DATASHEET P-702CM

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

Metal-Sealed Back Pressure Controller

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)	± 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 slm N_2 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.m^3/s He
Leak-by through closed valve	$< 10^{-5}$ Pa.m^3/s He
Attitude sensitivity	may be mounted in any position

Measurement / control system

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

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 ln/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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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®!