

SMARTPoZ™ 8400SPN

Smart Positioner



SMARTPoz™ 8400SPN

The Forbes Marshall SMARTPoz™ 8400SPN positioner brings advanced sensor technology with numerous salient features. A simple to use, operator friendly device which is easy to adapt to control valve application. Numerous functions can be easily achieved by simple configuration. The design lends itself for use in all process plants such as power, pharma, chemical, paper etc. It is built in an elegant aluminium pressure die cast case with environmental protection and yet easy to maintain.

Operating principle

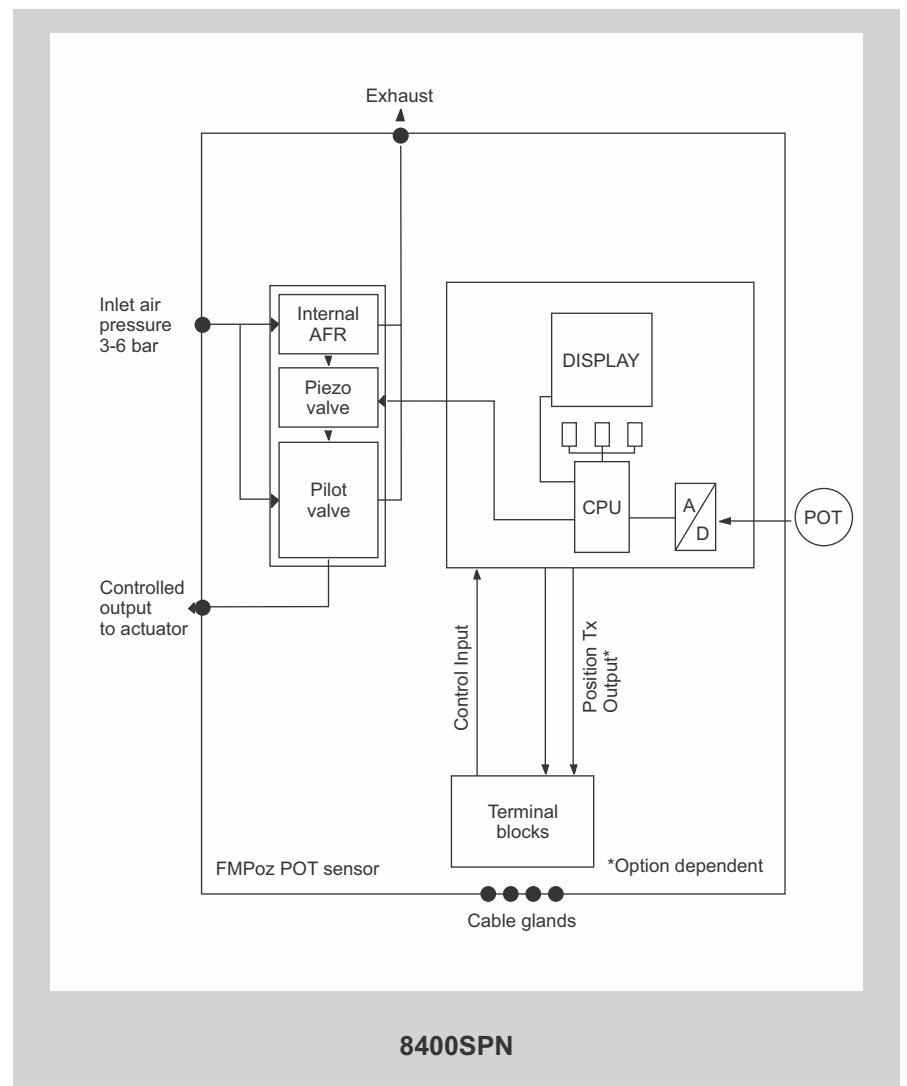
SMARTPoz™ 8400SPN positioner is a two-wire device that uses a 4-20mA signal input as its set point, from which it derives its power. It compares the setpoint with the actual position of the actuator stem and eliminates the positioning error accurately using an internal PID control action.

