FLOWSERVE

Logix™ 3800
Digital Positioner

Maximize production and
reduce operating costs



Experience In Motion

Solving the toughest challenges in flow management



Flowserve is working with the world's most important providers of oil and gas, power, chemicals, water and other essential products to optimize performance and maximize production. Our portfolio of pumps, seals, valves and actuation is only part of the story. Our customers need answers that demand extensive know-how and experience, and we've got it. More than 18,000 committed associates are expert resources for engineering, project management, technical support and service in every corner of the world.



The Logix 3800 positioner features powerful diagnostics that identify field problems and expedite corrective actions to ensure reduced return-to-operation times.

You can have it all: simple configuration and calibration, powerful diagnostics and reliable performance

The Flowserve Logix 3800 digital positioner helps plant owners and operators maximize production while minimizing operating costs. It's the oil and gas and chemical industries' choice for applications that require a balance between technological sophistication and long-lasting reliability in tough environments.

This high-precision positioner simplifies installation through easy configuration and calibration. It also facilitates improvements in process uptime, reliability and process throughput. Advanced diagnostics not only identify developing problems in the control valve, but also help guide corrective actions to ensure reduced return-tooperation times.

Compatible with linear and rotary valves and actuators, the Logix 3800 digital positioner offers embedded measurement, data reduction, and diagnostic functionalities. Its control system-independent user interface facilitates easy configuration, operation and system diagnostics with a single view.

Exceeding industry standards, not budgets

Robust and reliable

Rugged, certified SIL 3 capable modular design delivers maximum reliability in the toughest environments. A shielded non-contact position sensor and single or dual-poppet pneumatic relay ensure trouble-free performance in demanding applications. In addition to simplifying maintenance, the modular enclosure provides protection from impact, vibration, and dirt and water ingress (IP-66).

Easy configuration and calibration

Installation and operation are made easy by the innovative quick calibration feature to simplify commissioning. A quick calibration button automatically configures the zero, span and gain of the positioner for most valves in less than 60 seconds.

Application versatility

Broad application versatility with standard communication technologies, including analog position control, HART or Foundation Fieldbus. Discrete or 4-20mA I/O can be used for signaling external to the device. Optional modules are available to remotely locate the positioner from the control valve.

Increased safety

Intrinsically safe, non-incendive and explosion-proof design ensures safe, reliable operation in hazardous conditions for increased plant and personnel safety. The certifications are valid from Change to -40°C to 85°C (-40°F to 185°F). The Logix 3800 digital positioner is certified for use in explosion-proof Ex d IIC hazardous locations.

Greater air capacity

The Logix 3800 digital positioner is equipped with either single or double-poppet technology, which allows it to have up to 80% more air capacity than previous designs with minimal air consumption.

Broad compatibility

Compatible with a variety of valve and actuation configurations including: rotary or linear valves; double- or single-acting; airto-open or air-to-close; very large to very small actuators; split range; custom characterization; precision linearization; analog and discrete I/O; and more.



Predictive diagnostics

With five pressure sensors, the Logix 3800 digital positioner enables operators to identify and assess the severity of developing problems in valves and actuators so action can be taken before a critical event.

