

CATALOG

air prep

Proportional & Precision Regulator Instrumentation



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Industrial Automation

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1. Precision Regulator

- Standard or High Relief

2. High Flow Precision Regulator

- 880 Series Regulator
- 881 Series Precision High Flow Exhaust Relief Regulator

3. Electropneumatic Transducer

- I/P or E/P Versions
- Magnet Coil Technology

4. Miniature Electropneumatic Transducer

- I/P or E/P Versions
- R84 Series Magnet Coil Technology
- R85 Series Piezo Electric Technology

5. Ratio Relay Volume Booster

- Precision Air Pilot Regulation
- 1:1 or 1:6 Ratios Available

6. Instrument Air Regulator

- Precision Regulator with Integral 5 Micron Filtration

7. Proportional Regulator

- E22 Series
- I/P or E/P Versions
- Microprocessor Controlled



Introducing the E02/E22/E32 Series

The E02/E22/E32 Series electronic proportional regulators quickly and accurately adjust output pressure in relation to an electrical control signal. They meet requirements of industrial environments including rapid cycling, quick response, and repeatability, which are found in paint, welding, packaging, textile, medical, and many other process applications.

The electrical control signal can be either analog or digital. The analog unit controls any pressure setting directly proportional to the command signal of 4-20mA, 0-10VDC, or 0-5VDC. The optional digital unit uses a 2 bit binary signal to control four user defined pressures eliminating the need for an analog I/O card.



E02 Series Features:

- Available in 1/8 NPT, BSPP or BSPT threads
- Dead-head or pilot applications
- Manifoldable or stand-alone units
- Three outlet port options
- Three setable performance modes in a single unit
- Compact design with large LED display
- Locking feature prevents unwanted changes
- Designed to meet IP65 and NEMA 4 requirements



E22 Series Features:

- Available in 1/4, 3/8, and 1/2 NPT, BSPP or BSPT threads
- Capable of flow up to 100 SCFM
- Modular 22 Series Flexiblok design
- Fully ported 1/2 exhaust for optimal performance
- Three setable performance modes in a single unit
- Large digital display for easy reading
- Locking feature prevents unwanted changes
- Designed to meet IP65 and NEMA 4 requirements



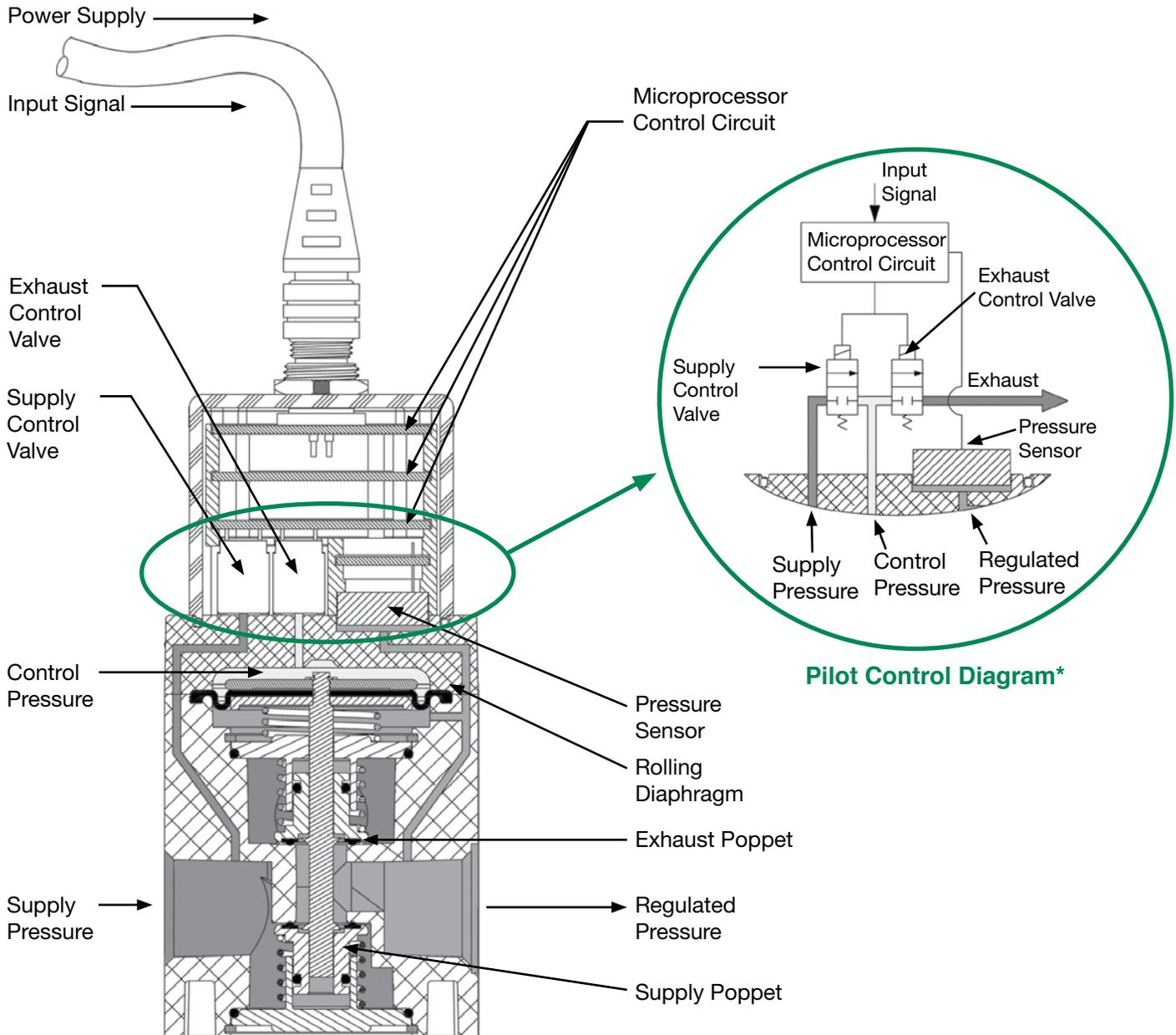
E32 Series Features:

- Available in 1/2 and 3/4 NPT, BSPP or BSPT threads
- Capable of flow up to 250 SCFM
- Modular 32 Series Flexiblok design
- 1/2 exhaust for optimal performance
- Three setable performance modes in a single unit
- Large digital display for easy reading
- Locking feature prevents unwanted changes
- Designed to meet IP65 and NEMA 4 requirements



How the Proportional Regulators Work

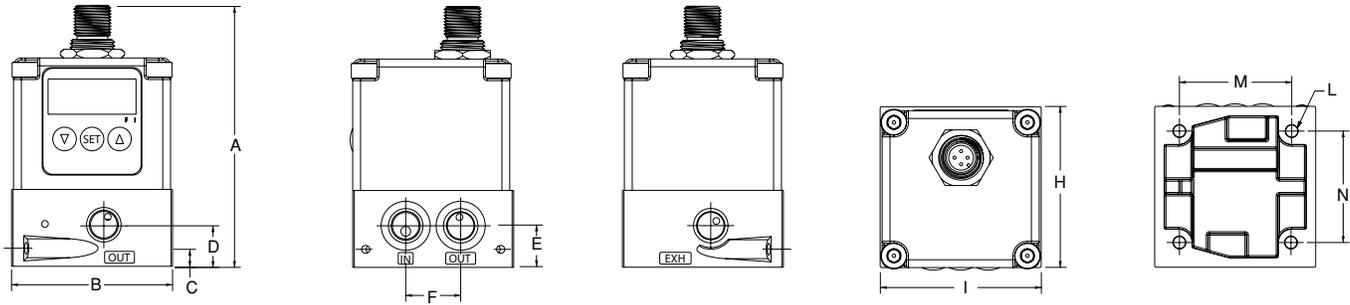
1. Microprocessor control circuit compares input signal to pressure sensor signal, which monitors the downstream regulated pressure. Microprocessor control circuit analyzes this data and energizes the appropriate control valve (supply or exhaust control valve).
2. If the regulated pressure is too low, the microprocessor control circuit energizes the supply control valve, which allows supply pressure to increase the control pressure moving the rolling diaphragm downward opening the supply poppet allowing supply pressure downstream increasing regulated pressure.
3. If the regulated pressure is too high the microprocessor control circuit energizes the exhaust control valve, which allows the control pressure to vent to atmosphere, moving the rolling diaphragm upward opening the exhaust poppet and allowing downstream regulated pressure to decrease by exhausting to atmosphere.
4. If the regulated pressure matches the commanded pressure the microprocessor control circuit leaves the supply and exhaust control valves de-energized keeping the control pressure constant.



