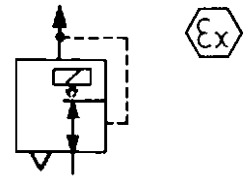


Proportional Pressure Regulator with Flapper Nozzle Control Type 100

Description

The pneumatic proportional valve functions as an I/P or E/P converter and has been in high volume operation for several years. Many thousands of instruments are installed worldwide. This range offers reliable, solid instruments for industrial applications, such as in the paper and paper-converting industry, energy management and general industrial control. The instruments are of simple design and use electro-magnetic force balance technology with flapper control and potentiometer adjustment.

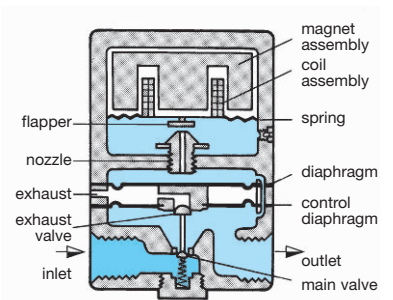
These are force balance instruments with a coil suspended in a magnetic field on a flexible mounting. At the lower end of the coil there is a flapper valve which operates against a precision ground nozzle to create back pressure on the control diaphragm of a booster relay. The current flowing through the coil produces a force which proportionately controls the nozzle back pressure. This control pressure is applied to a servo mechanism which operates the high flow inlet and exhaust valves. An integral volume booster provides excellent flow capacity to give fast response in the majority of applications, including dead end service.



1/4" NPT, 280 l/min

General features

description	Flapper-nozzle control principle. The electrical magnetic field changes the distance between the nozzle and the flapper, thereby producing a proportional change in pressure.	
mounting position	preferably vertical $\pm 15^\circ$	protection: IP 65 environment protection protection against vibration is necessary
temperature range	-20 °C to 85 °C / -4 °F to 160 °F operating temperature -30 °C to 90 °C / -22 °F to 194 °F stock temperature	
materials	Body: zinc die casting Magnet: magloy	Diaphragm and seals: NBR / nitrile Flapper and nozzle: stainless steel



cross-section Type 100

Pneumatic features

media	Oil-free, dry air, filtered to 5 μm , at least 0.7 bar / 10 psi above maximum required outlet pressure range	
supply pressure	Type 100X: 1.4 - 6 bar / 20 - 80 psi	Type 101X: max. 10 bar / 150 psi
constant bleed	Type 100X: 1 l/min / 2scfh	Type 101X: 2 l/min / 4 scfh
flow capacity	280 l/min / 10 scfm	
exhaust capacity	The orifice of the exhaust valve is 3 x bigger than the orifice of the main valve.	

Electrical features

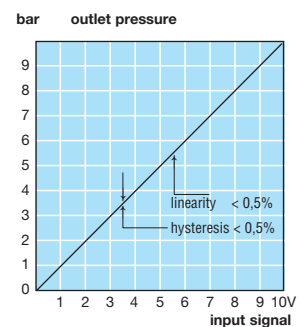
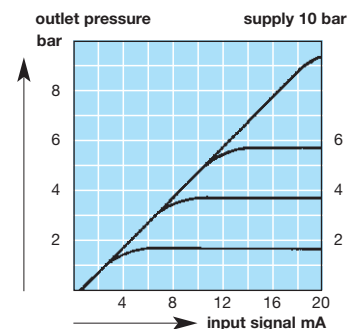
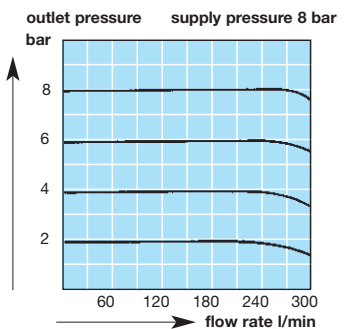
supply voltage	2-wire system no supply voltage necessary 3-wire system 12 ... 28 V DC supply voltage, current consumption: type 100X: 25 mA type 101X: 64 mA
input signal	4 ... 20 mA / 0 ... 10 mA / 0 ... 20 mA / 0 ... 60 mA / 1 ... 10 V / 1 ... 5 V
Ex-intrinsically safe	according to Atex, CENELEC EN 50 020 (BS 5501 part 7) Eexia II CT4 according to BASEEFA EX 85 B 2034 applies
impedance	10 k Ω voltage version (Type 101X) 150 Ω recp. 200 Ω current version
connection	square connector DIN 43 650, 30 x 30 mm, 4-way
note	with long distance between transducer and of source of signal or supply voltage, shielded cables and the 4-20 mA version of the transducer are recommended.

Accuracy

linearity	100X: < 0.5 % FS, typ. 0.2% FS	101X: < 1 % FS, typ. 0.35% FS
hysteresis	100X: < 0.3 % FS, typ. 0.1% FS	101X: < 0.5% FS, typ. 0.1 % FS
sensitivity	100X: < 0.07% FS	101X: < 0.3% FS
temperature effect	100X: 0.1 % FS / °C	101X: 0.1% FS / °C span and zero over operating range
effect of supply fluctuation	100X: < 0.075% FS	101X: < 0.075% outlet change / % supply pressure change

Adjusting

zero	> + 20% FS zero adjustment by means of an adjusting screw which varies the distance between the flapper valve and the air nozzle.
range	> + 20% FS range adjustment by varying a potentiometer which shunts input current past the coil.