The smart positioner is a microprocessor based positioner that provides fast, sensitive and accurate positioning for single acting linear pneumatic actuators. It comes in variants designed for use in both safe and hazardous environments.

SMARTPoz™ 8400SPN positioner uses a highly reliable potentiometric sensor for feedback.

The heart of the positioner is a small piezo based transducer, which is a low power and low air consumption device. The electrical signal from the micro-controller is converted to precise equivalent pneumatic signals through the transducer, which operates the pilot valve, which in turn supplies the proportional air to the valve actuator.

Block diagram



Operating specifications	
Position sensing	Potentiometric sensor
Controller type	Microprocessor based
Stroke length	10 - 200 mm : Potentiometric sensor
Valve characteristics	Linear, Equal %, Inv Equal%, free adjustment
Actuator type	Single-acting, linear pneumatic actuator • Forbes Marshall make • Any other make
Control input (SP)	4-20mA
Display	Custom alphanumeric LCD with bar graph
User input	Via Tactile keys : require opening of Lid
Operating power	4-20mA control input signal, with Compliance voltage 10VDC to maintain current of $\geq 3.4\text{mA}$ at 500 Ohms. It is mandatory to maintain Compliance voltage 10VDC minimum to keep the positioner ON.
Operating temperature	[-] 20° to [+] 80°
Pneumatic input	1.5 – 6 bar pressure
Air Quality	Filtered with 5 microns, Oil Class : 3 (< 1 ppm), Dried according to ISO8573-1 Class 3 Humidity – Class I
Air consumption	< 0.02 m ³ /hr at 6 Bar air pressure

Position transmitter (optional)	
Position feedback signal	Passive 4-20mA output
External power supply	Vs = 12 to 30 VDC max RI = [Vs-5V]/20mA
Temperature stability	0.2% /10° K of full scale
Accuracy of position feedback	$\pm 0.5\%$ of Span
Communication	4-20 mA

	Standard	Specially for Ex-Proof / Intrinsically Safe
Connections		
Terminations	Screw type, for 1sqmm conductor termination	Additional stud for EARTH connection
Cable gland	M20 x 1.5mm single compression	M20 x 1.5mm Double compression
Cable construction	2 core, 1sqmm each conductor, 7-12mm OD	2 core, 1sqmm each conductor, 7-12mm OD
Cable specs	Cable inductance : 3.05mH max Cable capacitance : 0.083 μF max	Cable inductance : 3.05mH max Cable capacitance : 0.083 μF max
Cable type	Control input : Unshielded 2 core Feedback : Unshielded 2 core	Control input : Armored 3 core (input+EARTH) Feedback : Armored 2 core
Pneumatic connection	1/4" NPT(F)	
Enclosure		
Housing	Aluminium pressure die cast (same for safe & hazardous area)	
Weight	3 kgs	
Area Classification and Approvals		
Ingress protection	IP 66 Conforms to IEC60529	
Certification EMC, EMI	Conforms to IEC 61000-4-2, 4-3, 4-4, 4-5, 4-6 and 4-8, CISPR 22	
Certification Ex Proof (IS/IEC)	Ex d IIC T6 Gb (-20°C<Ta<+55°C)	Ex d IIC T6 Gb [Ex ia] IIC (-20°C<Ta<+55°C)
CE Declaration	Declaration of Conformity	
Tests	Vibration Test : IEC 60068-2-6, Bump Test : IEC 60068-2-29	

Model de-codification								
Model	Sensor		Communication		Position Transmitter		Enclosure	
8400S	P	POT	N	4-20 mA	N	Without POS. Tx	W	Weather proof
					T	With POS. Tx	E	Ex-proof*

Ordering code : 8 4 0 0 S - - - -

* Intrinsically safe version available on request

Example : Model 8400SPNTE : Smart Positioner with POT sensor, Position transmitter and Ex - Proof

Salient Features

Precise position control

Robust design

Auto/manual calibration for full stroke

Low air consumption, which ensures payback of investment within few months

Can be used for linear, equal % characteristics irrespective of the plug characteristics

Split range feature for two valves

Alphanumeric LCD display

Can be used for air- to-open, air-to-close applications irrespective of actuator type

Potentiometric feedback

Basic programming front fascia without configurator

Retro-fitting of existing positioner possible

NAMUR tubeless connection for MF-series actuators. Requires less space as external pneumatic tubing is not required.