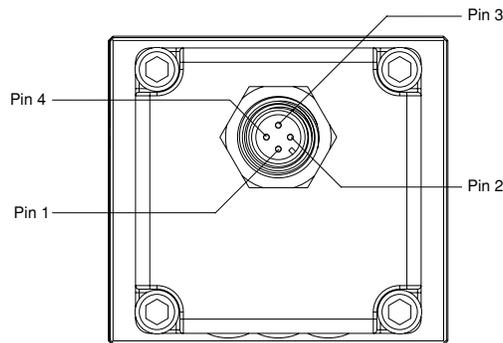
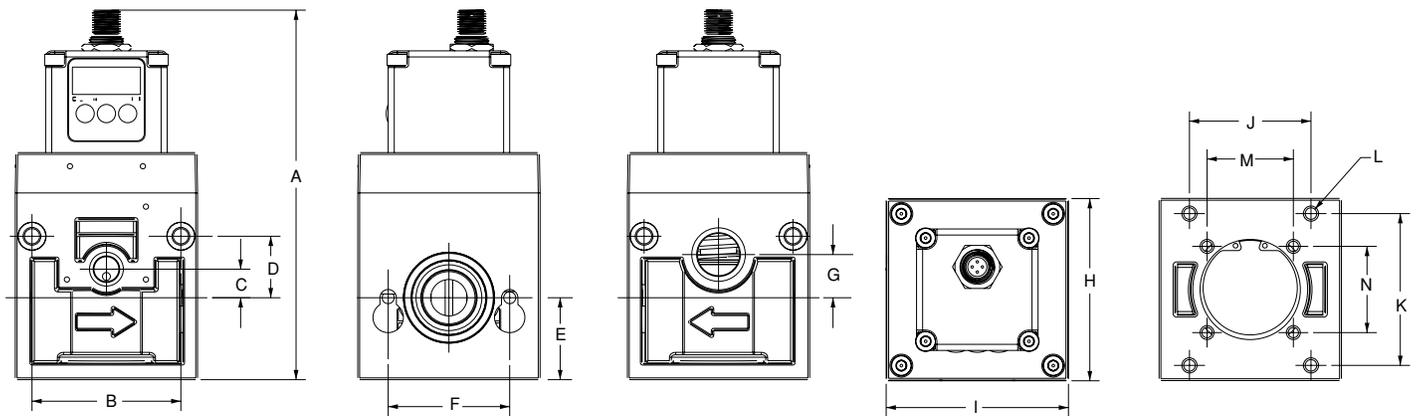


Dimensional Drawings

E02 Series



E22 and E32 Series



Pin Configuration

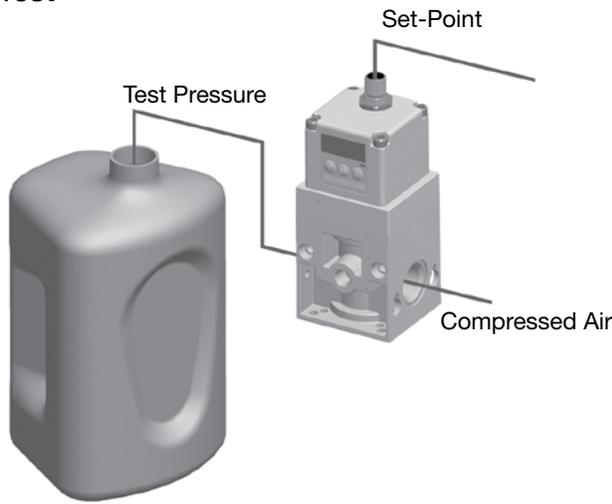
	Command Signal	
	Analog	Digital
Pin 1	+24VDC	
Pin 2	Command Signal	Input Signal 1
Pin 3	+0VDC common	
Pin 4	Monitor Output	Input Signal 2

Dimensions	A	B	C	D	E	F	G	H	I	J	K	L	M	N
E02	3.33 (85)	2.05 (52)	0.23 (6)	0.53 (13)	0.53 (13)	0.70 (18)	NA	2.05 (52)	2.05 (52)	NA	NA	0.80 (20)	1.42 (36)	1.42 (36)
E22	5.57 (141)	1.83 (46)	0.29 (7)	.70 (18)	1.00 (25)	1.58 (40)	0.70 (18)	2.17 (55)	2.38 (60)	1.70 (43)	1.80 (46)	0.19 (5)	1.42 (36)	1.42 (36)
E32	6.09 (155)	2.45 (62)	0.47 (12)	1.01 (26)	1.35 (34)	2.00 (51)	0.71 (18)	3.00 (76)	3.00 (76)	2.00 (51)	2.50 (64)	0.19 (5)	1.42 (36)	1.42 (36)

