



# 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 industry-leading 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 go-to resources for expert 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-to-operation times.

Compatible with linear and rotary valves and actuators, the Logix 3800 digital positioner offers industry-leading embedded measurement, data reduction and diagnostic functionalities. Its control system-independent user interface facilitates performance configuration, operation and diagnosis 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. Shielded, dual-element, non-contact, magneto-resistive position sensor and temperature-compensated, dual-poppet pneumatic relay ensure trouble-free performance in demanding applications. In addition to simplifying maintenance, the modular design provides protection from dirt and water ingress (IP-66), impact and vibration.

## Easy configuration and calibration

Installation and operation ease from innovative quick calibration feature to simplify commissioning. One-button setup automatically configures the zero, span and gain of the positioner for most valves in less than 60 seconds.

## Application versatility

Broad application versatility with industry-leading communication technologies, including analog, HART, Foundation Fieldbus, 4-20 or discrete I/O signals. Optional module to remotely locate the positioner from the control valve.

## Increased safety

Intrinsically safe, non-incendive and explosion-proof design from -52°C to 185°C (-62°F to 365°F) ensures safe, reliable operation in hazardous conditions for increased plant and personnel safety. The Logix 3800 digital positioner is certified for use in explosion-proof Exd IIC hazardous locations.

## Greater air capacity

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

## Broad compatibility

Compatible with a variety of valve and actuation configurations including: rotary or linear valves; double- or single-acting; air-to-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

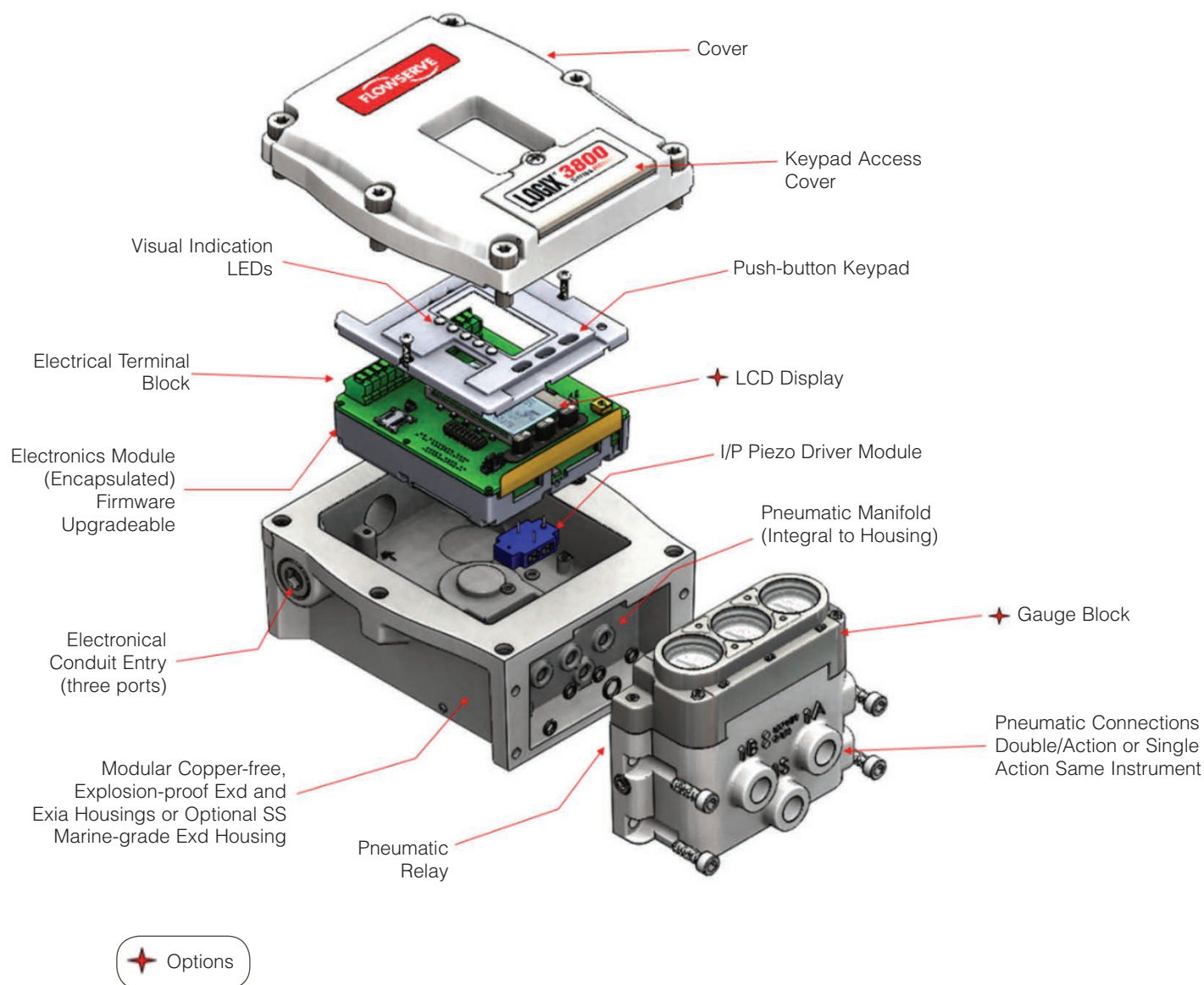
**Pneumatic Leak Warning** — Monitors excessive air consumption indicating leaks in actuator or tubing

