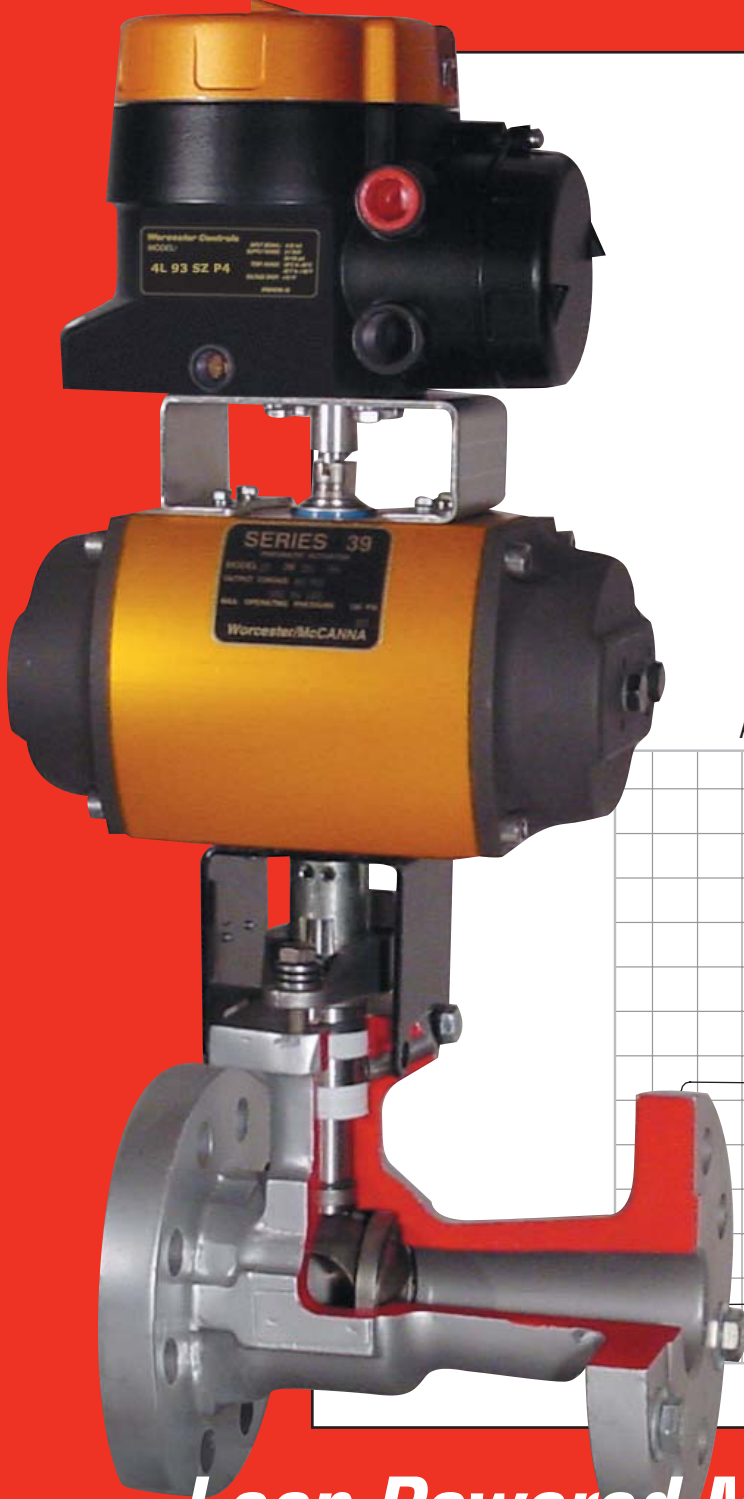


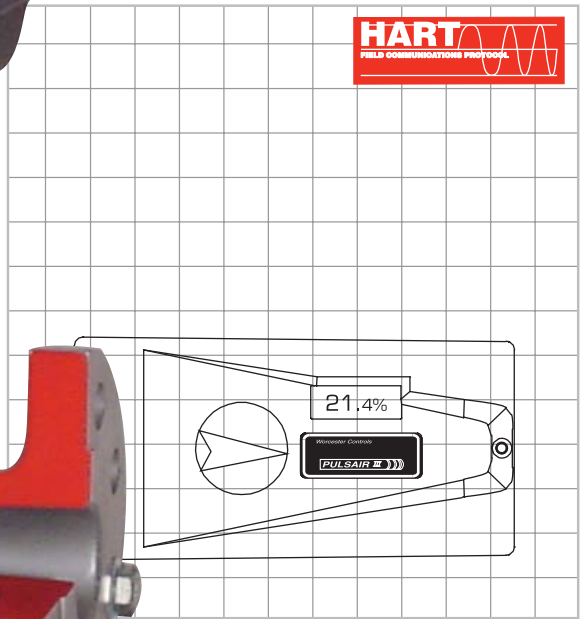


Worcester Control Valves

PB-93-2



AN ISO 9001 REGISTERED COMPANY



Loop Powered Microprocessor Controlled Positioner

Accurate, High-Speed Digital Process Control

PULSAIR III

Digital Valve Positioner combines exceptional performance with user friendly HMI — Human Machine Interface



