Datasheet P-8x2CV

Process Pressure Controllers for Gases

EL-PRESS P-812CV Process Pressure Controller

> Introduction

Bronkhorst® EL-PRESS™ P-8x2CV Process Pressure Controllers (PPC) are designed to pressurise and depressurise a volume (system or device) with one single instrument. The instrument includes a diaphragm type piezo-resistive pressure sensor for pressure measurement and two direct acting, solenoid control valves. The EL-PRESS PPC can be applied to accurately control process pressures up to 200 bar. The instrument can be operated in analog mode or digitally via RS232 or fieldbus.

> Technical specifications

Measurement / control system

Accuracy (incl. linearity and hysteresis)	: ± 0,5% of Full Scale (FS)
Pressure control rangeability	: 1 : 20 with flow range 1 : 50
Repeatability	: ≤ 0,25% RD
Response time sensor	: 2 msec
Max. Kv-value	: 1,56 x 10^{-3}
Max. pressure difference (ΔP)	: P-802CV: 64 bar (d) P-812CV: 100 bar (d) P-822CV: 200 bar (d)
Max. flow	: approx. 20 l_n/min N_2
Control stability	: ≤ ± 0,1% FS (typical for 100 ml_n/min N_2) at specified process volume)
Temperature range	: -10…+70°C
Temperature sensitivity	: < ± 0,1% FS/°C
Leak integrity (outboard)	: tested < 2 x 10^{-9} mbar l/s He
Attitude sensitivity (at 90° change)	: < 0,3 mbar
Warm-up time	: negligible

Calibration

References verified by an ISO 17025 calibration laboratory, directly traceable to Dutch and international standards.

Mechanical Parts

Material (wetted parts)	: stainless steel 316L or comparable
Process connections	: compression type or face seal couplings
Seals 64/100 bar version	: static and plungers: Viton® / EPDM / Kalrez®
Seals 200 bar version	: static: Viton®, plungers: FKM
Ingress protection (housing)	: IP40

Electrical properties

Power supply	: +15…24 Vdc ±10%	
Power consumption (based on N/C valve)	: Supply	at voltage I/O / at current I/O
	15 V	290 mA / 320 mA
	24 V	200 mA / 215 mA
Extra for fieldbus: (if applicable)	PROFIBUS DP	: add 53 mA (15 V supply) or 30 mA (24 V supply)
	EtherCAT®	: add 66 mA (15 V supply) or 41 mA (24 V supply)
	DeviceNet™	: add 48 mA (24 V supply)
Analog output (0…100%)	: 0…5 (10) Vdc, min. load impedance > 2 kΩ; 0 (4)…20 mA (sourcing), max. load impedance < 375 Ω	
Analog setpoint (0…100%)	: 0…5 (10) Vdc, min. load impedance > 100 kΩ; 0 (4)…20 mA, load impedance ~250 Ω	
Digital communication	: standard RS232; options: PROFIBUS DP, DeviceNet™, EtherCAT®, PROFINET, Modbus RTU/ASCII, FLOW-BUS	

Although all specifications in this datasheet are believed to be accurate, the right is reserved to make changes without notice or obligation.

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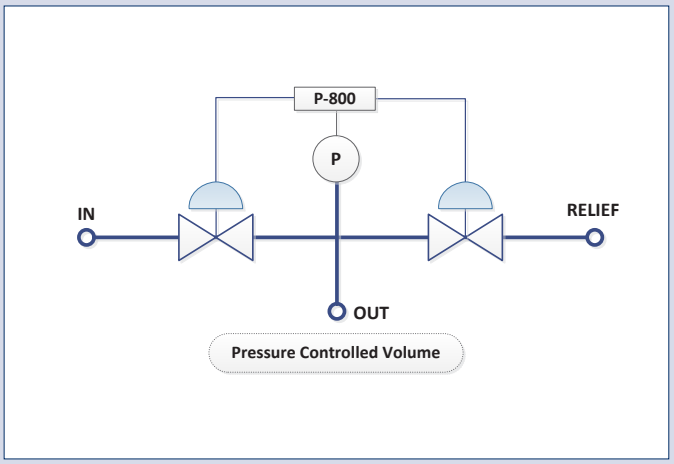
> Principle of operation

The Process Pressure Controller consists of a piezo-resistive pressure sensor and two direct acting, solenoid control valves. The instrument has a gas inlet for pressurisation, a pressure relief outlet and a system outlet. While pressurizing the system - this will normally be a static volume - the pressure sensor and the inlet valve operate as a forward pressure controller and the relief valve remains shut. When the system requires depressurisation, the inlet valve is shut and the pressure sensor in combination with the relief valve will act as back pressure controller. This dual valve construction is a compact, economical alternative to configurations where forward pressure controllers are combined with separate bleed ports and relief valves. It is considered as a great advantage that the relief valve does not continuously vent to the atmosphere. Furthermore the system can be set for either fast or smooth controlled (de)pressurization.



