

P-702CV

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

Digital Electronic Back Pressure Controller

- Back pressure control (controls upstream pressure "P1")
- 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



Digital Electronic Back Pressure Controllers

Bronkhorst® model P-702C Back Pressure Controllers (EPCs) are suited for precise measurement and control of upstream pressure ranges between 20...100 mbar and 12,8...64 bar absolute or between 7...35 mbar and 12,8...64 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 compact, fast acting control valve.

EL-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 - 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: M10A - Ranges (FS): 20 ... 100 bara - P-max: 200 bara - Burst pressure: n.a.

Relative pressure sensors
Code: 100R - Ranges (FS): 35 ... 100 mbarg - P-max: 0,7 barg - Burst pressure: 0,8 barg
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) standard: $\pm 0,5\%$ FS

Repeatability $< 0,1\%$ RD

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

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

Operating temperature -10 ... +70 °C

Temperature sensitivity 0,1% FS/°C

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

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), FDA and USP Class VI approved compounds

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);

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](#)

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



BRIGHT SERIES

Compact Local R/C Module

Bright, wide angle, 1.8" display
User friendly operation
Indication/operation/configuration



PIPS SERIES

Plug-in Power Supply

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

Related products



EL-PRESS P-712CV (P1-CONTROL)

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



EL-PRESS METAL SEALED P-702CM (P1-CONTROL)

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



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

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



IQ+FLOW IQP-700C EPC (P1-CONTROL)

Min. pressure 0,1...0,5 bar
Max. pressure 2...10 bar
Ultra compact
MEMS technology



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