

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 Electronic 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 6.6×10^{-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 Code: 1K1A - Ranges (FS): 0,35 ... 1,1 bara - P-max: 3,1 bara Code: 6K0A - Ranges (FS): 1,1 ... 6 bara - P-max: 10,5 bara Code: 21KA - Ranges (FS): 6 ... 21 bara - P-max: 62 bara Code: M10A - Ranges (FS): 20 ... 100 bara - P-max: 200 bara 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 Code: 350R - Ranges (FS): 100 ... 350 mbarg - P-max: 1,0 barg Code: 1k1R - Ranges (FS): 0,35 ... 1,1 barg - P-max: 3,1 barg Code: 6K0R - Ranges (FS): 1,1 ... 6 barg - P-max: 10,5 barg 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%) control: 1 : 5 (with flow range 1 : 50)
Control stability	≤ ±0,05% FS (typical for 1 l/min N ₂ at specified process volume)
Operating temperature	-10 ... +70 °C for ATEX cat. 3 0...50°C

Measurement / control system

Temperature sensitivity	0,1% FS/°C
Leak integrity, outboard	tested $< 2 \times 10^{-9}$ 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; options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK or FLOW-BUS			

Electrical connection

Analog/RS232	8 DIN (male);
PROFIBUS DP	bus: 5-pin M12 (female); 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); power: 8 DIN (male);
EtherCAT®/ PROFINET	bus: 2 x 5-pin M12 (female) (in/out); power: 8 DIN (male);

Control valve options

External actuator options to be connected to the controller

Ex-proof specifications

Approvals / certificates

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](#)

Recommended accessories



E-8000 SERIES

Digital Readout / Control Systems

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



PIPS SERIES

Plug-in Power Supply

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

Related products



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



IN-PRESS P-502CI



IN-PRESS P-532CI



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

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

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

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

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



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Bronkhorst High-Tech designs and manufactures innovative instruments and subsystems for low-flow measurement and control for use in laboratories, machinery and industry. Driven by a strong sense of sustainability and with many years of experience, we offer an extensive range of (mass) flow meters and controllers for gases and liquids, based on thermal, Coriolis and ultrasonic measuring principles. Our global sales and service network provides local support in more than 40 countries. Discover Bronkhorst®!