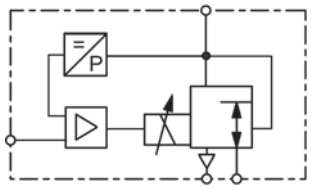
Description	The pneumatic proportional valve controls the outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system in a compact monoblock assembly with proportional solenoid valve, electronic regulator and internal pressure transducer. In the process, the outlet pressure is transformed into a proportional electrical signal and compared with the input signal. If the outlet pressure exceeds the preset setpoint, the valve exhausts down to the pressure desired. The valve has no constant bleed. At absence of input signal or supply voltage the valve exhausts. The power supply of the setpoint potentiometer is provided by the proportional valve via connector pin number 5.
Pressure transducer	Open transducers: 100 mbar, 500 mbar, 1 bar and vacuum
Application examples	Proportional pressure regulators are being used for blowing machines, ultrasonic equipments, testing machines, painting systems, contouring systems, laser welding machines, textile machines, cheese presses, pneumatic brakes, clamping devices and medical engineering.



G⅛ up to G1

General technical features

Description	3-port/2-way valve with proportional magnet, integrated hybrid PCB and closed loop with pressure transducer in compact monoblock assembly.
Mounting position	any, preferably upright
Protection class	IP 54 with standard connector, IP 65 with special connector
Temperature range	0 °C up to 50 °C / 32 °F to 122 °F, high temperature version on request
Material	Body: brass (G⅛ and G¼) or aluminium (G½ and G1) Inner valve: brass and SST Seals: NBR/Buna-N, on request EPDM or FKM, FKM at 50 bar version

Pneumatic features

Media	dry, lubricated, unlubricated and 50 µm filtered compressed air or non-corrosive gases
Supply pressure	see chart, min. 10% above outlet pressure
Flow rate	see chart, at 7 bar inlet pressure and open outlet
Exhaust	same nominal size as on inlet valve, thus same relief capacity
Air consumption	without constant bleed

Electrical features

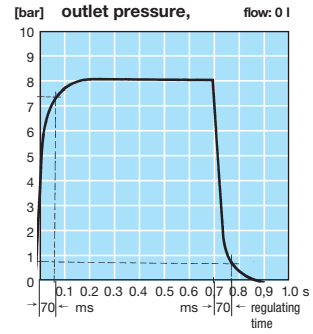
Supply voltage	24 V DC + 15% - 10%, residual ripple max. 10%
Power consumption	12 W at G⅛, 22 W at G¼, 30 W at G½, 40 W at G1
Current consumption	0.5A at G⅛, 1.0A at G¼, 1.25A at G½, 1.7A at G1
Command signal	0 … 10 V, 0 … 20 mA, 4 … 20 mA, digital or Profibus DB rising curve as standard, optionally declining curve
Impedance	100 kΩ at voltage signal (0.1 mA current consumption) 500 Ω at current signal
Electrical connector	circular plug according to DIN 43651, 7-pin plug for analogue signal 16-pin plug for digital signal

Accuracy

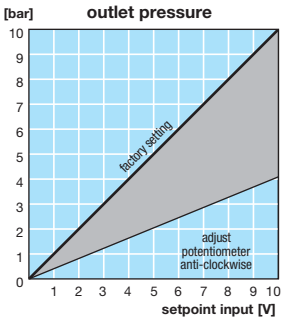
Linearity / Hysteresis	< 1% FS
Response sensitivity	< 0.1% FS
Repeatability	< 0.1% FS
Regulating time	< 1 s over the range, 70 ms at 10 to 90% or 90 to 10% of the range

Adjustment

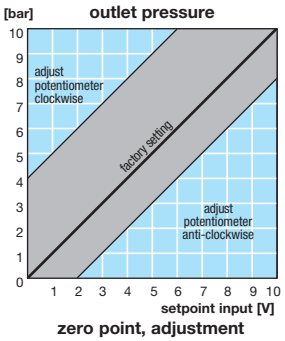
Zero point	calibration ± 10% FS via potentiometer P2
Range	calibration + 5% FS or -10% FS via potentiometer P1
Amplification	calibration 1:1 up to 1:10 via potentiometer P7



