

P-702CM

EL-PRESS Metal Sealed P-702CM (P1-control)

Metal-Sealed Back Pressure Controller

- Back pressure control (controls upstream pressure "P1")
- Patented metal-to-metal seal construction ensures long-term leak tightness (to atmosphere)
- Electropolished wetted parts
- Cleanroom assembled
- For absolute or gauge pressure
- High accuracy and repeatability
- Well proven, compact thru-flow design
- Compact design with on-board PID controller and direct acting control valve
- Analog, RS232 and fieldbus communication



Metal-Sealed Back Pressure Controllers

Bronkhorst® model P-702CM Back Pressure Transducers (EPCs) are designed especially to meet the requirements of the semicon market as well as other high purity gas applications. The instruments feature high surface quality and are of modular construction with metal-to-metal seals that ensure long-term leak tightness. The P-702CM is suited for precise measurement and control of pressure ranges between 20...100 mbar and 12,8...64 bar absolute or 4,2...21 bar gauge. The EPC has a well-proven compact thru-flow design and includes a diaphragm type piezo-resistive pressure sensor, a microprocessor based pc-board with signal and fieldbus conversion and a PID controller for pressure control by means of integrated control valve.

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 - Burst pressure: 1,4 bara
Code: 1K1A - Ranges (FS): 0,35 ... 1,1 bara - P-max: 3,1 bara - Burst pressure: 4,2 bara
Code: 6K0A - Ranges (FS): 1,1 ... 6 bara - P-max: 10,5 bara - Burst pressure: 14 bara
Code: 21KA - Ranges (FS): 6 ... 21 bara - P-max: 62 bara - Burst pressure: 84 bara
Code: 64KA - Ranges (FS): 21 ... 64 bara - P-max: 100 bara - Burst pressure: n.a.

Relative pressure sensors
Code: 350R - Ranges (FS): 100 ... 350 mbarg - P-max: 1,0 barg - Burst pressure: 1,4 barg
Code: 1k1R - Ranges (FS): 0,35 ... 1,1 barg - P-max: 3,1 barg - Burst pressure: 4,2 barg
Code: 6K0R - Ranges (FS): 1,1 ... 6 barg - P-max: 10,5 barg - Burst pressure: 14 barg
Code: 21KR - Ranges (FS): 6 ... 21 barg - P-max: 62 barg - Burst pressure: 84 barg

Accuracy (incl. linearity and hysteresis) $\pm 0,5$ % FS

Repeatability $< 0,1$ % RD

Pressure rangeability 1 : 5 (with flow range 1 : 50)

Control stability $\leq \pm 0,05$ % FS (typical for 1 slm N₂ at specified process volume)

Operating temperature -10 ... +50 °C
up to +70°C on request

Temperature sensitivity 0,1% FS/°C

Max. Kv-value $6,6 \times 10^{-2}$

Leak integrity, outboard $< 2 \times 10^{-11}$ Pa.m³/s He

Leak-by through closed valve (Metal sealed) $< 10^{-5}$ Pa.m³/s He

Attitude sensitivity may be mounted in any position

Warm-up time negligible

Mechanical parts

Material (wetted parts) stainless steel 316L or comparable

Process connections 1/4" face seal couplings

Seals outer seals: metal-to-metal (no O-rings);
valve seat: Kalrez® (FFKM); option: Viton®

Weight 0,7 kg

Ingress protection IP40

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	

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	9-pin D-connector (male);
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PROFIBUS DP	bus: 9-pin D-connector (female); power: 9-pin D-connector (male);
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CANopen® / DeviceNet™	5-pin M12-connector (male);
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FLOW-BUS/Modbus-RTU/ASCII	RJ45 modular jack
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Modbus TCP / EtherNet/IP / POWERLINK	2 x RJ45 modular jack (in/out);
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EtherCAT® / PROFINET	2 x RJ45 modular jack (in/out);
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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](#)

Related products



EL-PRESS METAL SEALED P-502CM

Min. pressure 2...100 mbar
Max. pressure 1,28...64 bar
Metal-to-metal outer seals
Cleanroom assembled



**EL-PRESS METAL SEALED P-602CM
(P2-CONTROL)**

Min. pressure 2...100 mbar
Max. pressure 1,28...64 bar
Metal-to-metal outer seals
Cleanroom assembled



EL-FLOW METAL SEALED F-201CM

Min. flow 0,12...6 mln/min
Max. flow 1... 50 lln/min
Pressure rating 64 bar
Metal-to-metal outer seals
Cleanroom assembled



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

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



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