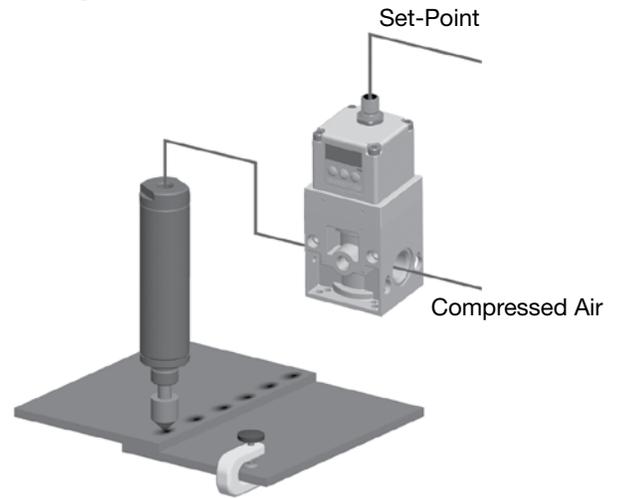


Applications

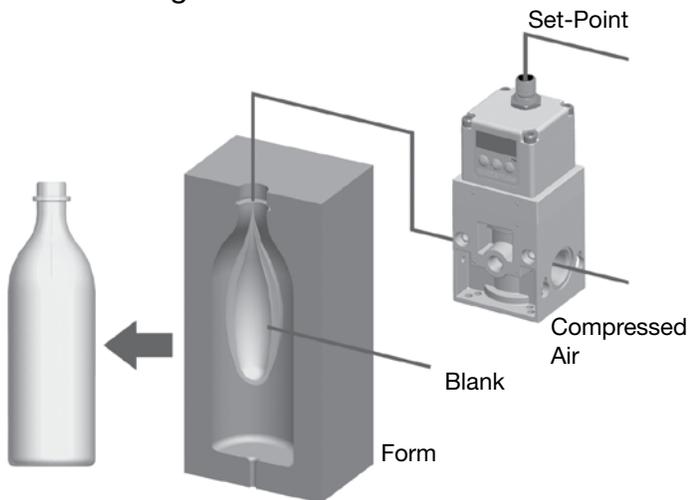
Leak Test



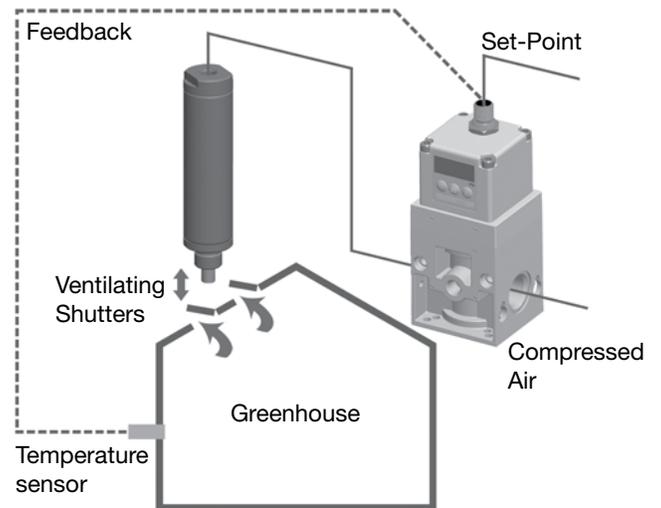
Spot Welding



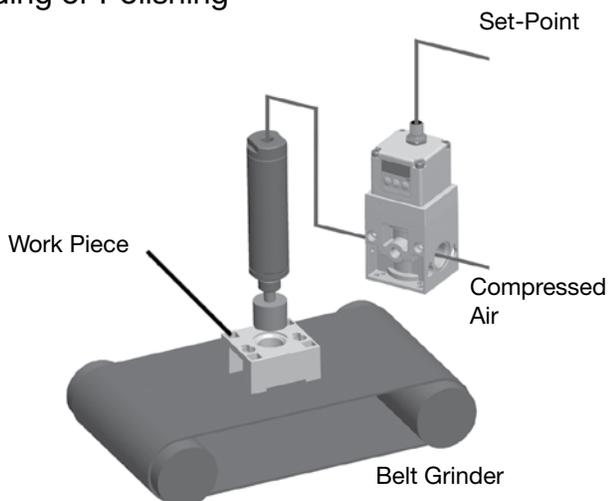
Bottle Molding



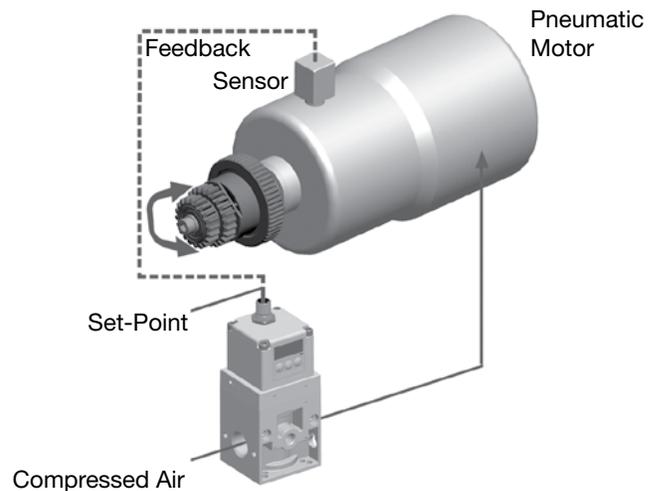
Temperature Control



Grinding or Polishing



Torque Control





Specifications

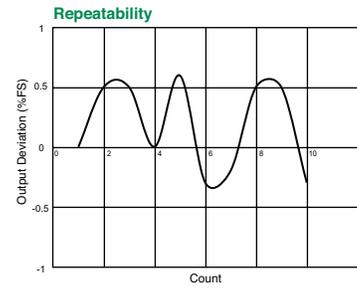
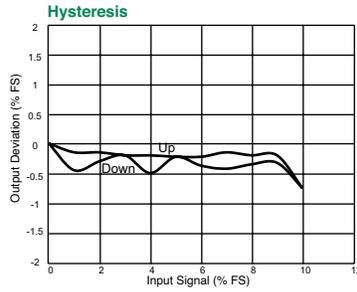
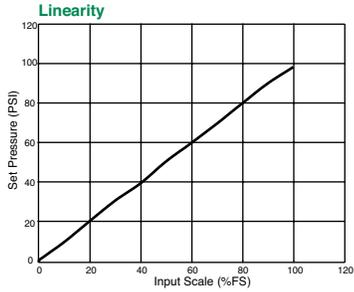
Specifications

		E02	E22	E32
				
Minimum Supply Pressure		Set Pressure + 15 PSI (1 BAR)	Set Pressure + 15 PSI (1 BAR)	Set Pressure + 15 PSI (1 BAR)
Maximum Supply Pressure		Standard Pressure: 150 PSI (10 BAR) High Pressure: 190 PSI (13 BAR)	Standard Pressure: 150 PSI (10 BAR) High Pressure: 190 PSI (13 BAR)	Standard Pressure: 150 PSI (10 BAR) High Pressure: 190 PSI (13 BAR)
Regulating Pressure Ranges		Standard Pressure: 0-100 PSI (0-6.9 BAR) High Pressure: 0-150 PSI (0-10.2 BAR)	Standard Pressure: 0-100 PSI (0-6.9 BAR) High Pressure: 0-150 PSI (0-10.2 BAR)	Standard Pressure: 0-100 PSI (0-6.9 BAR) High Pressure: 0-150 PSI (0-10.2 BAR)
Power Supply	Voltage	24VDC ±10%	24VDC ±10%	24VDC ±10%
	Current Consumption	0.04 A	0.04 A	0.04 A
Input Signal	Current	4-20mA	4-20mA	4-20mA
	Voltage	0-5VDC, 0-10VDC	0-5VDC, 0-10VDC	0-5VDC, 0-10VDC
Input Impedance	0-5 VDC	10 KΩ	10 KΩ	10 KΩ
	0-10 VDC	20 KΩ	20 KΩ	20 KΩ
	4-20 mA	100 Ω	100 Ω	100 Ω
Output Signal	Analog Output	0-5VDC 0-10VDC 4-20mA	0-5VDC 0-10VDC 4-20mA	0-5VDC 0-10VDC 4-20mA
	Switch Output	24VDC (PNP or NPN)	24VDC (PNP or NPN)	24VDC (PNP or NPN)
Linearity		≤ ±1% of span	≤ ±1% of span	≤ ±1% of span
Hysteresis		≤ ±.5% of span	≤ ±.5% of span	≤ ±.5% of span
Repeatability		≤ ±.5% of span	≤ ±.5% of span	≤ ±.5% of span
Sensitivity		≤ ±.2% of span	≤ ±.2% of span	≤ ±.2% of span
Temp Characteristics		±.5% of span /°C	±.5% of span /°C	±.5% of span /°C
Output Display	Accuracy	±.5% of span	±.5% of span	±.5% of span
	Minimum unit	PSI 0.1, BAR 0.01, kPa 001., kgf/cm ² 0.01	PSI 0.1, BAR 0.01, kPa 001., kgf/cm ² 0.01	PSI 0.1, BAR 0.01, kPa 001., kgf/cm ² 0.01
Temperature Range		40-120°F 4-50°C	40-120°F 4-50°C	40-120°F 4-50°C
Enclosure		IP65 and NEMA 4 Equivalent	IP65 and NEMA 4 Equivalent	IP65 and NEMA 4 Equivalent
Weight		0.68 lbs (0.31kg)	1.4 lbs (0.64kg)	2.34 lbs (1.06kg)

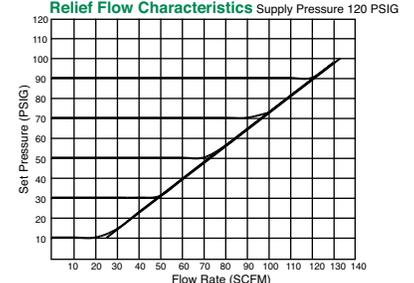
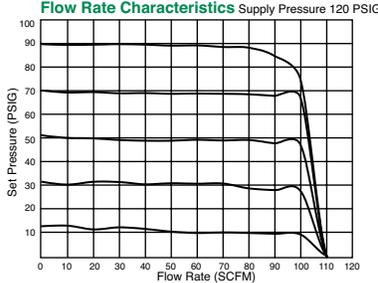
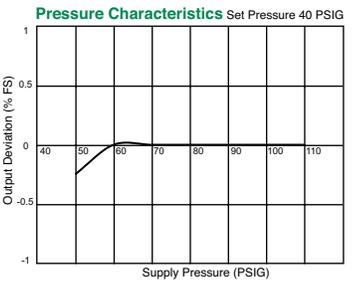
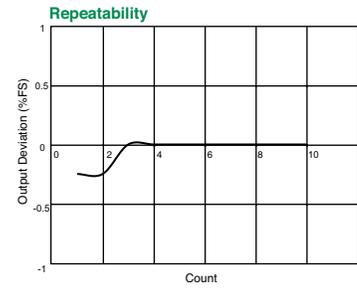
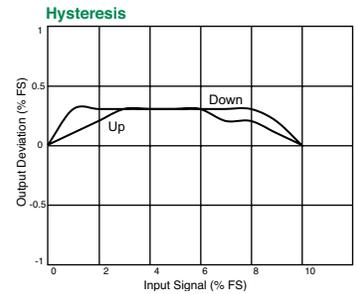
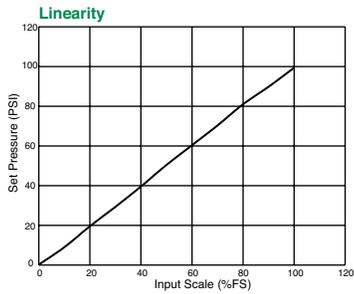