Supply pressure warning — Monitors the instrument air supply pressure

Friction high/low warnings — Monitors the adjustment of the packing and seals

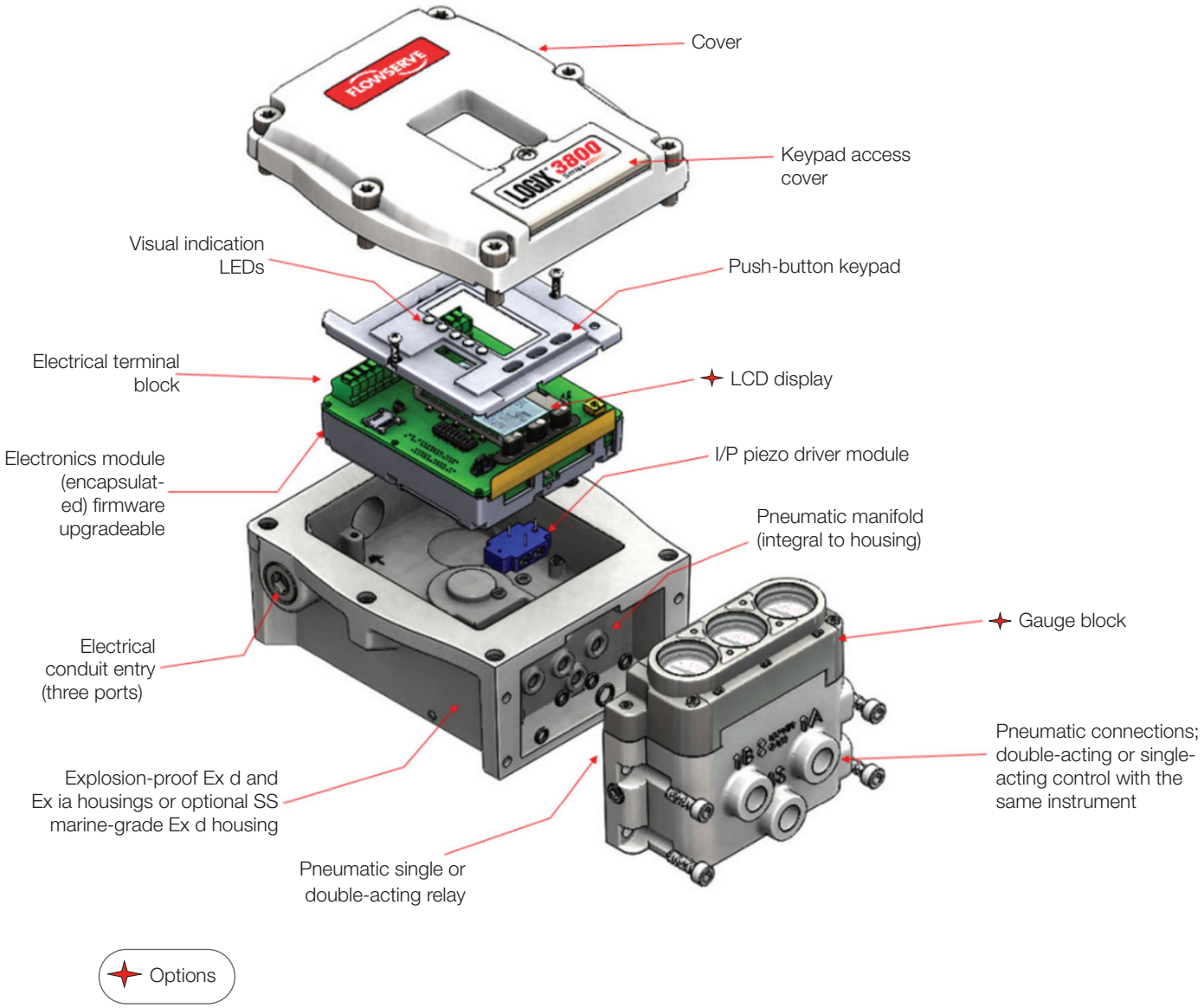
Pneumatic leak warning — Monitors excessive air consumption indicating leaks in actuator or tubing

Fail-safe position error — Detects problems with the fail-safe actuator spring

Backlash warning — Monitors the linkage of the actuator to the valve and detects loose connections

Reliably versatile by design

The Logix 3800 digital positioner features a modular design that allows for flexible mounting configurations. Position control is possible for both double-acting or single-acting valves with minimal air consumption. Its broad application versatility is made possible by a flexible design that features pneumatic ports on either side and allows direct mounting to VDI/DE standards without the need for external tubing.



Engineered for powerful diagnostics

The Logix 3800 digital positioner features some of the industry's most advanced diagnostic capabilities. With basic to advanced valve diagnostic signatures and offline/online diagnostic functions, the Logix 3800 can perform diagnostics to monitor the health status of a wide range of valve and actuator assemblies.



- Industrial-grade electronic components
- 32-bit microprocessor
- System on chip technology
- State-of-the-art electronics
- Fast "recovery time": 500 milliseconds from cold start
- Low compliance voltage (10 VDC @ 20 mA)
- Low compliance current (3.6 mA)
- Effective resistance: 500 Ω @ 20 mA
- Fully encapsulated
- All electronics and sensors onboard
- The cover buttons allow access to menus in hazardous locations
- Spring-loaded terminals
- Scalable application options (auxiliary I/Os)
- Firmware upgradeable through communication protocols Hart or Foundation Fieldbus
- Valve diagnostic signatures stored in NVRAM
- Advanced functionality without LCD using keypad



Specifications and certifications

Characteristics	Double-Acting Relay Valtek VL-25	Single-Acting FlowTop 253
Resolution	≤0.25%	≤0.25%
Linearity	±0.80%	±0.45%
Repeatability	≤0.5%	≤0.5%
Hysteresis	≤1.0%	≤0.35%
Deadband	≤0.1%	≤0.3%
Sensitivity	≤0.25%	≤0.25%
Stability	≤0.4%	≤0.2%

*Parameters characterized on a 25 in^2 linear actuator.

Safety certifications

- ATEX, IECEx and FM/CSA explosion-proof, intrinsically safe and non-incendive
- SIL 3 capable on double acting HART version only

Communications certifications

- HART
- Foundation Fieldbus

Output air capacity	
Double acting relay	18 SCFM 60 psi (C_V 0.47)
Double Low bleed relay	18 SCFM 60 psi (C_V 0.47)
Single acting relay	12 SCFM 60 psi (C_V 0.32)

Air consumption	
Double acting relay	0.3 SCFM 60 psi (C_V 0.008)
Double Low bleed relay	0.075 SCFM 60 psi (C_V 0.002)
Single acting relay	0.15 SCFM 60 psi (C_V 0.004)

Temperature range	
Operating	-55°C to 85°C (-67°F to 185°F)
Single acting relay operating temperature	-40°C to 85°C (-40°F to 185°F)



