

SMARTPoZ™ 8400S-H

Smart Positioner - Non-contact Type Technology



SMARTPoz™ 8400S-H

The Forbes Marshall SMARTPoz™ 8400S-H smart positioner brings advanced sensor technology with numerous salient features. A simple to use, operator friendly device which is easy to adapt to control valve applications. 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.



HART
COMMUNICATION PROTOCOL

The Forbes Marshall SMARTPoz™ 8400S-H is a smart two-wire device that uses a 4-20mA signal input as its set point. It compares the setpoint with the actual position of the actuator stem and eliminates the positioning error using an internal PID control action.

This microprocessor based smart positioner provides fast, sensitive and accurate positioning for single acting linear pneumatic actuators. The device is HART compliant with a 4-20mA output signal as position feedback. It comes in variants designed for use in both safe and hazardous environments.

SMARTPoz™ 8400S-H uses a unique contactless magnetic position sensing technique in combination with a pair of Hall sensors. This mechanism is free from backlash and friction and helps achieve accurate position quickly.

The heart of the smart 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 proportional air to the valve actuator.

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

Diagnostic features

Local and remote monitoring over HART protocol

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

Magnetic feedback

Basic programming front fascia without configurator

Retro-fitting of existing positioner possible

Tubeless connection as per NAMUR standard for MF-series actuators, requires less space as external pneumatic tubing not required

Advantages of Hall Based Positioner

Contact less position feedback system, eliminating wear and tear of hall feedback parts

Free from backlash

Easy to maintain

Operating Specifications	
Position sensing	Hall sensor : magnetic link free sensing
Controller type	Microprocessor based non-contact type smart
Stroke length	16, 20, 30, 60, 100 mm :
Valve characteristics	Linear, equal %, inv equal%, free adjustment
Actuator type	Single-acting, linear pneumatic actuator : MF series, U series
Control input (SP)	4-20mA, 2 wire with HART
Display	Custom alphanumeric LCD with bar graph
User input	Via tactile keys : requires opening of lid Hall-effect switches : externally operable using bar magnet
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 m3/hr at 6 bar air pressure

Position transmitter (optional)	
Position feedback signal	Passive 4-20mA output
External power supply	$V_s = 12$ to 30 VDC max, $R_I = [V_s - 5V]/20\text{mA}$
Temperature stability	0.2% /10° K of full scale
Accuracy of position feedback	$\pm 0.5\%$ of span
Communication	HART over control input signal

	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 and hazardous areas)	
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	

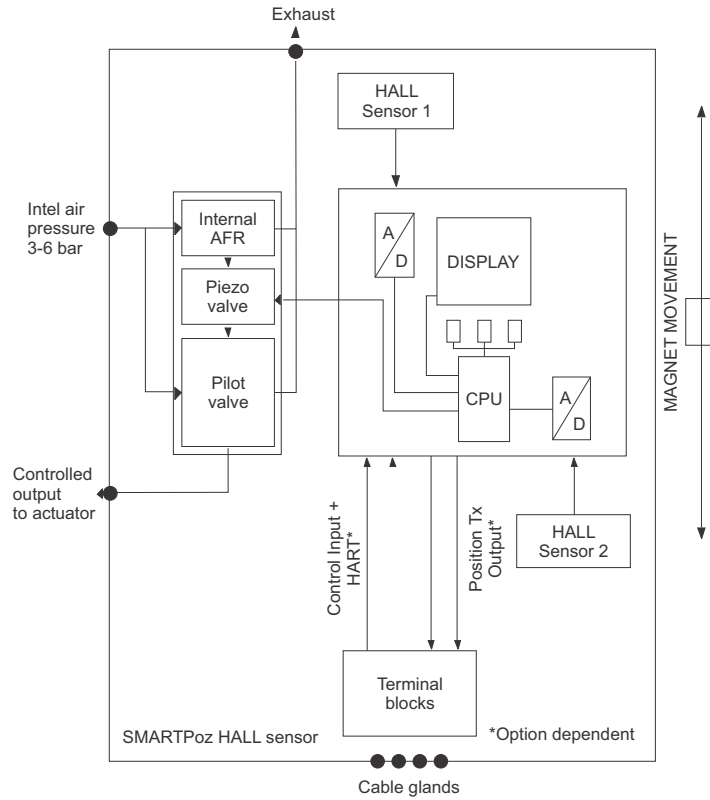
Model de-codification								
Model	Sensor		Communication		Position Transmitter		Enclosure	
8400S	H	HALL	H	HART	N	Without Position Tx	W	Weather proof
		Non-Contact	F16		T	With Position Tx	E	Ex-proof
							E*	Intrinsically safe