Performance Graphs

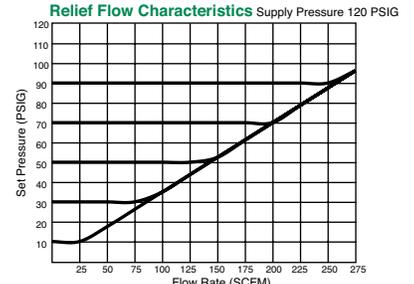
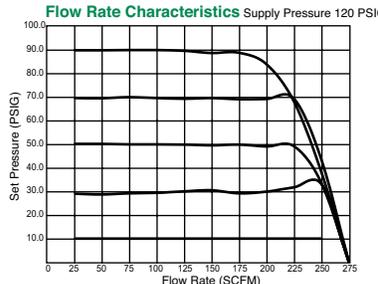
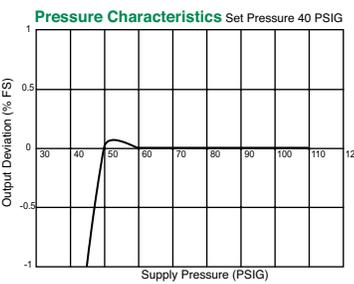
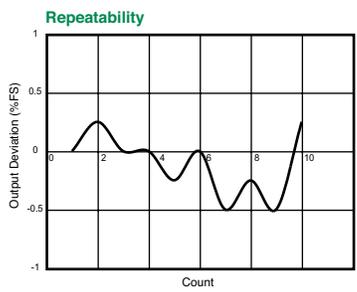
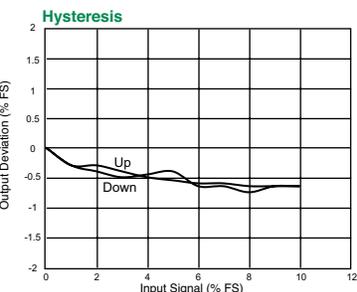
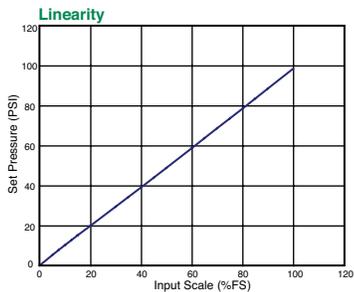
E02 Series



E22 Series



E32 Series





Precision Instrumentation

How to Order

E 22 3 - 04 3 H

Series

02 = 02 Series
22 = 22 Series
32 = 32 Series

Input Signal

1 = 4 - 20mA
2 = 0 - 5VDC
3 = 0 - 10VDC
9 = 2 bit, 4 pressure select (PNP sourcing)
0 = 2 bit, 4 pressure select (NPN sinking)

Thread Types

- = NPTF
G = GTAP (BSPP)
R = PT (BSPT)

Options

H = 0 - 150 PSI (10 BAR) regulating pressure range
(For 0-100 PSI standard unit no suffix necessary)

Feedback Signal

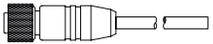
1 = 4 - 20mA
2 = 0 - 5VDC
3 = 0 - 10VDC
8 = 24VDC Switched (PNP)
9 = 24VDC Switched (NPN)
0 = use with 2 bit, 4 pressure select
(type 9 or 0 input signal)

Port Tap Size

01 = 1/8 (E02 Series Only)
02 = 1/4 (E22 Series Only)
03 = 3/8 (E22 Series Only)
04 = 1/2 (E22 & E32 Series Only)
06 = 3/4 (E32 Series Only)

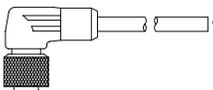
*Feedback signal must match input signal, unless the 24VDC switch feedback signal is chosen.

Accessories



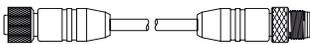
Micro Female 4 Pole Straight 22 AWG Euro Color Code

Unshielded		Shielded	
2 Meter	TC0403MIE0000000	3 Meter	TC0403MME0000000
5 Meter	TC0405MIE0000000	5 Meter	TC0405MME0000000



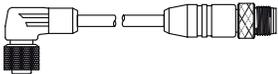
Micro Female 4 Pole 90 Degree 22 AWG Euro Color Code

Unshielded		Shielded	
2 Meter	TD0403MIE0000000	3 Meter	TD0403MME0000000
5 Meter	TD0405MIE0000000	5 Meter	TD0405MME0000000



Micro F/M 4 Pole Straight 22 AWG Euro Color Code

Unshielded		Shielded	
2 Meter	TC0403MIETA04000	3 Meter	TC0403MMETA04000
5 Meter	TC0405MIETA04000	5 Meter	TC0405MMETA04000

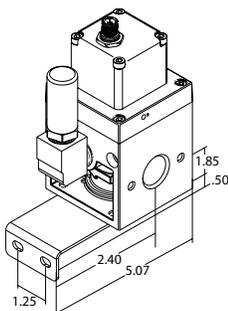


Micro F 90°/M Straight 22 AWG Euro Color Code

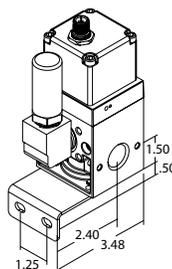
Unshielded		Shielded	
2 Meter	TD0403MIETA04000	3 Meter	TD0403MMETA04000
5 Meter	TD0405MIETA04000	5 Meter	TD0405MMETA04000

Bracket/Muffler Kits

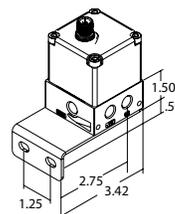
Model Number	Description
BRK-KIT-L	Includes (1) E32-10 Bracket, (4) E32-11 Screws, (1) M4MN Muffler, (1) E22-29 Elbow
BRK-KIT	Includes (1) E02-10 Bracket, (4) E32-11 Screws, (1) M4MN Muffler, (1) E22-29 Elbow
BRK-KIT-WOEM	Includes (1) E02-10 Bracket, (4) E32-11 Screws
BRK-KIT-LWEOE	Includes (1) E32-10 Bracket, (4) E32-11 Screws, (1) M4MN Muffler



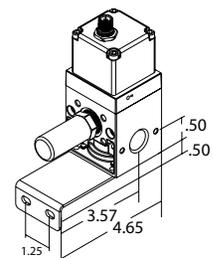
BRK-KIT-L



BRK-KIT



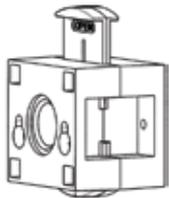
BRK-KIT-WOEM



BRK-KIT-LWEOE



Accessories - Modular Air Preparation Components - E22 and E32 Series



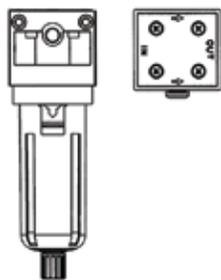
Shut Off

Threads	NPTF	BSPP (G Thread)	BSPT (R Thread)
1/4	VS22-02	VS22G02	VS22R02
3/8	VS22-03	VS22G03	VS22R03
1/2	VS22-04	VS22G04	VS22R04
1/2	VS32-04	VS32G04	VS32R04
3/4	VS32-06	VS32G06	VS32R06



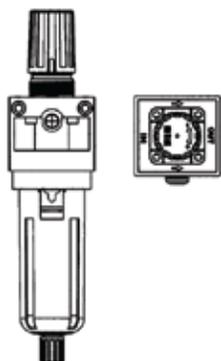
Diverter Block

Threads	NPTF	BSPP (G Thread)	BSPT (R Thread)
3/8	DK22-03	DK22G03	DK22R03
1/2	DK32-04	DK32G04	DK32R04



22 and 32 Series Particulate Filter

Bowl	Polycarbonate Bowl	CircleVision Bowl™	Metal Bowl
1/4 NPTF	F22B-02	F22B-02C	F22B-02M
1/4 BSPP (GThread)	F22BG02	F22BG02C	F22BG02M
1/4 BSPT (RThread)	F22BR02	F22BR02C	F22BR02M
3/8 NPTF	F22B-03	F22B-03C	F22B-03M
3/8 BSPP (GThread)	F22BG03	F22BG03C	F22BG03M
3/8 BSPT (RThread)	F22BR03	F22BR03C	F22BR03M
1/2 NPTF	F22B-04	F22B-04C	F22B-04M
1/2 NPTF	F32B-04	F32B-04C	F32B-04M
1/2 BSPP (GThread)	F22BG04	F22BG04C	F22BG04M
1/2 BSPP (GThread)	F32BG04	F32BG04C	F32BG04M
1/2 BSPT (RThread)	F22BR04	F22BR04C	F22BR04M
1/2 BSPT (RThread)	F32BR04	F32BR04C	F32BR04M
3/4 NPTF	F32B-06	F32B-06C	F32B-04M
3/4 BSPP (G Thread)	F32BG06	F32BG06C	F32BG06M
3/4 BSPT (R Thread)	F32BR06	F32BR06C	F32BR04M