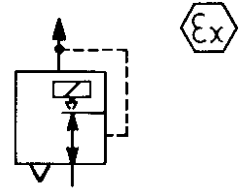


accuracy

For your information:	1 bar: 14.8 psi	1 l/min: 0.035 scfm	1 mm: 0.039 inch
	1 psi: 0.069 bar	1 scfm: 28.3 l/min	1 inch: 25.4 mm

Technical Features

- **Outlet range** 0.2 ... 1 bar / and 0 ... 4/6/8 bar / 15/60/90/120 psi
- **Input signal** 4 ... 20 mA, 1 ... 10 V, or 0 ... 60 mA
- **Current consumption** 1 mA for 10 V signal, 3-wire system
- **Exhaust** Orifice of relief valve 3 times larger than orifice of control valve
- **Ex**-Version Up to 3 bar, higher pressure with booster with ratio
- **Linearity:** < 0.5% / < 1% FS
- **Hysteresis:** < 0.3% / < 0.5% FS
- **Sensitivity:** < 0.07% / < 0.3% FS
- **Repeatability:** < 0.05% / < 0.1% FS
- **Response time:** 1 s for 90% step change



1/4" NPT, 280 l/min*1

Type	Supply voltage VD C	2/3-wire system	Impedance Ω	Command signal mA/V	Pressure range bar	Order Number
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Proportional pressure valve 1/4" NPT, 280 l/min*1 with mounting bracket Type 100

100X	-	2	100 Ω	4...20 mA	0.2 ...1	53.4021.00
100XS	-	2	200 Ω	1...10 V	0.2 ...1	53.4421.00
100X-IS	Ex*2	2	200 Ω	4...20 mA	0.2 ...1	53.4921.00
101XA	12-28 V DC	3	10 kΩ	1...10 V	0.14...4	53.5600.3X
100X	-	2	150 Ω	4...20 mA	0.14...4	53.4000.5X
101XA	12-28 V DC	3	200 Ω	4...20 mA	0.14...6	53.5701.2X
101X	-	2	150 Ω	0...60 mA	0.14...8	53.5024.00
101XS	-	2	150 Ω	1...10 V	0.14...8	53.5424.00
101XA	12-28 V DC	3	200 Ω	4...20 mA	0.14...8	53.5724.00
101XA	12-28 V DC	3	10 kΩ	1...10 V	0.14...8	53.5624.00

Special options add the appropriate letter

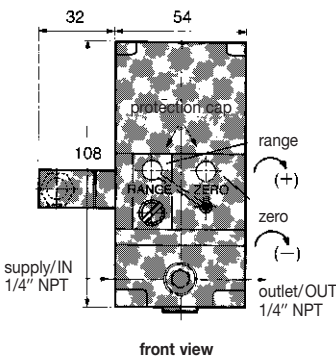
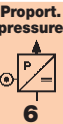
- DIN rail clips to mount on DIN-rail **C** 53 C
- connection G^{1/4} **B** 53 B
- inverse outlet **Z** 53 Z
- other pressure range please indicate on order **U** 53 U
- Ex Atex up to 3 bar, please indicate on order **EX** 53 EX



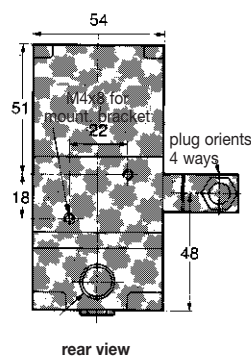
53.4021.00



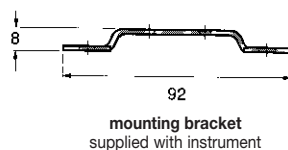
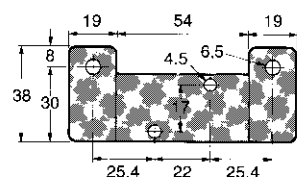
53.4021.00C
DIN rail clips



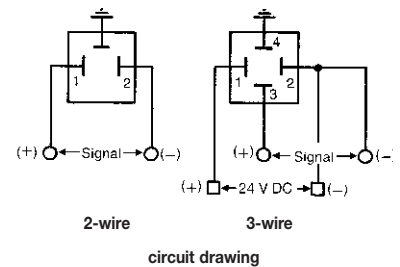
front view



rear view



mounting bracket
supplied with instrument



circuit drawing

*1 at 7 bar supply pressure and 1.4 bar outlet pressure

*2 possible up to 3 bar

For your information: 1 bar: 14.8 psi 1 l/min: 0.035 scfm 1 mm: 0.039 inch Pressure gauge: Please consult chapter "Gauges"
1 psi: 0.069 bar 1 scfm: 28.3 l/min 1 inch: 25.4 mm



Order example:
53.4021.00