> Model number identification

Code	Instrument type
P	EL-PRESS / IN-PRESS series

Code	Configuration
8	P-800 Process Pressure Controller

Code	Max. pressure
0	Max. 64 barg
1	Max. 100 barg
2	Max. 200 barg

Type	Range	Par	Configurable input/output (pin 5)
0	0	0	Disabled, pin 5 is pulled down to 0 Vdc (default selection)
A	1	V	0...10 Vdc output, controller (default)
B	1	V	4...20 mA output, controller
C	3	A	Digital output, min/max alarm
C	4	A	Digital output, counter limit reached
C	5	S	Digital output, enabled by setpoint (for shut-off)
C	0	I	Digital output, high/low switch via remote parameter
D	9	E	Digital frequency output, measure
F	9	B	Digital pulse output, batch counter
H	1	P	4...20 mA input, external pressure sensor
I	3	C	Digital input, controller mode valve close
I	8	C	Digital input, controller mode valve purge
I	1	R	Digital input, reset counter
I	2	R	Digital input, reset alarm

Supported options, see also pin 5 options table

Code	Pressure sensor code (range)
1K1A	0,35…1,1 bara
6K0A	1,1…6 bara
21KA	6…21 bara
M10A	21…100 bara (g)
M40A	100…200 bara (g)
1K1R	0,35…1,1 barg
6K0R	1,1…6 barg
21KR	6…21 barg

Inlet	Outlet	Relief	Adapters
0	0	0	None (1/8" bspp inner)
1	1	1	1/8" OD compression type
2	2	2	1/4" OD compression type
3	3	3	6 mm OD compression type
8	8	8	1/4" Face seal male
9	9	9	Other

Code	Sealing material
V	Viton
E	EPDM
K	Kalrez

P - N N NAA AAA - A A A - N N N - A - A A - A A A

Code	Valve type indication
2CV	Control valve PN64/100/200

Code	Supply voltage
D	+ 15...24 Vdc

Code	Analog output (pin 2)	Analog setpoint (pin 3)
A	0...5 Vdc	0...5 Vdc
B	0...10 Vdc	0...10 Vdc
F	0...20 mA[50] sourcing	0...20 mA[50] sinking
G	4...20 mA[50] sourcing	4...20 mA[50] sinking

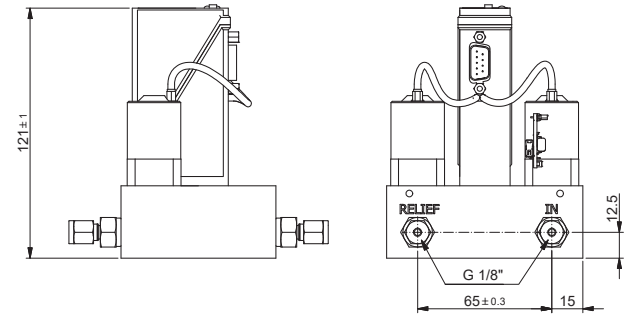
Code	Integrated comm. mode (pin 1/6)
A	RS232 – FLOW-BUS (ProPar)
B	RS485 – FLOW-BUS
C	RS485 – Modbus RTU
D	RS485 – Modbus ASCII

Code	Field bus	Valve type
A	None	Normally Closed
D	DeviceNet	Normally Closed
M	Modbus**	Normally Closed
P	PROFIBUS DP	Normally Closed
R	FLOW-BUS	Normally Closed
T	EtherCAT	Normally Closed
V	PROFINET	Normally Closed

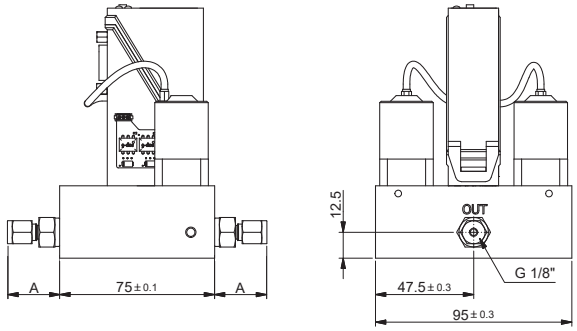
Code	Controller mode
A	Analog control
D	Digital control

** Default: Modbus RTU, optional Modbus ASCII

> Dimensions (mm) and weight (kg)



Weight: 2,3 kg



Check document 7.15.117 for dimension A

> Related products

P-8x2CI Industrial Process Pressure Controller (IPPC)
IP65 ingress protection (housing)

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ISO 9001 ISO 14001

EDS.EP-PPC.0519.C