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*

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

**The Simplicity of Advanced Technology**

- Through-Cover Display
  - Type 4X Enclosure
  - XP Enclosure

- Secondary Inline Air Filter
- Easy-to-Read Graphic Display
- Adjustable Dampening Screws
- Self-Calibrating Feedback Sensor
- Simple Pushbutton Interface

**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
Piezoelectric Elements

The core is a piezoelectric ceramic element, built in several layers. When voltage is applied, this element bends a few hundredths of a millimeter, allowing air to flow through the piezoelectric valve from 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 |
--- |
4-20 mA

Air supply |
--- |
30–105 psi (2–7 bar) Free from oil, water, and 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 1/8” NPT (Z enclosure two 1/4” 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

EE directives |
--- |
93/68EEC, 89/336EEC, 92/31EEC

EMC |
--- |
EN 50 081-2, EN 50 082-2

Voltage drop |
--- |
<10.1 V

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 lb. (1.4 kg)

Alarm output |
--- |
Transistor R1 1 kΩ

Alarm supply voltage |
--- |
8–28 V

OPTIONAL FEEDBACK ACCESSORIES

Type 4 Housing-only

MECHANICAL SWITCHES (Optional)

Type |
--- |
SPDT

Size |
--- |
Sub Sub miniature

Rating |
--- |
3 A/125 V AC

2 A/30 V DC

NAMUR SENSORS (Optional)

Type |
--- |
Proximity DIN 19234 NAMUR

Load Current |
--- |
(On) ≤ 1 mA, (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 |
--- |
5 W/250 mA/30 VDC/125 VAC

Operating time |
--- |
0.7 ms

Breakdown voltage |
--- |
200 VDC

Contact resistance |
--- |
0.1 Ω

Mechanical/electrical life |
--- |
> 50x10^6 operations

4-20 mA TRANSMITTER (Optional)

Supply |
--- |
9–28 VDC

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, Division 1 Groups B, C, D

Class II, Division 1 Groups, E, F, G

CSA: Class I, Division 1, Groups C, D

Class II, Division 1, Groups E, F, G

How to Order

<table>
<thead>
<tr>
<th>Special Options</th>
<th>L</th>
<th>93</th>
<th>S</th>
<th>W</th>
<th>M2</th>
<th>P</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank - No options</td>
<td>4 - 4-20 mA output</td>
<td>93</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 mA</td>
<td>800-323-2710</td>
<td></td>
</tr>
<tr>
<td>4L</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 mA</td>
<td>800-323-2710</td>
<td></td>
</tr>
<tr>
<td>Blank - Double-Acting</td>
<td>P</td>
<td>4</td>
<td>4-20 mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank - Spring-Return</td>
<td>H4 - HART</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4L Note:</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 mA</td>
<td>800-323-2710</td>
<td></td>
</tr>
<tr>
<td>Blank - No options</td>
<td>4 - 4-20 mA output</td>
<td>93</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 mA</td>
<td>800-323-2710</td>
<td></td>
</tr>
<tr>
<td>Blank - No options</td>
<td>4 - 4-20 mA output</td>
<td>93</td>
<td>4-20 ma std. with Type 2 enclosure</td>
<td>93</td>
<td>4-20 mA</td>
<td>800-323-2710</td>
<td></td>
</tr>
<tr>
<td>Blank - Double-Acting</td>
<td>P</td>
<td>4</td>
<td>4-20 mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank - Spring-Return</td>
<td>H4 - HART</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Pulsair® is a registered trademark of Flowserve Corporation. HART® is a registered trademark of The Hart Communications Foundation.

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation, Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

For more information about Flowserve Corporation, visit www.flowserve.com or call USA 1 800 225 6989.

FLOWSERVE CORPORATION
FLOW CONTROL DIVISION
1978 Foreman Drive
 Cookeville, Tennessee 38501 USA
Phone: 931 432 4021
Facsimile: 931 432 5518

© 2004 Flowserve Corporation, Irving, Texas, USA. Flowserve and Worcester Controls are registered trademarks of Flowserve Corporation.

Distributed by NORMAN EQUIPMENT COMPANY
800-323-2710

(Footnote PB-93)