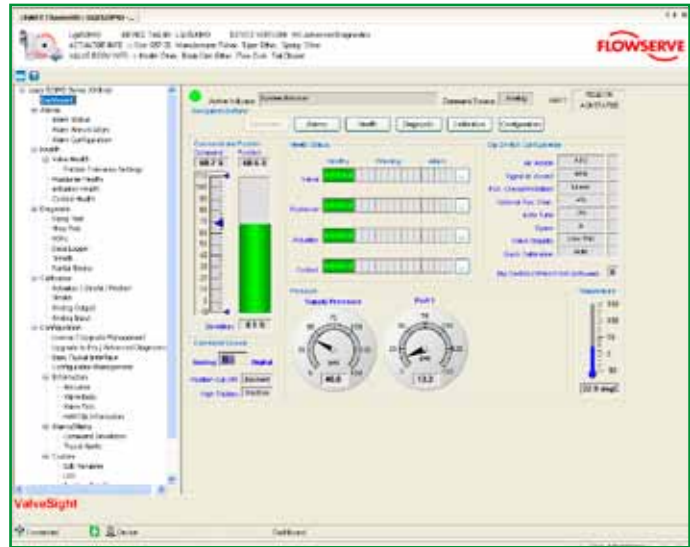
There's a Flowserve Doctor on Board - ValveSight™ FDT/DTM Technology

ValveSight™ FDT/DTM Technology

Flowserve's *ValveSight™* DTM software helps manage field devices by combining the features of field network hardware and the Hart 520MD communication protocols using FDT/DTM technology with the Logix 520MD series positioners. *ValveSight™* is a complete software package, featuring a unique and easy to understand health status of the device that shows not only problems, but also the magnitude of developing problems. *ValveSight™* also has configuration and calibration screens to fully support the Logix 520MD positioner family. Additionally, the user can access customized reports for all configuration, calibration and event data. Flowserve's *ValveSight™* DTM opens a 'window' to the device and allows immediate views with live feedback on all active device sensors including valve stem position, control signal, friction, response time and other important system metrics.

ValveSight™ DTM software enables communication between the software and field device networks using the HART protocol and provides access to the 24/7 diagnostic information from field devices. Using FDT/DTM technology maintenance personnel can access any Logix 520MD series positioner on the network from a single workstation. Additionally, the software has the capability to store configuration and calibration history and view event logs for each digital positioner accessible through the network.

Diagnostic Engine

Users can now obtain a new level of detailed real time diagnostic information with *ValveSight™* DTM software. *ValveSight™* features a "Doctor on Board" performing real time on-line diagnostics 24 hours a day, 7 days a week. The diagnostic assessment of the 'doctor on board' is instantly displayed on the local interface and through the *ValveSight™* DTM software.
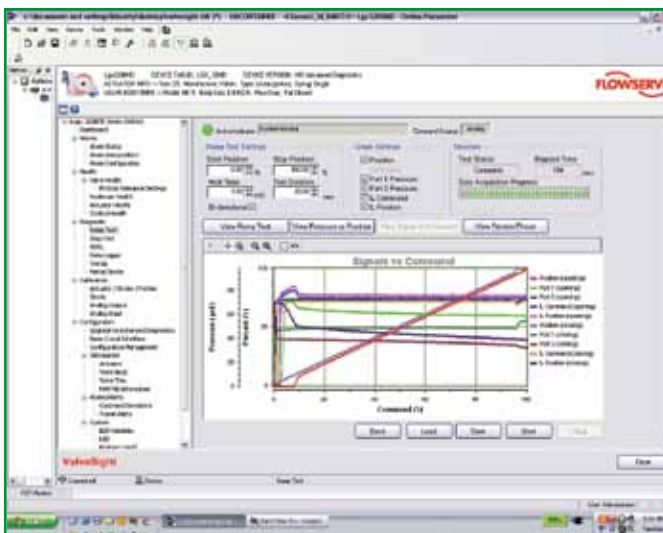
ValveSight™ Communication Software

The 'health bars' in the Dashboard view instantly indicate any developing issues and quickly direct the user to the implications and solutions for each problem. The system automatically prioritizes alarms to direct the user to the root cause.

Configuration Management

ValveSight™ DTM software also allows the user to easily upload a configuration from the positioner. This means that a new replacement positioner can be identically configured with the simple click of a mouse once the correct configuration has been identified. *ValveSight™* enables users to edit individual configurations and print a positioner configuration report.

Signatures

The Logix 520MD positioners are designed to assure that data is easily gathered, stored and compared to historical valve data so that the user can determine the performance of critical valves.

With *ValveSight™* DTM software a user-defined signature ramp or step response test can be generated with a Logix 520MD positioner. Signatures can be saved and catalogued (and later retrieved) for comparison with a more recent signature.

A special partial stroke signature function will automatically test the valve/actuator and give a pass/fail indication.

Positioner Performance

Static performance and accuracy measures such as hysteresis, deadband, linearity, and repeatability can be obtained with the Logix 520MD positioners. These values can be graphically depicted, stored and later retrieved for comparative analysis.

Specifications

Table 1: Input Signal	
Input Signal Range	4 - 20 mA
Compliance Voltage	6 VDC (505si, 510si) 10 VDC (520MD, 521MD, 522MD)
Voltage Supply (maximum)	30 VDC
Minimum Required Operating Current	3,6 mA

Table 2: Stroke Output	
Feedback Shaft Rotation	Min. 15°, max 90° 40° recommended for linear applications

Table 3: Air Supply	
Air Supply Quality	Free from moisture, oil and dust per IEC 770 and ISA-7.0.01
Input Pressure Range	1,5 to 6,0 bar (22 to 87 psi)
Air Consumption (steady state)	0,08 Nm³/h @ 1,5 bar (0,047 SCFM @ 22 psi) 0,12 Nm³/h @ 6,0 bar (0,071 SCFM @ 87 psi)

Table 4: Output Signal	
Output Pressure Range	0 to 100% of air supply pressure
Output Flow Capacity	2,4 Nm³/h @ 1,5 bar (1,41 SCFM @ 22 psi) 7,0 Nm³/h @ 6,0 bar (4,12 SCFM @ 87 psi)

Table 5: Shipping Weights	
Base Positioner without Accessories	1,2 kg (2,65 lbs)

Table 6: Performance Characteristics (typical)	
Linearity	< +/- 1,0% (505si, 510si) < +/- 1,0% (520MD, 521MD, 522MD)
Resolution	< 0,3% (505si, 510si) < 0,1% (520MD, 521MD, 522MD)
Repeatability	< 0,5% (505si, 510si) < 0,2% (520MD, 521MD, 522MD)
Deadband	< 0,5% (505si, 510si) < 0,2% (520MD, 521MD, 522MD)

Table 7: Environmental Conditions	
Operating Temperature Standard	-20 °C to +80 °C (-4 °F to +178 °F)
Operating Temperature Low	-40 °C to +80 °C (-40 °F to +178 °F)
Transport and Storage Temperature	-40 °C to +80 °C (-40 °F to +178 °F)
Operating Humidity	0 to 100% non-condensing

Table 8: Hazardous Area Specifications	
ATEX	Ex II 1G EEx ia II C T6
FM Non Incendive	FM Class 1, Division 2, Groups A,B,C,D Temp. Class. T4 Ta = 85°C
FM Intrinsically Safe	FM Class 1, Division 2, Groups A,B,C,D Temp. Class. T4 Ta = 85°C

Mounting Options

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Your contact:

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