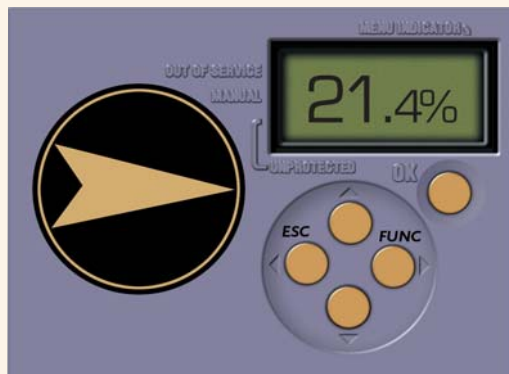
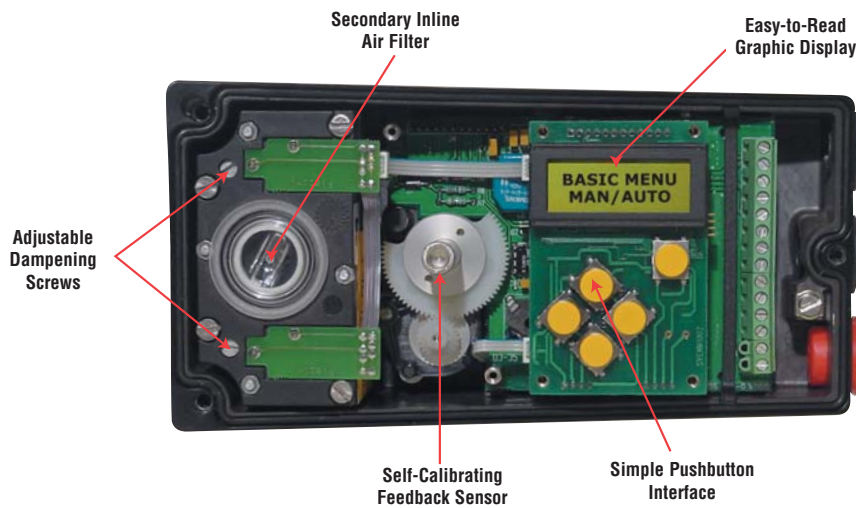
**Through Cover Display
Type 4X Enclosure**



**Through Cover Display
XP Enclosure**

The new PULSAIR® III has increased air delivery for superior performance with "sealed" piezoelectric elements to reduce moisture contamination.

The Simplicity of Advanced Technology



Menu and Pushbuttons

The positioner is programmed and calibrated using the five pushbuttons which are accessible when the aluminum cover is removed.

Auto Calibration includes:

- Leak Test
- Air Delivery Optimization
- Diagnostic Message Center

Programming Options:

- Basic, Advanced and Expert

Features and Benefits

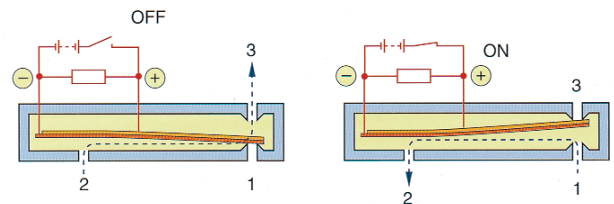
- **Sealed Piezoelectric Element**
Reduce downtime caused by moisture-laden air
- **Internal Piezoelectric Air Filter**
Additional protection from contaminated air
- **Sealed Electrical Compartment**
Protects electronics from conduit moisture
- **Single and Double Acting**
Combines both options
- **Rotary and Linear**
Program selectable
- **HART® Communication Protocol**
Remote configuration
- **Selectable Fail Mode**
Open, closed, last position
- **Advanced Performance Programming**
Improves process control
- **Advanced Diagnostics**
Performance status with alarm monitoring

Explosion Proof Enclosure



Piezoelectric Elements

The core is a piezoelectric ceramic element, which is built in several layers. When voltage is applied, this element bends a few hundredths of a millimeter, which allows air to flow through the piezoelectric valve through port 1 to port 2.