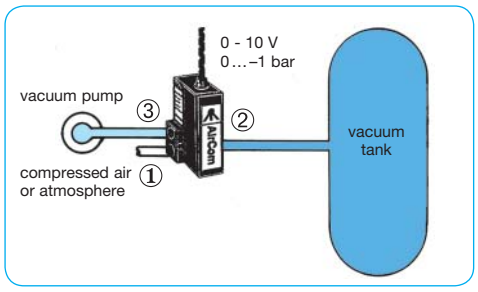
regulating time, step function



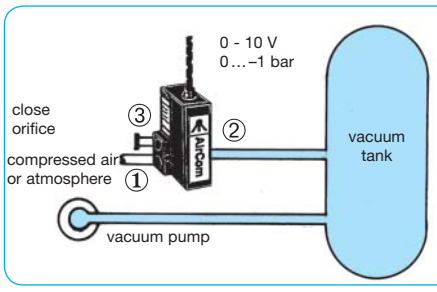
slope, range adjustment



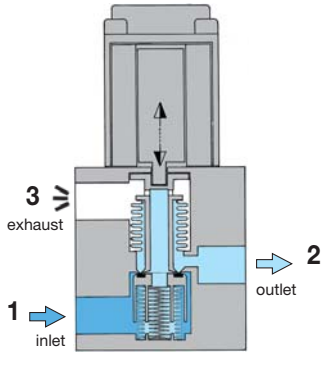
zero point, adjustment



Downstream regulation (V1)
The vacuum pump saves energy and it is easy to fill the tank either with vacuum or pressure. A filter is recommended at orifice ①.



Upstream regulation (V2)
Upstream installation is preferred if rapid evacuation of a tank or system is required. A filter is recommended at orifice ①.



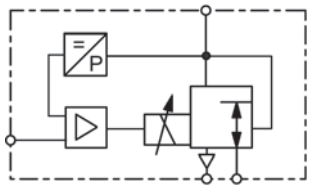
cross section

PDF CAD
www.aircom.net

Proportional Pressure Regulator ”AirTronic”® PR

Technical features

• **Pressure range**	0…0.1 bar to 0…50 bar	• **Linearity / Hysteresis**	< 1%
• **Command signal**	0…10 V, 0…20 mA, 4…20 mA, digital	• **Response sensitivity**	< 0.1% FS
• **Feedback signal**	0…10 V, 0…20 mA, 4…20 mA	• **Repeatability**	< 0.1% FS
• **Adjustment**	zero point, range and amplification	• **Regulating time**	< 1 s
• **Pressure sensors**	100 / 500 mbar, 1 bar	• **Power consumption**	12 / 22 / 30 / 40 W
• **Flow rate**	250 / 820 / 1700 / 6500 l/min	• **Exhaust**	full nominal size



G⅛ up to G1
0…100 mbar / 50 bar

Dimensions A mm	B mm	C mm	Nominal size DN	K_v-value (m^3/h)	Flow rate l/min*1	Supply max. bar	Connection thread G	Pressure range bar	Order number
Proportional pressure valve						0-10 V input signal, supply voltage 24 V DC, with coupling socket			**PR**
35	80	63	3	0.2	250	-1	G⅛	0…-1.0	**PRA00-00V1**
						-1		0…-0.5	**PRA00-00V1A5**
						-1		0…-0.1	**PRA00-00V1A1**
						3		-1.0… 1.0	**PRA00-01V1**
						1		0… 0.1	**PRA00-A100**
						2		0… 0.5	**PRA00-A500**
						2		0… 1.0	**PRA00-0100**
52	105	74	6	0.6	820	-1	G¼	0…-1.0	**PR000-00V1**
						-1		0…-0.5	**PR000-00V1A5**
						-1		0…-0.1	**PR000-00V1A1**
						3		-1.0… 1.0	**PR000-01V1**
						1		0… 0.1	**PR000-A100**
						2		0… 0.5	**PR000-A500**
						2		0… 1.0	**PR000-0100**
70	150	101	12	1.2	1700	-1	G½	0…-1.0	**PR100-00V1**
						2		0… 1.0	**PR100-0100**
96	190	115	20	4.8	6500	-1	G1	0…-1.0	**PR200-00V1**
						2		0… 1.0	**PR200-0100**

