General

Modern industrial applications require high performance pneumatic components. Taking cylinders and rotary actuators as our example, it is necessary to be able to control the parameters that determine their speed, thrust and torque.
If these parameters need to be changed dynamically while the machine is running, traditional solutions based on pneumatic solenoid valves with different inlet pressures, require space and complicated circuits. An alternative solution is a regulator that can dynamically alter the value of the pressure or flow rate (electro-pneumatic regulator).
We have developed a new line of electro-pneumatic regulators (E/P regulators) that will be included in Catalogue 3 to complete our range of Air Service Units.
Three sizes will be available, with flow rates from 1,000 Nl/min up to 4,000 Nl/min.
Electronic features offer the ability to alter the set pressure varying the voltage (0-10 Volt) or current signals (4-20 mA) and optional accessories include: LED display, analog output of the pressure value (voltage or current), and RS232 serial port.

Application fields

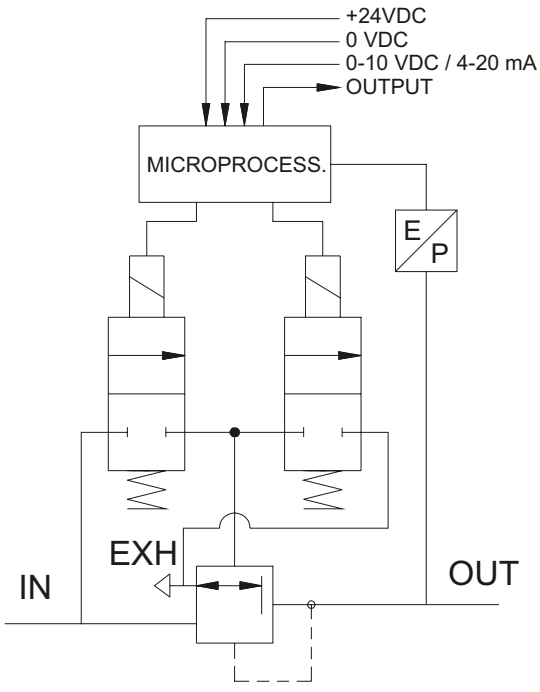
Typical uses will involve the necessity to dynamically control the force of an actuator, be it thrust or torque. Examples include : Closing systems, paint plant systems, tensioning systems, packaging devices, braking systems with pneumatic control, welding clamps, thickness compensating systems, balancing systems, laser cutting device, etc.

Range

The aesthetic style of these regulators is generally consistent for all available options.
On one face we have put the supply and exhaust ports, and on the opposite face we have the outlet port. The adjacent faces have plugged G1/8 gauge ports that are connected to the outlet port, these can be used as an alternative outlet.
On the top there is an 8 pin circular connector for the electrical supply.

The only noticeable difference is the presence, or lack, of the LED display.
When the display is not installed, a label with the schematic symbol is used instead.

Functional scheme



Installation / Functionality

PNEUMATIC CONNECTION

Pneumatic connection is made by the G1/4" threaded ports in the body.
Remove all residual dirt present in the pipes before connecting them to the regulator to avoid contamination of the regulator.
We recommend that the air supply does not exceed 10 bar, is dried and filtered to a minimum of 20 microns (excessive presence of water can cause malfunction of the regulator).
The inlet pressure should always be at least 1 bar higher than the outlet pressure.
When using a silencer on the exhaust port, it is possible that the response time of the device can deteriorate; periodically examine the silencer to ensure fouling doesn't reduce the flow rate, eventually replace with a new one.

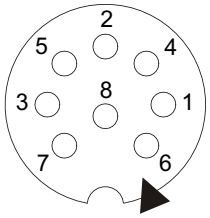
ELECTRICAL CONNECTION

Electrical connection is made by an 8 pin female circular connector to DIN 45326
(SUPPLIED SEPERATELY)
Wire the electrical connection following the schematic below.
(INCORRECT WIRING CAN CAUSE DAMAGE)

FUNCTIONALITY NOTES

If the power supply is interrupted while the inlet pressure is still applied, downstream pressure will be maintained. However, the output pressure is held only temporarily and is not guaranteed. To exhaust the downstream circuit, remove the power supply only after the inlet pressure is turned off (using a 3/2 valve before the unit).
If supply pressure is interrupted and power supply is still on the internal solenoid valve will continue to operate and a humming noise may be generated.
On the display version, it is possible to specify a parameter that de-energizes the solenoid valve if the downstream pressure doesn't reaches the reference value within five seconds. In this case the microprocessor will start a restore procedure every twenty seconds in an attempt to create standard working conditions.