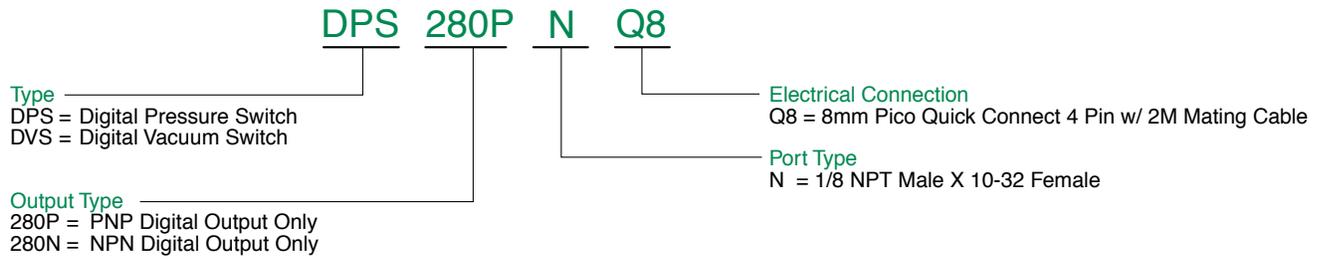
22 and 32 Series Particulate Filter/Regulator

Bowl	Polycarbonate Bowl	CircleVision™ Bowl	Metal Bowl
1/4 NPTF	P22B-02	P22B-02C	P22B-02M
1/4 BSPP (GThread)	P22BG02	P22BG02C	P22BG02M
1/4 BSPT (RThread)	P22BR02	P22BR02C	P22BR02M
3/8 NPTF	P22B-03	P22B-03C	P22B-03M
3/8 BSPP (GThread)	P22BG03	P22BG03C	P22BG03M
3/8 BSPT (RThread)	P22BR03	P22BR03C	P22BR03M
1/2 NPTF	P22B-04	P22B-04C	P22B-04M
1/2 NPTF	P32B-04	P32B-04C	P32B-04M
1/2 BSPP (GThread)	P22BG04	P22BG04C	P22BG04M
1/2 BSPP (GThread)	P32BG04	P32BG04C	P32BG04M
1/2 BSPT (RThread)	P22BR04	P22BR04C	P22BR04M
1/2 BSPT (RThread)	P32BR04	P32BR04C	P32BR04M
3/4 NPTF	P32B-06	P32B-06C	P32B-06M
3/4 BSPP (G Thread)	P32BG06	P32BG06C	P32BG06M
3/4 BSPT (R Thread)	P32BR06	P32BR06C	P32BR06M



Precision Instrumentation

Accessories - 280 Series Digital Pressure Sensors



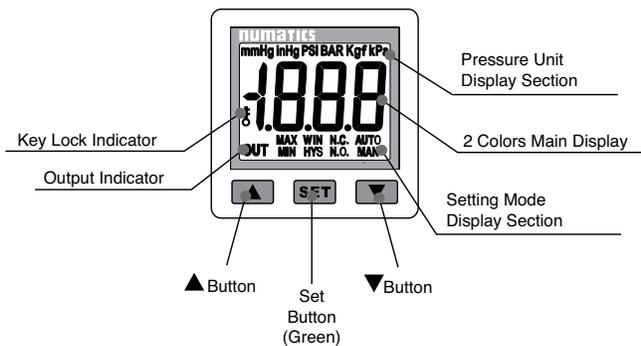
Example: DPS280PNQ8 = Digital Pressure Switch - PNP - 1/8 NPT - 8mm Pico 4 Pin w/ 2M Mating Cable

Accessory Numbers

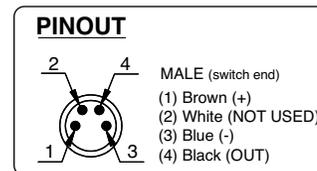
Model	Accessory Description	Model	Accessory Description
DPS280-8-4-ST-2	Mating Cable 8 mm 4 Pin 2 Meter	BRK280-1	Mounting Bracket (S)
DPS280-8-4-ST-5	Mating Cable 8 mm 4 Pin 5 Meter	BRK280-2	Mounting Bracket (L)
PC0402MEETA03000	Patch Cable M8 4 Pin X M12 3 Pin 2 Meter	PMK280-C	Panel Mount Kit w/Cover

Mating Cable: Cable O.D. - 4.0mm
 Conductor Gauge - 26 AWG

Panel Instructions



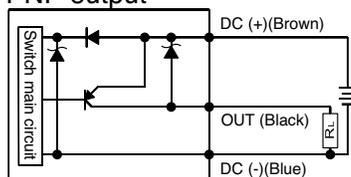
Switch Wiring



Output Circuit Wiring

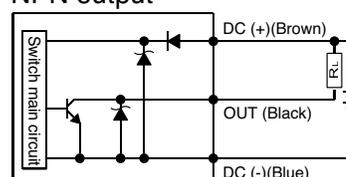
DPS / DVS280P

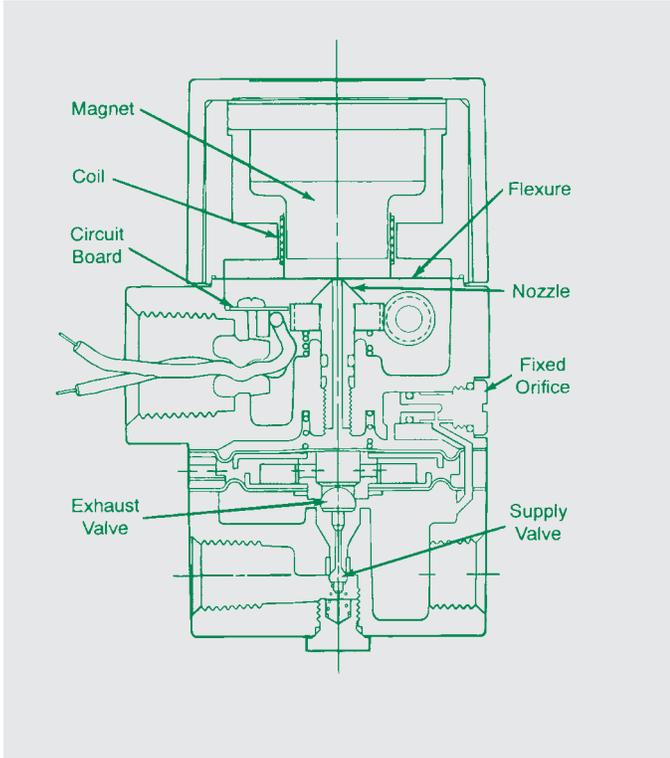
PNP output



DPS / DVS280N

NPN output





Electropneumatic Transducer I/P, E/P R83 Series

Application

The Electropneumatic Transducer (I/P, E/P) converts a current or voltage input signal to a linearly proportional pneumatic output pressure. This versatile instrument is designed for control applications that require a high degree of reliability and repeatability at an economical cost. These units are used for applications that require the operation of valve actuators, pneumatic valve positioners, damper and louver actuators, final control elements, relays, air cylinders, web tensioners, clutches, and brakes.

Features

- Integral volume booster
- Compact size
- Low air consumption
- Field reversible
- Flexible zero and span adjustments
- Standard process inputs
- Split ranging
- FM - NEMA 4x
- CE Approved

Specifications

	LOW OUTPUT RANGE (UP TO 30 PSIG)	HIGH OUTPUT RANGE (UP TO 120 PSIG)
Min./Max. Supply Pressure:	minimum 3 PSIG (21 kPa) above maximum output maximum 100 PSIG (700 kPa)	minimum 5 PSIG (35 kPa) above maximum output maximum 150 PSIG (1050 kPa)
Supply Pressure Sensitivity	< +/- .1% of span per PSIG (< +/- .15% of span per 10 kPa)	< +/- .004% of span per 1.0 PSIG (7 kPa)
Terminal Based Linearity	< +/- .75% of span	< +/- 1.5% of span typ., +/- 2.0% max
Repeatability:	< .5% of span	< .5% of span
Hysteresis	< 1.0% of span	< .5% of span
Response Time	dependent on pressure range, typically less than .25 sec. for 3 - 15 PSIG units	dependent on pressure range, typically less than .25 sec. for 3 - 15 PSIG units
Flow Rate	4.5 SCFM (7.6 m3/hr ANR) at 25 PSIG (175 kPa) supply 12 SCFM (20 m3/hr ANR) at 100 PSIG (700 kPa) supply	20 SCFM (34 m3/hr ANR) at 150 PSIG (1050 kPa) supply
Relief Capacity	2.0 SCFM (3.4 m3/hr) at 5 PSIG (35 kPa) above set point	2.0 SCFM (3.4 m3/hr) at 5 PSIG (35 kPa)
Maximum Air Consumption	.03 SCFM (.07 m3/hr) typical	.05 SCFM (.14 m3/hr) typical
Media	oil free, clean dry air filtered to 0.3 micron	oil free, clean dry air filtered to 0.3 micron
Temp. Range (operating)	-20°F to 140°F (-30°C to 60°C)	-20°F to 140°F (-30°C to 60°C)

NOTE: This unit, as is, is a Class 1, Division 2 hazardous location item (non-incendive). With the proper barrier it is a Class 1,2,3; Division 1; Groups C,D,E,F,G item (applies only to 4-20 Ma I/P).