**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 position-insensitive modular design, allowing for ultra-high, double-acting flow or optimal single-acting performance 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/VDE 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 calibration and 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”
- Brown-out: > 40 ms after 1 min. powered
- Macrocycle: < 200 milliseconds
- Low compliance voltage (10 VDC @ 20 mA)
- Low compliance current (3.6 mA)
- Effective resistance: 500  $\Omega$  @ 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

Performance characteristics	Description
Resolution	$\leq 0.25\%$
Linearity	$\pm 1.25\%$
Repeatability	$\leq 0.25\%$
Hysteresis	$\leq 1.0\%$
Deadband	$\leq 0.25\%$
Sensitivity	$\leq 0.25\%$
Stability	$\leq 0.4\%$
Long-Term Drift	$\leq 0.5\%$
Supply Pressure Effect	$\leq 0.5\%$

Output air capacity	
Standard Relay	18 SCFM 60 psi
Low Bleed Relay	18 SCFM 60 psi

Air consumption	
Standard Relay	0.3 SCFM 60 psi
Low Bleed Relay	0.075 SCFM 60 psi

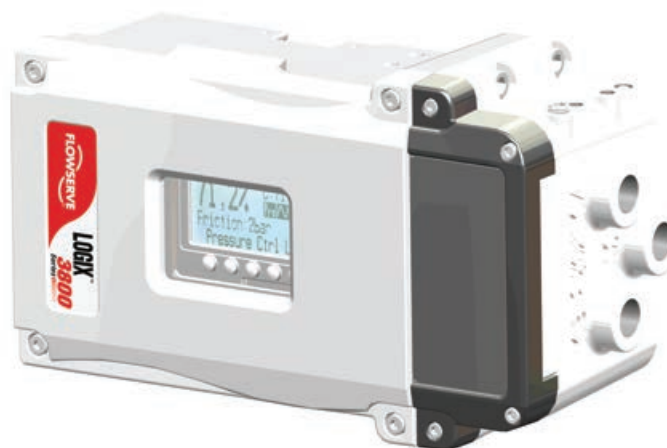
Temperature range	
Operating	-55°C to 85°C (-67°F to 185°F)

### Safety certifications

ATEX, IECEx and FM/CSA explosion-proof, intrinsically safe, non-incendive, SIL 3 capable

### Communications certifications

HART, Foundation Fieldbus



# Logix 3800 positioner configurations

Selection	Example	Description	Code
<b>Base Model</b>	38	Logix 3800 Series	38
<b>Communications</b>	2	Analog Only	1
		HART	2
		Foundation Fieldbus	4
<b>Housing</b>	0	Aluminum—IS	0
		Aluminum—Ex d	1
		Stainless Steel—Ex d	2
<b>Certifications</b>	14	General Purpose	14
		ATEX/IECEX Explosion-proof, Intrinsically Safe, Non-Incendive	28
		FM/US/Canada Ex Proof Class and Division B–D to -40°C; Ex d IIC -50°C Intrinsically Safe and Non-Incendive IIC to -55°C	34
		Intrinsically Safe, Non-Incendive ATEX/IECEX and FM/US/Canada for (only applies for aluminum IS housing option)	37
		Ex d, Non-Incendive (only applies for remote mount option)	43
		FM/US/Class and Division Group A–D to -50°C; FM/Canada Group B–D to -50°C	45
<b>Threaded Connections</b>	E	Mounting: 5/16" 18 UNC, Pneumatics: 1/4" NPTF, Conduit: 1/2" NPTF, Vents 1/4" NPTF	E
		Mounting: M8 x 1.25, Pneumatics: 1/4" NPTF, Conduit: M20 x 1.5, Vents 1/4" NPTF	M
		Mounting: M8 x 1.25, Pneumatics: G 1/4", Conduit: M20 x 1.5, Vents G 1/4"	G
<b>Actuation Medium</b>	A	Air	A
		Natural Gas	G
<b>Relay Type</b>	D	Double Acting Standard	D
		Double Acting Low Bleed	L
<b>Action</b>	4	Standard, Double Acting (Four-way)	4
		Standard, Single Acting (Three-way)	3
<b>Pressure Gauges</b>	0	No Gauges	0
		Nickel Plated with Brass Internals, psi (bar/kPa)	1
		Nickel Plated with Brass Internals, psi (kg/cm <sup>2</sup> )	2
		SS with Brass Internals, psi (bar/kPa)	3
		SS with Brass Internals, psi (kg/cm <sup>2</sup> )	4
		UCC Press Test Plug, 1/8" NPT	A
		Valve, Tank, Schrader 645A	B
<b>Gauge Orientation</b>	R	No Gauges	0
		Gauges Oriented for Display on the Right Side of the Positioner	R
		Gauges Oriented for Display on the Left Side of the Positioner	L
<b>Diagnostics</b>	0	Standard Diagnostics (Standard Functionality)	0
		Pro Diagnostics (Full Functionality)	1
<b>Display</b>	0	No LCD	0
		LCD	1
<b>Feedback Shaft</b>	1	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 mounting)	3
		NAF—316 Stainless Steel Shaft	4
<b>Mounting</b>	0	Standard Mounting	0
		Direct Mounting Block	D
		VDI/VDE 3847 Manifold	V
		Remote Mount Option	R



## 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

For more details on the  
Logix 3800 positioner,  
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