# DATASHEET P-5X2CI-F-0XXAI

## IN-PRESS P-5X2CI+F-0XXAI (P1-control)

Industrial Style Back Pressure Controller



## Industrial Style Forward Pressure Controllers

Bronkhorst® models P-502CI through P-532CI Electonic Pressure Transducers (EPTs) can be combined with control valves for precise measurement and control of pressure ranges between 2…100 mbar and 8…400 bar absolute or gauge. The standard direct acting valves (F-001AI/F-011AI) are normally closed, have a pressure capability up to 100 bar and are available for Kv-values up to 6.6 x 10$^{-6}$. Normally opened valves can also be supplied. For pressure control in combination with high flow rates, Bronkhorst has pilot operated valves models F-002AI and F-003AI/F-003BI with Kv-values up to 6.0 ! The so-called Vary-P valve F-033 that can cope with 400 bar delta-P. And finally, our bellows valve F-004 can be used for applications with very low differential pressure.

All combinations of IN-PRESS pressure meters with control valves are of rugged design (IP65) for use in industrial environments or even Zone 2 hazardous areas, with optional ATEX Cat. 3 approval.

IN-PRESS series are equipped with a digital pc-board, offering high accuracy, excellent temperature stability and fast response. The main digital pc-board contains all of the general functions needed for measurement and control. In addition to the standard RS232 output the instruments also offer analog I/O. As an option, an on-board interface can be mounted to provide CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK or FLOW-BUS protocols.

## Technical specifications

### Measurement / control system

| | |
|---|---|
| Absolute pressure sensors | Code: 350A - Ranges (FS): 100 ... 350 mbara - P-max: 1,0 bara<br>Code: 1K1A - Ranges (FS): 0,35 ... 1,1 bara - P-max: 3,1 bara<br>Code: 6K0A - Ranges (FS): 1,1 ... 6 bara - P-max: 10,5 bara<br>Code: 21KA - Ranges (FS): 6 ... 21 bara - P-max: 62 bara<br>Code: M10A - Ranges (FS): 20 ... 100 bara - P-max: 200 bara<br>Code: M40A - Ranges (FS): 100 ... 400 bara - P-max: 500 bara |
| Relative pressure sensors | Code: 100R - Ranges (FS): 35 ... 100 mbarg - P-max: 0,7 barg<br>Code: 350R - Ranges (FS): 100 ... 350 mbarg - P-max: 1,0 barg<br>Code: 1k1R - Ranges (FS): 0,35 ... 1,1 barg - P-max: 3,1 barg<br>Code: 6K0R - Ranges (FS): 1,1 ... 6 barg - P-max: 10,5 barg<br>Code: 21KR - Ranges (FS): 6 ... 21 barg - P-max: 62 barg |
| Accuracy (incl. linearity and hysteresis) | ± 0,5 % FS |
| Repeatability | < 0,1 % RD |
| Pressure rangeability | measurement: 1 : 50 (2…100%)<br>control: 1 : 5 (with flow range 1 : 50) |
| Control stability | ≤ ±0,05% FS (typical for 1 ln/min N$_2$ at specified process volume) |
| Operating temperature | -10 … +70 ℃<br>for ATEX cat. 3 0…50℃ |

## Measurement / control system

| | |
|---|---|
| Temperature sensitivity | 0,1% FS/°C |
| Leak integrity, outboard | tested < 2 x $10^{-9}$ mbar l/s He |
| Attitude sensitivity | max. error at 90° off horizontal < 0,3 mbar |
| Warm-up time | negligible |

## Mechanical parts

| | |
|---|---|
| Material (wetted parts) | stainless steel 316L or comparable |
| Process connections | compression type or face seal (VCR/VCO) couplings |
| Seals | standard: Viton®; options: EPDM, Kalrez® (FFKM) |
| Ingress protection | IP65 |

## Electrical properties

| | | | | |
|---|---|---|---|---|
| Power supply | +15 … 24 Vdc | | | |
| Max. power consumption | Supply | at voltage I/O | at current I/O | extra for fieldbus |
| | 15 V | 290 mA | 320 mA | <75 mA |
| | 24 V | 200 mA | 215 mA | <50 mA |
| CANopen® / DeviceNet™ | add 48 mA (24 V supply) | | | |
| Analog output | 0…5 (10) Vdc or 0 (4)…20 mA (sourcing output) | | | |
| Digital communication | standard: RS232;<br>options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP,<br>EtherNet/IP, POWERLINK or FLOW-BUS | | | |

## Electrical connection

| | |
|---|---|
| Analog/RS232 | 8 DIN (male); |
| PROFIBUS DP | bus: 5-pin M12 (female);<br>power: 8 DIN (male); |
| CANopen® / DeviceNet™ | 5-pin M12 (male); |
| FLOW-BUS/Modbus-RTU/ASCII | 5-pin M12 (male) |
| Modbus TCP / EtherNet/IP / POWERLINK | bus: 2 x 5-pin M12 (female) (in/out);<br>power: 8 DIN (male); |
| EtherCAT®/ PROFINET | bus: 2 x 5-pin M12 (female) (in/out);<br>power: 8 DIN (male); |

## Control valve options

## External actuator options to be connected to the controller

## Ex-proof specifications

## Approvals / certificates

Technical specifications subject to change without notice.

**Note:** The measuring cell of the pressure sensor is separated from the external pressure by a thin, sensitive stainless steel diaphragm, and the sealed off cavity between diaphragm and cell is filled with oil. Since the standard oil filling is flammable, Bronkhorst advises to take precautions when oxygen or any other explosive fluid is used.

*For dimensional drawings and hook-up diagrams please visit the product page on our website*

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## Recommended accessories

**E-8000 SERIES**

**PIPS SERIES**

**Digital Readout / Control Systems**

- Bright, wide angle, 1.8" display (TFT technology)
- User friendly operation, menu driven with 4 push buttons

**Plug-in Power Supply**

- For lab-style or industrial devices
- Interchangeable plugs (Euro, UK, USA, Australian, IEC) for mains connection

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## Related products

**IN-PRESS F-0XXAI+P-5X2CI (P2-CONTROL)**

- Min. pressure 2...100 mbar
- Max. pressure 8...400 bar
- Absolute or gauge pressure
- Compact IP65 design

**IN-PRESS P-502CI**

- Min. pressure 2...100 mbar
- Max. pressure 1,28...64 bar
- Absolute or gauge pressure
- Compact IP65 design

**IN-PRESS P-532CI**

- Min. pressure 4...200 bar
- Max. pressure 8...400 bar
- Absolute or gauge pressure
- Compact IP65 design

**EL-PRESS P-702CV (P1-CONTROL)**

- Min. pressure 20...100 mbar
- Max. pressure 12,8...64 bar
- Absolute or gauge pressure
- High accuracy