TOP VIEW OF THE CONNECTOR



PIN CONNECTOR:
1= GND
2= SUPPLY (+24 VDC)
3= INPUT SIGNAL (0-10 V / 4-20 mA) (NOTE 1)
4= OUT +10 VDC
5= GND
6= OUTPUT SIGNAL (0-10 V / 4-20 mA) / DIGITAL / TX RS232 (NOTE 2)
7= RX RS232 (NOTE 3)
8= GND (FOR Rs232)

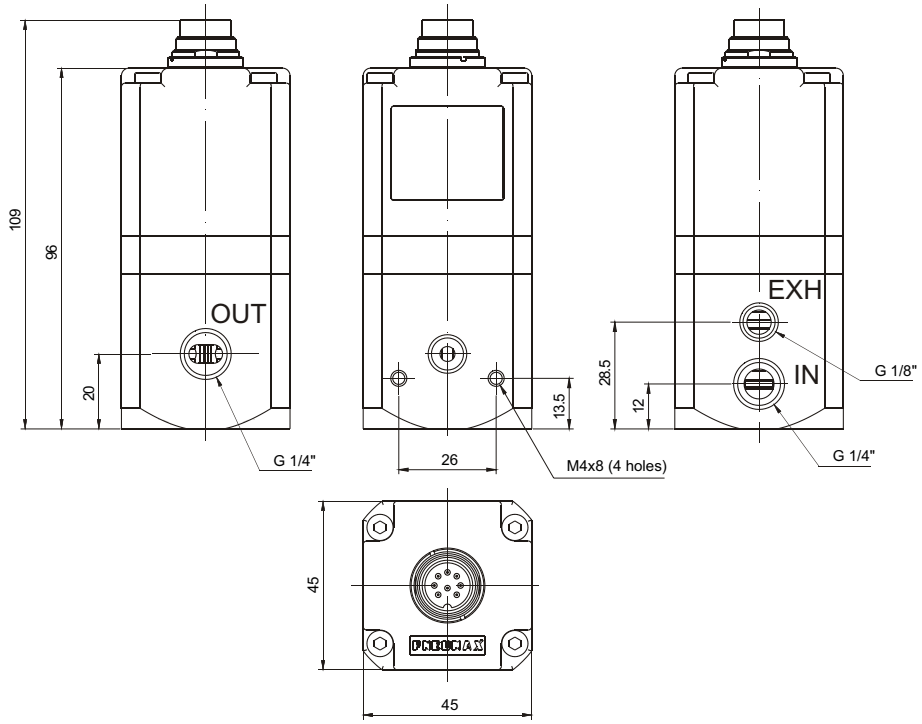
NOTE 1 :
SELECTED DURING THE ORDER

NOTE 2 :
IF THE RELEVANT CARD IS PRESENT
(PRESENCE OF ONE CARD EXCLUDES THE OTHERS)