Advantages of Potentiometric positioner

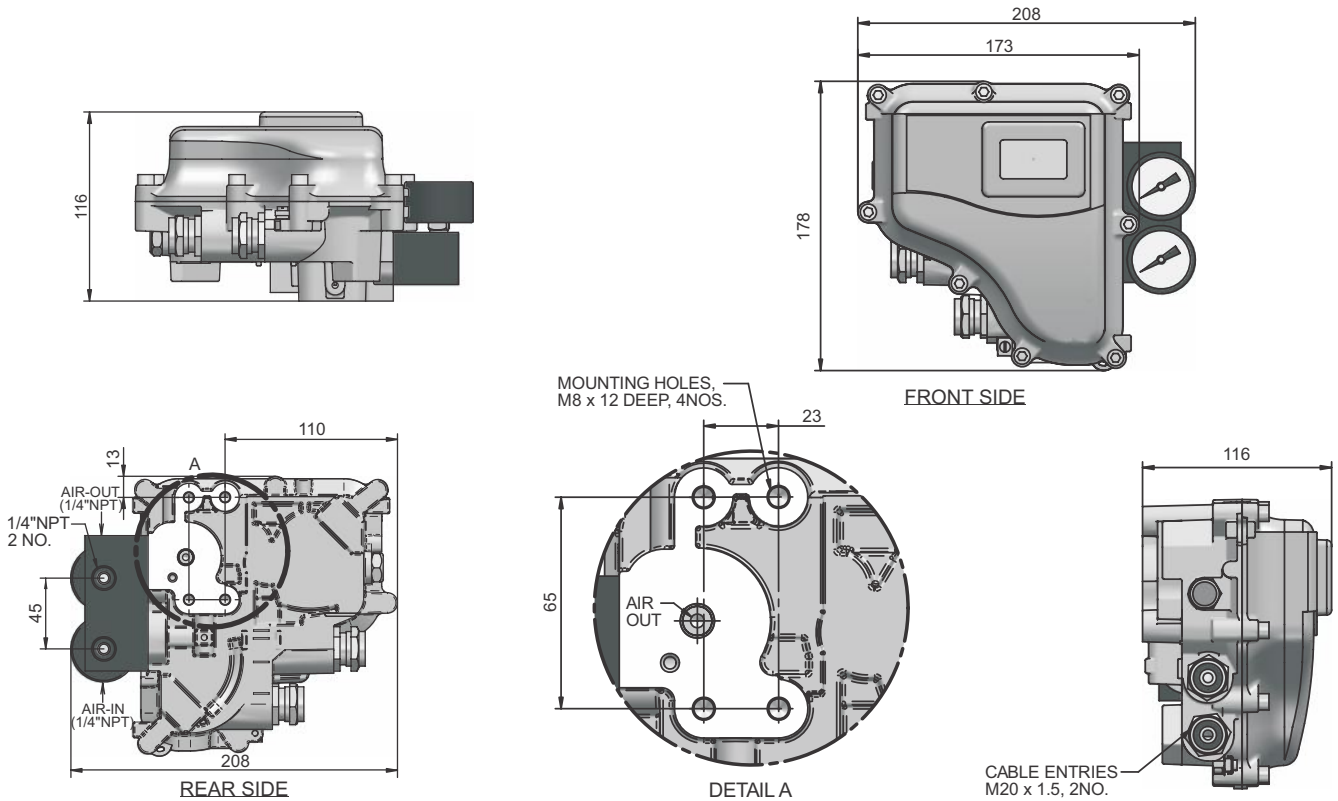
Suitable for wide range of travel

Compatible with any single acting linear pneumatic actuator

Low maintenance

Reliable

Dimensions



Forbes Marshall
Krohne Marshall
Forbes Marshall Arca
Codel International
Forbes Solar
Forbes Vyncke
Forbes Marshall Steam Systems

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