Precision Instrumentation

How To Order

R 83 1 - 02 F G

Model
R = Regulator

Series
83 = I/P, E/P Transducer

Style
1 = 4-20 Ma
2 = 0-5 VDC
3 = 0-10 VDC

Threads
- = NPTF
G = G tap (BSPP)

Options
G = Gauge

Output Range
B = 3-15 PSIG
(4-20 Ma Input Signal Available)
C = 3-27 PSIG
(4-20 Ma Input Signal Available)
E = 2-60 PSIG
(4-20 & 0-5 VDC Ma Input)
F = 3-120 PSIG
(4-20 & 0-10 VDC Ma Input Signal Available)

Port Size
02 = 1/4"

NEED MORE PARTS AND INFORMATION?

- See page 22 for information on ordering replacement parts.

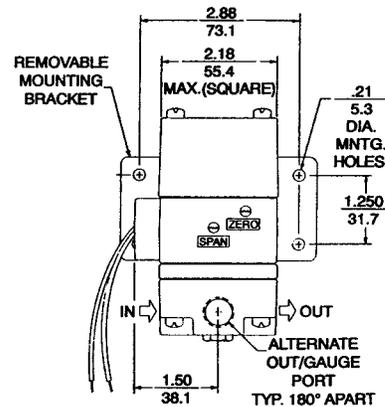
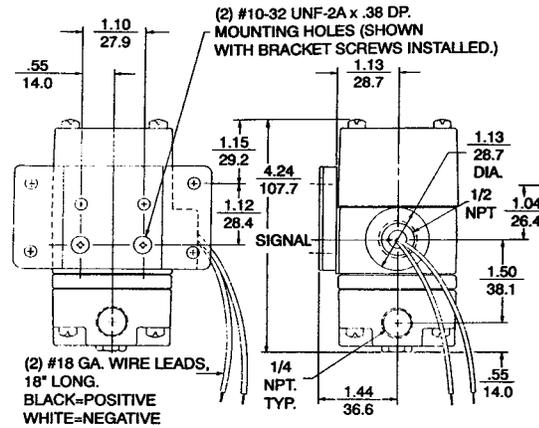
Dimensions

top dimensions = inches

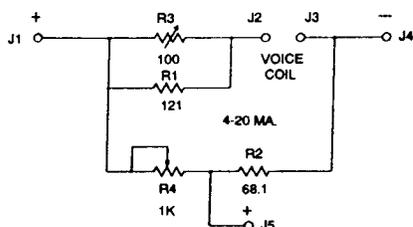
bottom dimensions (in parenthesis) = millimeters



R832-02E pictured



Electrical Schematic



NOTE: FOR 4-20MA AND 10-MA USE J1 AS POSITIVE INPUT.

NOTE: Bracket included with each unit.



Economy Miniature Electropneumatic Transducer

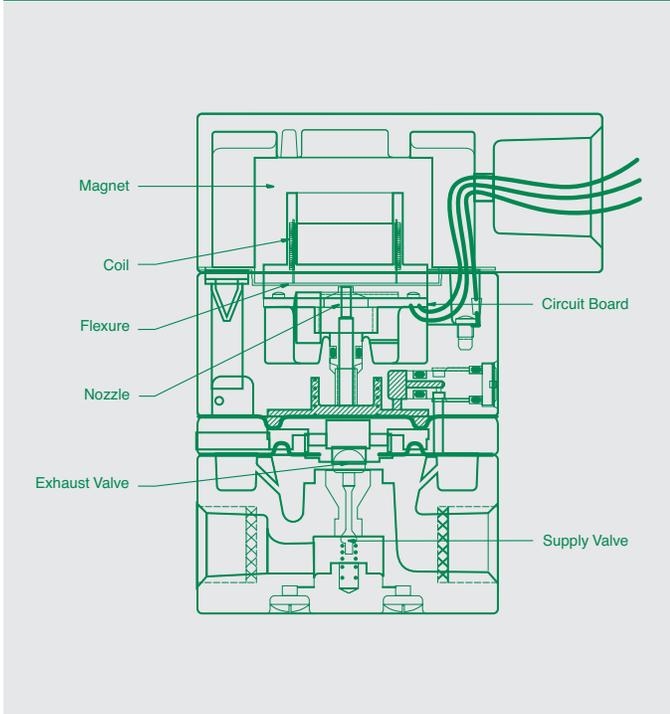
R84 Series

Application

The R84 Series I/P, E/P transducers are compact electronic pressure regulators that convert an electrical signal (current or voltage) to a proportional pneumatic output. Its compact design and flexible porting make it an ideal choice for space-constrained DIN rail or manifold applications. A NEMA-4X housing with RFI/EMI protection will allow it to be used in demanding industrial environments. The operating principle of the R84 is based on a rugged, field-tested force-balance design. A coil is suspended in a magnetic field by a flexure. Varying the electrical signal through the coil positions the flexure to a nozzle. This creates a back pressure that acts as a pilot to an integral volume booster. This provides a high flow which increases control speed in critical applications.

Features

- Compact size
- NEMA-4X housing
- Low air consumption
- High flow capacity
- Accessible external orifice
- Input and output ports on both front and back
- RFI/EMI protection
- External zero and span adjustments
- Field reversible
- Wall, panel, pipe or DIN rail mounting
- No separate power supply required
- CE Approved



Specifications

Economy Miniature Electropneumatic Transducer R84 Series	
Linearity (independent)	> +/- 0.5% of span
Hysteresis and repeatability	>0.5% of span
Port sizes	Pneumatic = 1/4 Electric = 1/2 NPT
Media	Clean, dry, oil-free, air filtered to 0.3 micron
Mounting	Wall, panel (included), 2" pipe (included) or DIN rail (optional)
Materials	Housing: Chromate treated aluminum with baked paint Elastomers: Buna-N Trim: Stainless Steel, brass, zinc plated steel
Weight	1.3 lbs (.59 KG)
Inputs	4-20 mA, 0-5V DC, 0-10 V DC
Outputs	3-15 psig, 3-27 psig, 2-60 psig, 3-120 psig
Air Consumption	1.8 SCFH (0.05 m3/hr) at mid Range typical
Supply pressure: Note: Supply pressure must be a minimum of 5 psig (0.3 bar) above the maximum output pressure	Outputs up to 30 psi: 100 psig (7 bar) maximum Outputs to 120 psig: 150 psig (10 bar) maximum
Flow Capacity at mid range	4.5 SCFM (7.6 m3/hr) at 25 psig (1.7 Bar) supply 12 SCFM (20 m3/hr) at 100 psig (7 Bar) supply
Relief Capacity	2 SCFM (3.4 m3/hr) at 5 psig (35kPa) above set point
Temperature Range	-20 to + 150 F (- 30 to +65 C)

Notes:

Electrical Connections – For both I/P and E/P models, the 1/2" conduit electrical connections are made to the red (+) and black (-) leads. The green lead is used for case ground. For both I/P and E/P models, the 43650 DIN electrical connections are made to terminal 1 (+) and terminal 2 (-). Terminal 3 is not used. Ground is for case ground.



Precision Instrumentation

How To Order

R 84 1 - 02 E F R

Model

R = Regulator

Series

84 = I/P, E/P Economy Miniature Transducer

Input Signal

1 = 4-20 Ma
2 = 0-5 VDC
3 = 0-10 VDC

Threads

- = NPTF
G = G Tap (BSPP)

Options

G = Gauge
R = DIN Rail Mount

Electrical Connection

A = 1/2 NPT Conduit w/ Pigtail
F = DIN 43650 Connector

Output Range

B = 3-15 PSIG
C = 3-27 PSIG
E = 2-60 PSIG
F = 3-120 PSIG

Port Size

02 = 1/4"

NEED MORE PARTS AND INFORMATION?

- See page 22 for information on ordering replacement parts.

