

# DATASHEET P-602CV

## EL-PRESS P-602CV (P2-control)

Digital Electronic Forward Pressure Controller



### Digital Electronic Forward Pressure Controllers

Bronkhorst® model P-602C Electronic Pressure Controllers (EPCs) are suited for precise measurement and control of downstream pressure ranges between 5... 100 mbar and 3,2...64 bar absolute or between 1,75...35 mbar and 3,2...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  
measurement: 1 : 50 (2...100%)  
control: 1 : 20 (with flow range 1 : 50)

Control stability  $\leq \pm 0,05\%$  FS (typical for 1 l<sub>n</sub>/min N<sub>2</sub> 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);

## 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](#)

## Recommended accessories



### E-8000 SERIES DIGITAL READOUT / CONTROL SYSTEMS

#### 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

#### 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-612CV (P2- CONTROL)

Min. pressure 3,2...64 bar  
Max. pressure 5...100 bar  
Absolute or gauge  
pressure  
High accuracy



### 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



### IQ+FLOW IQP-600C EPC (P2- CONTROL)

Min. pressure 0,025...0,5  
bar  
Max. pressure 0,5...10 bar  
Ultra compact  
MEMS technology



### IQ+FLOW IQPD-600C EPC (P2-CONTROL)

Min. pressure 0,025...0,5  
bar  
Max. pressure 0,5...10 bar  
Ultra compact;  
downported  
MEMS technology



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