PRA

PR1

Special options, add the appropriate letter or number

input signal	0-20 mA		PR . . **1**-....
	4-20 mA		PR . . **2**-....
	8 bit digital with hold function		PR . . **3**-....
	Interbus S		PR . . **7**-....
	Profibus DP	from G¼ on	PR . . **8**-....
feedback signal	0-10 V		PR . **1** . -....
	0-20 mA		PR . **2** . -....
	4-20 mA		PR . **3** . -....
external feedback signal	0-10 V		PR . **4** . -....
	0-20 mA		PR . **5** . -....
	4-20 mA		PR . **6** . -....
deviant pressure range	indicate on order		PR . . . -**XX**. .
for vacuum	Bypass version		PR . . . -. . **V2**
for absolute pressure			PR . . . -. . **0A**
protection class IP65	special cable box, PRK-IP65		PR . . . -. . **06**
body made of stainless steel	valve body and inner parts , 1.4304, EPDM seals, G¼ and G½		PR . . . -. . **SS**
body made of aluminium	only valve body, max. 20 bar	G¼ only	PR . . . -. . **19**
for oxygen	specially cleaned, FKM elastomer		PR . . . -. . **15**
for hydrogen / helium	P_2 = max. 10 bar, Atex not available	from G¼ on	PR . . . -. . **0W**

example: combination PR with booster

Accessories, enclosed

coupling socket	7-pin with 2 m cable	straight	**PRK-A2L**
	7-pin with 5 m cable	straight	**PRK-A5L**
	7-pin with 2 m cable, IP65	straight	**PRK-I2L**
	7-pin with 2 m cable	angular	**PRK-C2L**
	7-pin with 5 m cable	angular	**PRK-C5L**
other cable length	e.g. 10 m available		

PRK-A **PRK-C**

*1 at 7 bar supply pressure and open outlet

Technical details: see previous page

PDF CAD
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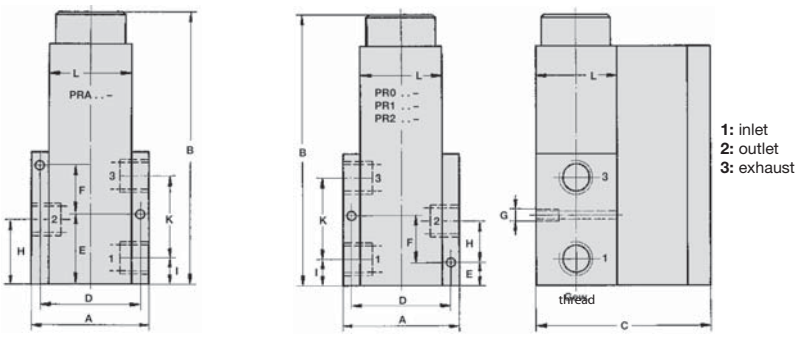
Order example:
PRA00-00V1

Dimensions and Connection Diagram "AirTronic"®



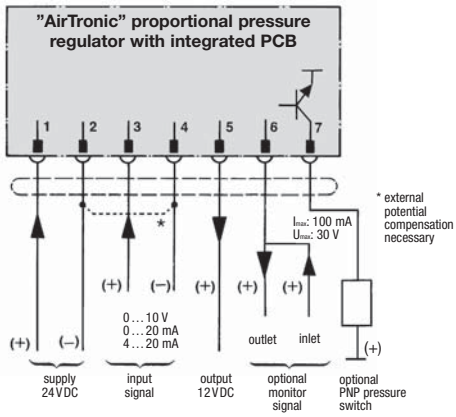
1: inlet
2: outlet
3: exhaust

Proport. regulator	thread	A	B	C	D	E
PRA . . –	G ⅛	35	80	63	29	18
PR0 . . –	G ¼	52	105	74	43	10
PR1 . . –	G ½	70	150	101	57.5	12
PR2 . . –	G 1	96	190	115	79	15