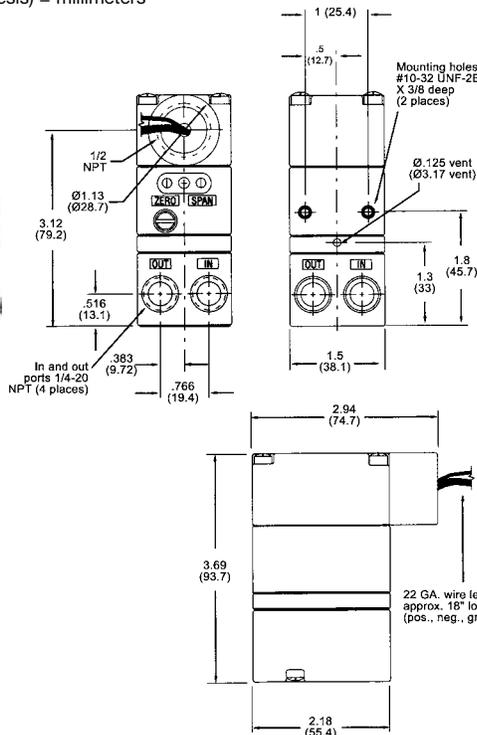
Dimensions

top dimensions = inches

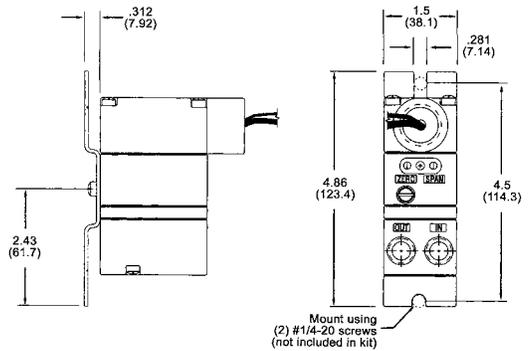
bottom dimensions (in parenthesis) = millimeters



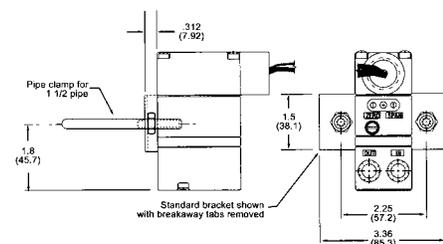
R841-02EA pictured



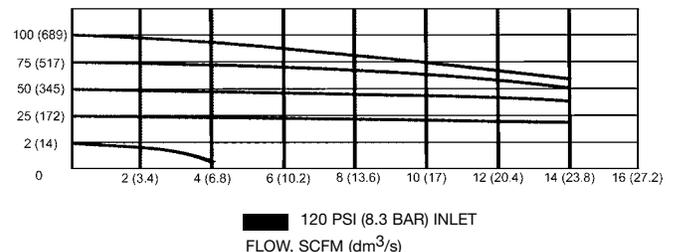
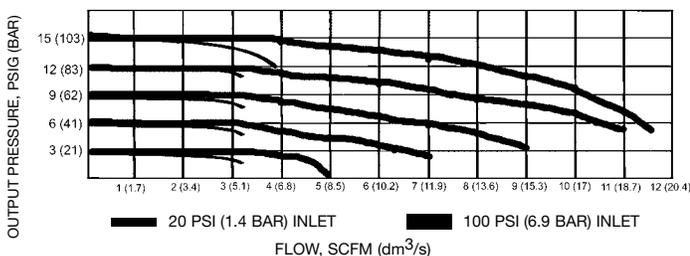
Panel Mounting (included with standard unit)



Pipe Mounting (included with standard unit)



Flow Ratings





Miniature Electropneumatic Transducer I/P, E/P R85 Series

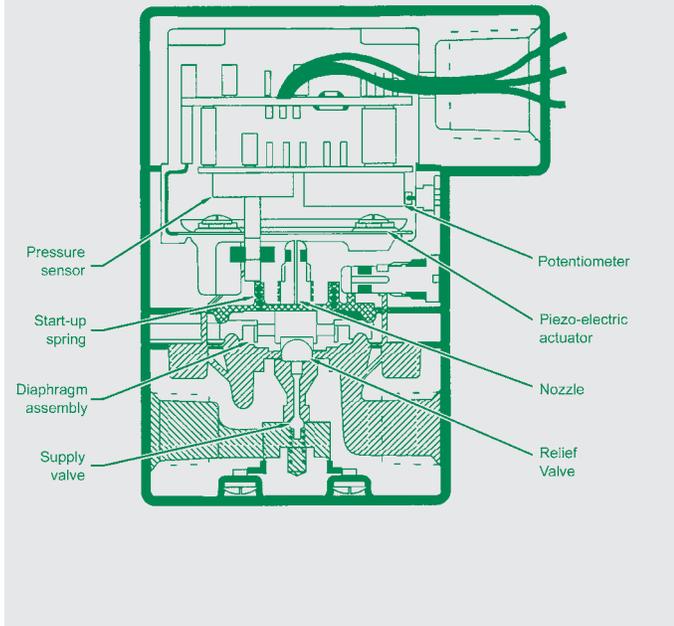
Application

The R85 Series I/P, E/P transducers are a series of compact electronic pressure regulators that convert an electrical signal (current or voltage) to a proportional pneumatic output. Utilizing internal solid-state feedback circuitry, the R85 provides precise, stable pressure outputs to final control elements. Immunity to the effects of vibration or mounting position, high tolerance to impure air, and low air consumption make this unit ideal for use in demanding applications.

The heart of this unique technology is a bimorph piezo actuator that is encapsulated in a protective skin. This protective skin provides defense against the humidity and contaminant often found in process operating environments.

Features

- Reliable in harsh environments
- Low air consumption - 3 SCFH typical
- High accuracy - +/-0.10% of span
- NEMA-4X (IP65) enclosure
- Vibration/position insensitive
- Compact size
- Wall, panel (included), pipe (included), or din rail mounting
- Supply pressures up to 100 PSIG
- Built-in volume booster - 10 SCFM flow
- Input/output ports on front and back
- Conduit fitting or din connector
- Split range operation
- Field reversible
- CE Approved



Specifications

Miniature Electropneumatic Transducer I/P, E/P R85 Series		
Port sizes	Pneumatic: 1/4 Electric: 1/2 NPT	
Media	Clean, dry, oil-free, air filtered to 0.3 micron	
Mounting	Wall, Panel (included), 2" pipe (included), or DIN rail (optional)	
Materials	Housing: Chromate treated aluminum with baked paint. NEMA-4X (IP65) Elastomers: Buna-N Trim: Stainless steel, brass, zinc plated steel	
Weight:	13.0 oz (0.4 kg)	
Inputs	4-20mA	0-10 VDC 0-5 VDC
Outputs	3-15 PSIG 3-27 PSIG 2-60 PSIG 2-100 PSIG	0.21-1.03 BAR 0.21-1.86 BAR 0.14-4.14 BAR 0.14-6.89 BAR
Air Consumption	1.5 SCFH 0.04 m3/hr at mid range typical	
Supply pressure:	100 PSIG (7.0 BAR) maximum Note: Supply pressure must be at a minimum of 5 PSIG above maximum output	
Flow Capacity at mid range	4.5 SCFM (7.6 m3/hr) at 25 PSIG (1.7 BAR) supply 12 SCFM (20 m3/hr) at 100 PSIG (7 BAR) supply	
Relief Capacity	2.0 SCFM (3.4 m3/hr) at 5 PSIG (35 kPa) above set point	
Temperature limits	Operating: -40° to +160° F (-40° to +71° C) Storage: -40° to +200° F (-40° to +93° C)	
Loop load, I/P Transducer	7.5 VDC @ 20mA	
Supply Voltage, E/P Transducer	7-30 VDC, less than 3mA	
Signal impedance	7-30 VDC, less than 3mA	

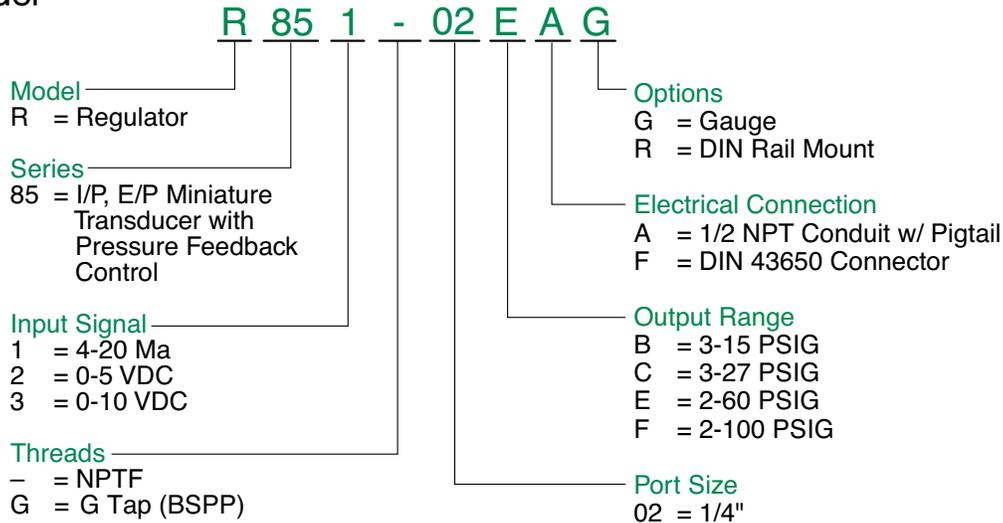
Notes:

Electrical Connections – For both I/P and E/P models, the 1/2" conduit electrical connections are made to the red (+) and black (-) leads. The green lead is used for case ground. For both I/P and E/P models, the 43650 DIN electrical connections are made to terminal 1 (+) and terminal 2 (-). Terminal 3 is not used. Ground is for case ground.