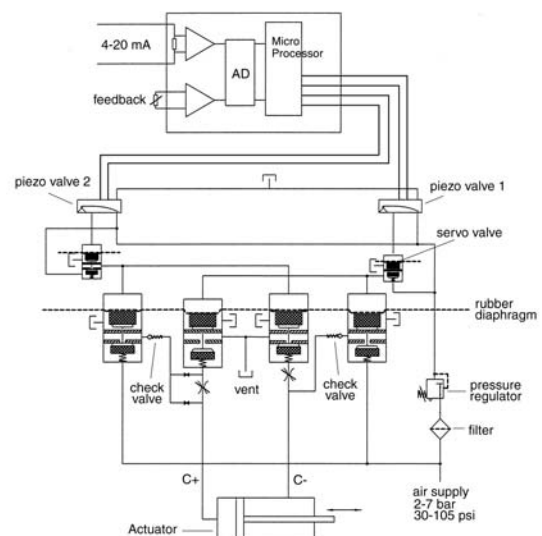
Pneumatic Block

The pneumatic block contains "poppet" valves that are controlled by piezoelectric elements, all in a glass fiber reinforced resin enclosure.

This unique design offers a true digital function, very low air consumption at steady state and high air delivery to provide good dynamic performance for large actuators.

The two piezoelectric elements control servo poppet valves which control larger poppet valves.

This design offers very high air delivery capacity together with low air consumption.



Technical Specifications

Input signal	4-20mA
Air supply	30-105 psi (2-7 bar) Free from oil, water & moisture, (dewpoint at least 18°F below lowest expected ambient) filtered to min. 30 micron.
Air delivery	13.8 scfm (400 nl/min)
Air consumption	0.01 scfm (<0.3 nl/min)
Air connections	1/4" NPT
Cable entry	Three 1/2" NPT (Z enclosure two 1/2" NPT)
Electrical connections	One 14 point terminal strip, 14-22 GA wire (Z enclosure : one 8 point and one 3 point)
Linearity	<1%
Repeatability	<0.5%
Hysteresis	<0.4%
Dead band	0.2-10% adjustable
Display	Graphic, view area 0.6 x 1.6" (15 x 41 mm)
HMI	5 push buttons
Processor	16 bit
CE directives	93/68EEC, 89/336/EEC, 92/31/EEC
EMC	EN 50 081-2, EN 50 082-2
Voltage drop	<10.1V
Enclosure	Type 4x / IP66 (Type 4X & 7 (Class I, Div I, Group B,C,D)*)
Material	Die-cast aluminum, A2/A4 fasteners
Surface treatment	Powder epoxy
Temperature range	-22 to 185°F (-30 to +85°C)
Weight	3 lbs (1.4 kg)
Alarm output	Transistor RI 1KΩ
Alarm Supply Voltage	8-28V

OPTIONAL FEEDBACK ACCESSORIES

Type 4 Housing-only

MECHANICAL SWITCHES (Optional)

Type	SPDT
Size	Sub Sub miniature
Rating	3A/125VAC 2A/30VDC

NAMUR SENSORS (Optional)

Type	Proximity DIN 19234 NAMUR
Load Current	(On) ≤ 1mA, (Off) ≥ 3 mA
Voltage range	5-25 VDC
Hysteresis	0.2%
Temp	-4°F to 185°F (-20°C to 85°C)

PROXIMITY SWITCHES (Optional)

Type	SPDT
Rating	5W/250mA/30VDC/125VAC
Operating time	0.7ms
Breakdown voltage	200V DC
Contact resistance	0.1Ω
Mechanical/electrical life	> 50x10 ⁶ operations

4-20 mA TRANSMITTER (Optional)

Supply	9-28VDC
Output	4-20 mA
Resolution	0.1%
Linearity full span	+/- 0.5%
Output current limit	30 mA DC
Load impedance	800 Ω @ 24 VDC

*Industry Approvals:

FM:	Class I, Divi 1 Groups B,C,D Class II, Divi 1 Groups, E,F,G
CSA:	Class I, Divi 1, Groups C,D Class II, Divi 1, Groups E,F,G

How to Order

	L	93	S	W	M2	P	4
Special Options	Circuitry	Series	Actuator	Enclosure	Limit Switches	Positioner	Input Signal
Blank - No options 4 - 4-20 mA output R - Remote mount	L - Loop powered, not intrinsically safe	93	S - Spring Return Actuator Blank - Double Acting	W - Type 4x / IP66	Blank - No switches M2 - 2 SPDT mechanical switches P2 - NAMUR sensors R2 - Proximity (REED) switches	P	4 - 4-20 MA H4 - HART
Blank - No options R - Remote mount	4L Note: 4-20 ma std. with type z enclosure	93	S - Spring Return Actuator Blank - Double Acting	Z - Type 4x / IP66 Type 7	N/A	P	4 - 4-20 MA H4 - HART

Due to continuous development of our product range, we reserve the right to alter the product specifications contained in this brochure as required.

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