NOTE 3 :
IF RS232 CARD IS PRESENT

5

Dimension

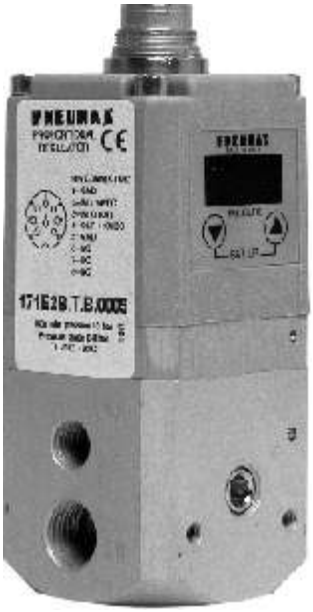


Functional

Fluid		20µ filtered dry air
Minimum inlet pressure		Set. Press. +(1 bar / 0,1 Mpa / 14,5 psi)
Maximum inlet pressure		10 bar /1 Mpa / 145 psi
Ambient Temperature		-5° ÷ +50°C / 23° ÷ 122°F
Outlet pressure		0 ÷ 9 bar / 0 ÷ 0,9 Mpa / 0 ÷ 130 psi
Nominal flow rate from port 1 to 2 (at 6 bar Δp 1 bar)		1.100 Nl/min.
Flow rate from port 2 to 3 (at 6 bar with overpressure of 1 bar)		1.300 Nl/min.
Air consumption		< 1 Nl/min.
Inlet port thread		G 1/4"
Outlet port thread		G 1/4"
Exhaust port thread		G 1/8"
Max. fitting torque force		15 Nm
Weight		360 gr.
Mounting position		Any
Power supply		24 VDC ± 10%
Current consumption		<0,12 A
Input signal	Voltage	0-10 VDC
	Current	4 - 20 mA
Input impedance	Voltage	10 kΩ
	Current	250 Ω
Output signal (analogic)	Voltage	0 - 10 VDC
	Current	4 - 20 mA
Output signal (digital)		PNP output 24 V (max 10 mA)
Linearity		≤ ± 1%
Hysteresis		≤ ± 1%
Repeatability		≤ ± 1%
Sensibility		≤ ± 1%
Output pressure display	Accurancy	≤ ± 3%
	Minimum unit	0,1 bar / 0,01 Mpa / 1psi
Electrical connection		8 pin DIN 45326 connector
Enclosure		IP 65

Materials

Body	Anodized Aluminium
Poppet valves	Brass with vulcanized NBR rubber
Diaphragm	NBR
Seals	NBR
Cover	Technopolymer
Spring	AISI 302



Ordering code

171E2B. _ . _ . ___ . _

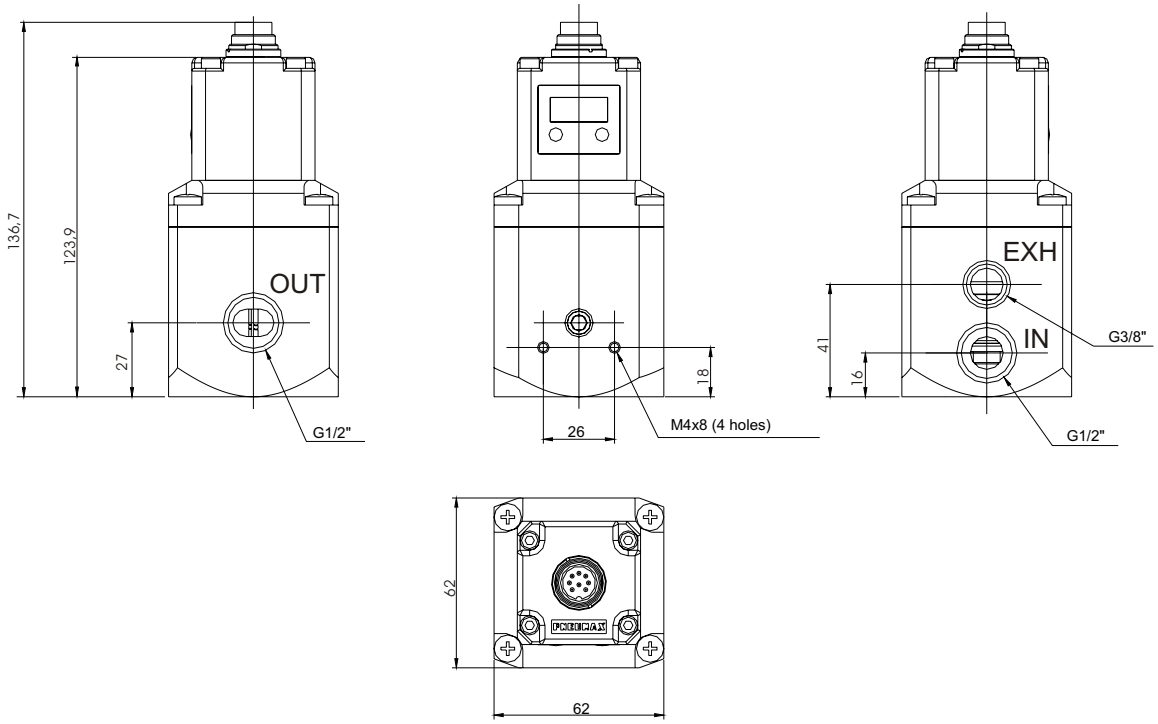
VARIANTS :
- E = External feed back

PRESSURE RANGE :
- 0005 = range 0 - 5 bar
- 0009 = range 0 - 9 bar

VERSION :
- A = Basic version
- B = Basic version + Display
- C = Basic version + OUT 0-10V (Voltage)
- D = Basic version + Display + OUT 0-10V (Voltage)
- E = Basic version + OUT 4-20mA (Current)
- F = Basic version + Display + OUT 4-20mA (Current)
- H = Basic version + Display + Digital OUT
- L = Basic version + RS232 card
- M = Basic version + Display + RS232 card