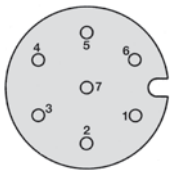
Proport. regulator	F	G	H	I	K	L
PRA . . –	7	M 4	15	10	16.6	25
PR0 . . –	20	M 4	16	11*	34	36
PR1 . . –	28	M 6	23	15	48.5	45
PR2 . . –	33	M 8	30	20	60	60

* 14 mm from 30 bar pressure range on

"AirTronic"® proportional pressure regulator with integrated PCB

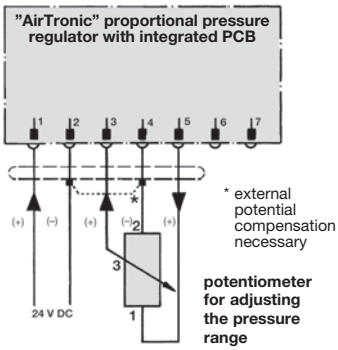


"AirTronic"® connection diagram

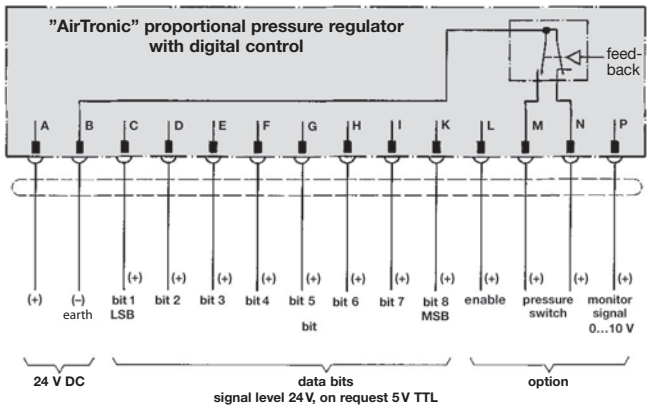


colour of wire		
pin	4-wire	7-wire
1	white	grey
2	brown	blue
3	yellow	yellow
4	green	green
5	–	brown
6	–	white
7	–	pink

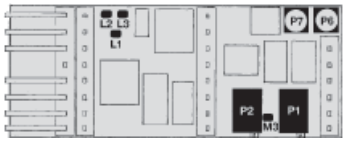
pin numbers seen from solder pin side



Connection diagram with potentiometer

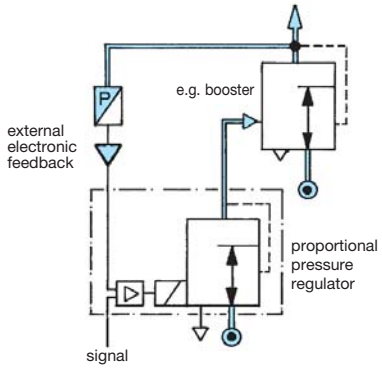


Connection diagram for digitally controlled proportional pressure regulator

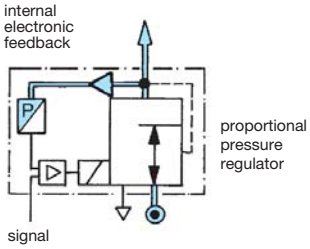


P1	range:	–10%…+5%
P2	zero point:	± 10%
P6	option pressure switch:	5…15%
P7	proportional amplification:	1…11
M3	measuring point offset zero	
L1	earth (GND)	
L2	solenoid	+24 V
L3	solenoid (pulse width modulation)	PWM

Adjustment of the proportional regulator



External electronic feedback
0…10 V or 0/4…20 mA



Internal electronic feedback
as standard