Logix 3800 positioner configurations

Selection	Description	Code
Base Model	Logix 3800 Series	38
Communications	HART [1]	2
	Foundation Fieldbus	4
Housing	Aluminum—Intrinsically Safe (IS)	0
	Aluminum—Explosion proof (Ex d)	1
	Stainless steel—Explosion proof (Ex d)	2
Certifications	General purpose	14
	InMetro, Ex db, Ex ia, ib, ic, Ex t, Ex nA, IP66	06
	ATEX / IECEx, Ex db, Ex ia, ib, ic, Ex t, Ex nA, IP66 [5]	28
	FM/US/Canada Ex Proof Class I Div 1 Gp B-D (A)Ex db, Dust Ignition Proof Class II, III Gp E-G (A)Ex tb, Intrinsically Safe Class I, II, III Div 1 Gp A-G (A)Ex ia,ib ic, Nonincendive Class I, II, III, Div 2 Gp A-G (A) Ex nA, Type 4x, IP66 [5]	34
	IS Housing Option Only — ATEX / IECEx , Ex ia,ib,ic, Ex t, Ex nA, IP66 [5,8] FM/US/Canada, Intrinsically Safe Class I, II, III Div 1 Gp A-G (A)Ex ia,ib ic, Nonincendive Class I, II, III, Div 2 Gp A-G (A) Ex nA, Dust Ignition Proof Class II, III Gp E-G (A)Ex tb, Type 4x, IP66 [3]	37
	ATEX / IECEx ,Ex db, Ex tb,FM/US/Canada Ex Proof Class I Div 1 Gp B-D (A)Ex db, Dust Ignition Proof Class II, III Gp E-G (A)Ex tb, Type 4x, IP66 [5]	43
	EAC TR CU Ex db, Ex ia, ib, ic, Ex t, Ex nA, IP66 [5]	44
	US Explosion Proof, Class I, Div 1, Gp A, B, C, D, Class II, Gp E, F, G, Class III CANADA Explosion Proof Class I, Div 1, Gp B, C, D, Class II, Gp E, F, G, Class III [8]	45
Threaded Connections	Mounting: 5⁄16 in 18 UNC, Pneumatics: 1⁄4 in NPTF, Conduit: 1⁄2 in NPTF; Vents 1⁄4 in NPTF	E
	Mounting: M8 x 1.25; Pneumatics: 1⁄4 in NPTF; Conduit: M20 x 1.5; Vents 1⁄4 in NPTF	M
	Mounting: M8 x 1.25; Pneumatics: G 1⁄4 in; Conduit: M20 x 1.5; Vents G 1⁄4 in	G
Actuation Medium	Air	A
	Natural gas	G
Relay Type	Double-acting, standard [6,7]	D
	Double-acting, low bleed (natural gas) [7]	L
	Single-Acting [10]	S
Action	Standard, double-acting (four-way)	4
	Standard, single-acting (three-way)	3
Pressure Gauges	No gauges	0
	Nickel plated with brass internals, psi (bar/kPa)	1
	Nickel plated with brass internals, psi (kg/cm^2)	2
	Stainless steel with brass internals, psi (bar/kPa)	3
	Stainless steel with brass internals, psi (kg/cm^2)	4
	UCC press test plug, 1⁄8 in NPT	A
	Valve, tank, Schrader 645A	B
Pneumatic Output Orientation	Pneumatic ports, vents and gauges oriented for display on the right side of the positioner	R
	Pneumatic ports, vents and gauges oriented for display on the left side of the positioner	L
Diagnostics	Standard diagnostics (standard functionality) [2]	0
	Pro diagnostics (full functionality)	1
Display	No LCD [4]	0
	LCD	1
Feedback Shaft	No feedback shaft	0
	D—316 stainless steel shaft (Valtek® standard)	1
	NAMUR—316 stainless steel shaft (VDI/VDE 3845)	2
	DD—316 stainless steel shaft (Logix 3200/3400 retrofit mounting)	3
	NAF—316 stainless steel shaft	4
	DD—316 stainless steel shaft (Valtek standard)	5
	D—316 stainless steel shaft (reverse spring for long stroke)	6
	DD—316 stainless steel shaft (reverse spring for long stroke)	7
Mounting	Standard mounting [9]	0
	Direct mounting block	D
	VDI/VDE 3847 manifold [3]	V
	Remote mount option [4]	R

1. HART 6 standard. Can be configured as HART 7 in the field.
2. Can be upgraded to Pro Diagnostics in the field.
3. Available with aluminum I.S. housing only.
4. LCD required for Remote Mount.
5. Only available with Ex d housing.
6. Relay is not for use with natural gas.
7. Relay may be used for three-way, single-acting actuators.
8. Certification approved for Remote Mount option.
9. Requires Pneumatic Orientation R
10. Relay must only be used for three way, single-acting actuators

Regional contacts

If you have questions about the Logix 3800 positioner or to find your local Logix sales representative, please contact one of the regional offices below.

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To learn more

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