TYPE :
- C = Current signal (4-20 mA)
- T = Voltage signal (0-10 V)

Dimension



Functional

Fluid		20µ filtered dry air
Minimum inlet pressure		Set. Press. +(1 bar / 0,1 Mpa / 14,5 psi)
Maximum inlet pressure		10 bar /1 Mpa / 145 psi
Ambient Temperature		-5° ÷ +50°C / 23° ÷ 122°F
Outlet pressure		0 ÷ 9 bar / 0 ÷ 0,9 Mpa / 0 ÷ 130 psi
Nominal flow rate from port 1 to 2 (at 6 bar Δp 1 bar)		4.000 Nl/min.
Flow rate from port 2 to 3 (at 6 bar with overpressure of 1 bar)		4.500 Nl/min.
Air consumption		< 1 Nl/min.
Inlet port thread		G 1/2"
Outlet port thread		G 1/2"
Exhaust port thread		G 3/8"
Max. fitting torque force		15 Nm
Weight		850 gr.
Mounting position		Any
Power supply		24 VDC ± 10%
Current consumption		<0,12 A
Input signal	Voltage	0-10 VDC
	Current	4 - 20 mA
Input impedance	Voltage	10 kΩ
	Current	250 Ω
Output signal (analogic)	Voltage	0 - 10 VDC
	Current	4 - 20 mA
Output signal (digital)		PNP output 24 V (max 10 mA)
Linearity		≤ ± 1%
Hysteresis		≤ ± 1%
Repeatability		≤ ± 1%
Sensibility		≤ ± 1%
Output pressure display	Accurancy	≤ ± 3%
	Minimum unit	0,1 bar / 0,01 Mpa / 1psi
Electrical connection		8 pin DIN 45326 connector
Enclosure		IP 65

Materials

Body	Anodized Aluminium
Poppet valves	Brass with vulcanized NBR rubber
Diaphragm	NBR
Seals	NBR
Cover	Technopolymer
Spring	AISI 302

Ordering code

173E2B. _ . _ . ___ . _

TYPE :
- C = Current signal (4-20 mA)
- T = Voltage signal (0-10 V)

VARIANTS :
- A = Basic version
- B = Basic version + Display
- C = Basic version + OUT 0-10V (Voltage)
- D = Basic version + Display + OUT 0-10V (Voltage)
- E = Basic version + OUT 4-20mA (Current)
- F = Basic version + Display + OUT 4-20mA (Current)
- H = Basic version + Display + Digital OUT
- L = Basic version + RS232 card
- M = Basic version + Display + RS232 card

PRESSURE RANGE :
- 0005 = 0 - 5 bar
- 0009 = 0 - 9 bar

VARIANTS :
- E = External feed back

5

Electrical connector

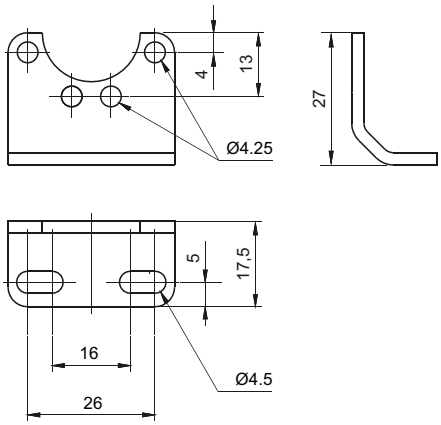
Ordering code

5300.F08. _ . _

VARIANTS :
- 00 = Connector only
- 03 = Connettor + 3 m. cable
- 05 = Connettor + 5 m. cable

VERSION :
- 00 = Straight
- 90 = 90° angle

Fixing bracket



Ordering code

170M5