Ordering code :

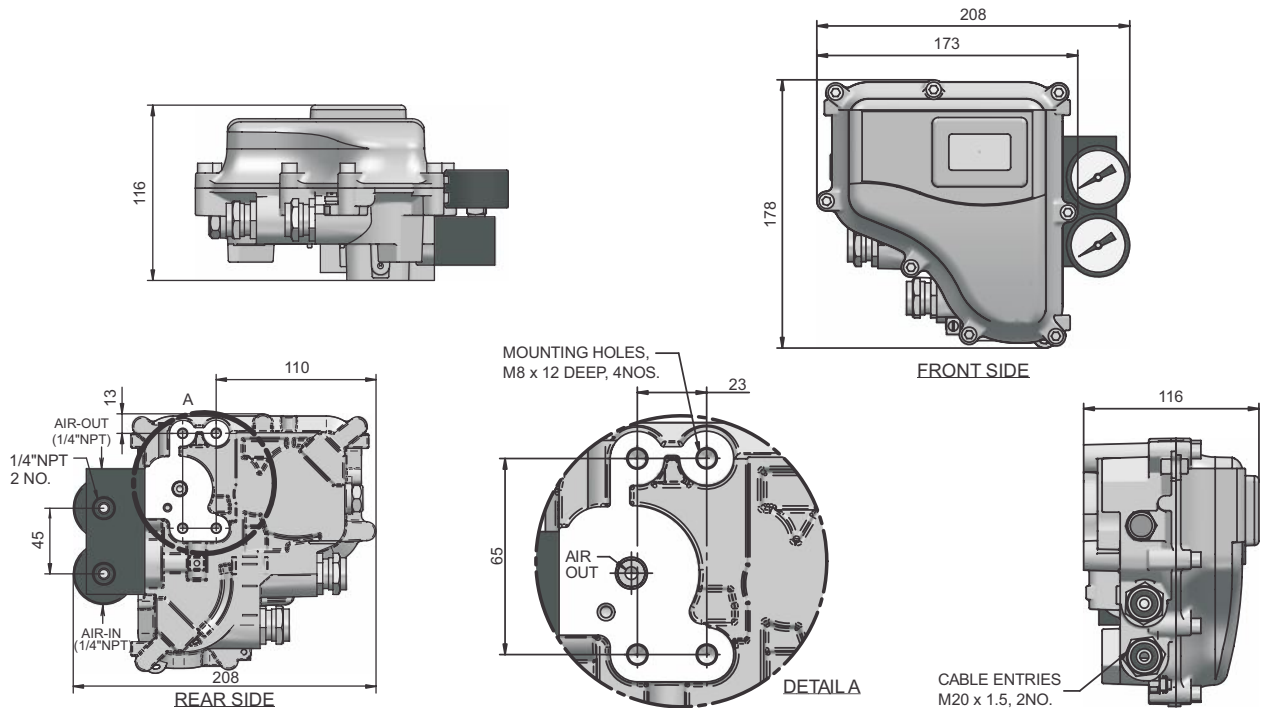
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Example : Model **8400SHHTW** : Smart positioner with Hall, HART, Position transmitter and Weather Proof

8400S-H Block Diagram



Dimensions



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

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