Precision Instrumentation

How To Order



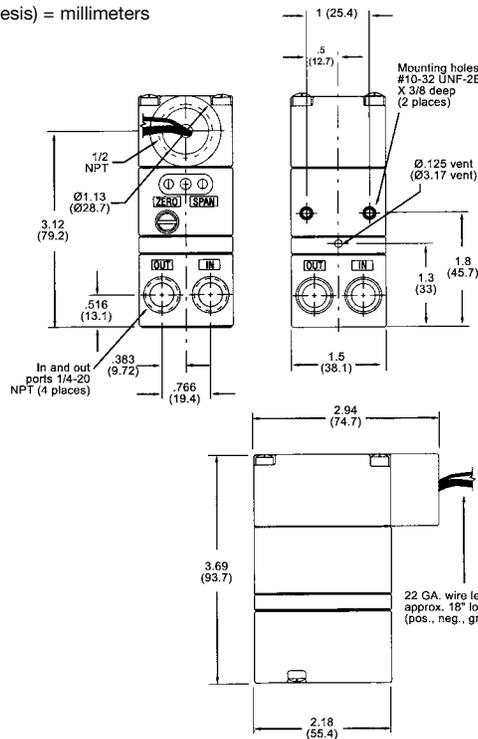
NEED MORE PARTS AND INFORMATION?
• See page 22 for information on ordering replacement parts.

Dimensions

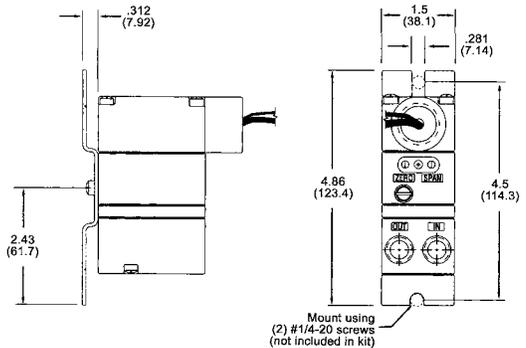
top dimensions = inches
bottom dimensions (in parenthesis) = millimeters



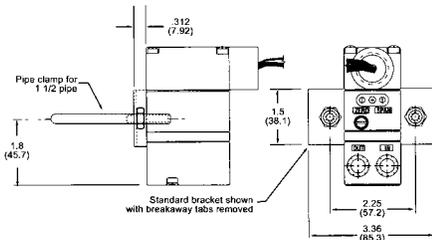
R851-02EA pictured



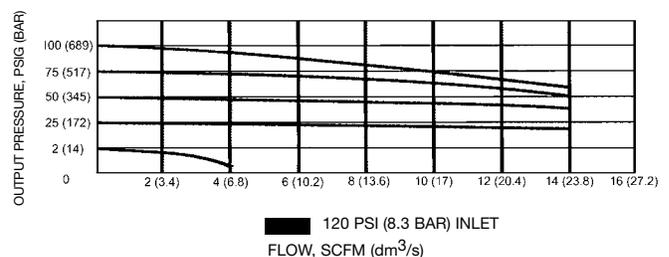
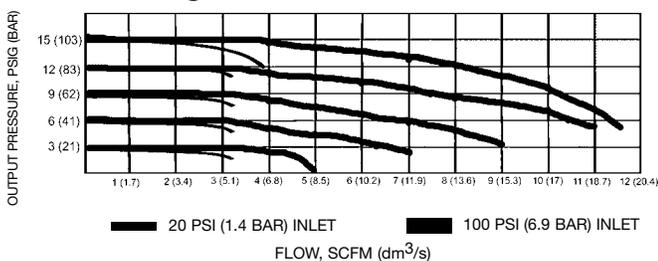
Panel Mounting (included with standard unit)



Pipe Mounting (included with standard unit)



Flow Ratings





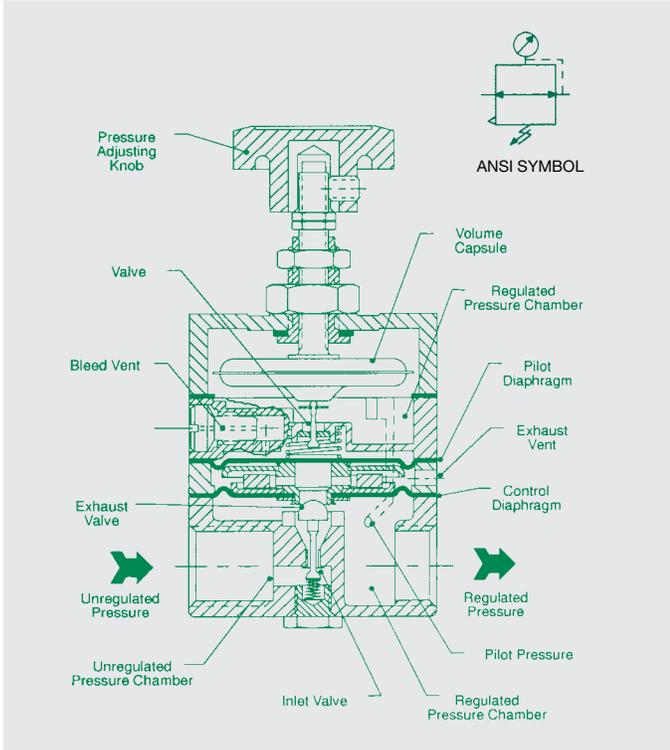
Precision Regulator R80/82 Series

Application

The 80 and 82 Series regulators are high-precision, multi-stage pressure regulators. The highest degree of regulation and repeatability are achievable by reacting to downstream pressure fluctuations as small as 0.01 PSIG (.07 kPa). Action occurs as downstream pressure is piloted to the control chamber to act on a finely tuned stainless steel volume capsule. A continuous bleed of less than 0.08 SCFM (.15 m³/hr) adjusts the pilot diaphragm causing appropriate movement of the supply valve or relief valve. Relief flows of up to 10 SCFM can be achieved through the large exhaust port located in the control diaphragm. Exhaust is achieved through the exhaust vents located in the side of the body.

Recommended Uses

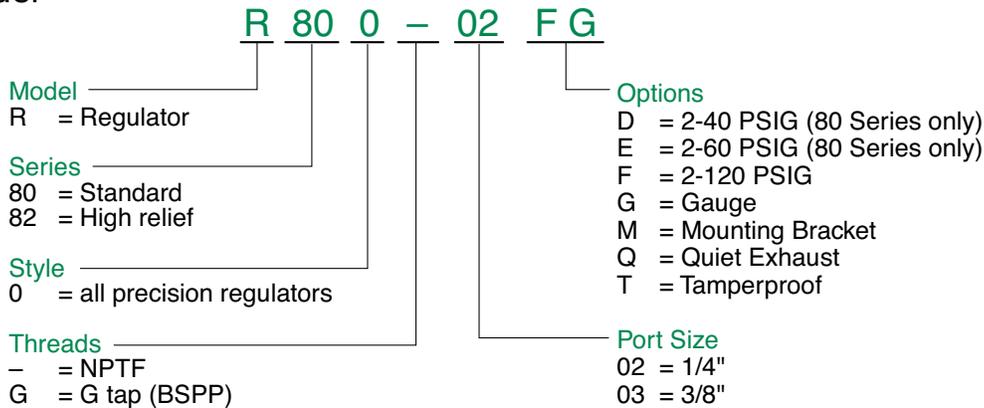
- Air Gauging
- Gas Mixing
- Web Tensioning
- Roll Loading
- Air Hoists



Specifications

Precision Regulator R80/82 Series	
Flow Capacity	14 SCFM (25m3/hr)
Exhaust Capacity	Model 80 - 2 to 3 SCFM (3.4 m3/hr) Model 82 - 10 to 11 SCFM (17.0 m3/hr)
Sensitivity	.125 inches (3.2 mm) water
Pilot Bleed Rate	.08 SCFM (.15 m3/hr)
Supply Pressure Variation	Less than .005 PSI (.03 kPa)@25 PSI variance
Maximum Supply Pressure	150 PSIG (1050 kPa)
Temperature Range	0 to + 150 F (-18 to +65 C)
Weight	1.4 lbs (.64 kg)
Materials	Body: Die Cast Zinc Diaphragms: Buna - N Knob: Phenolic Plastic

How To Order



NEED MORE PARTS AND INFORMATION?

- See page 22 for information on ordering replacement parts.

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

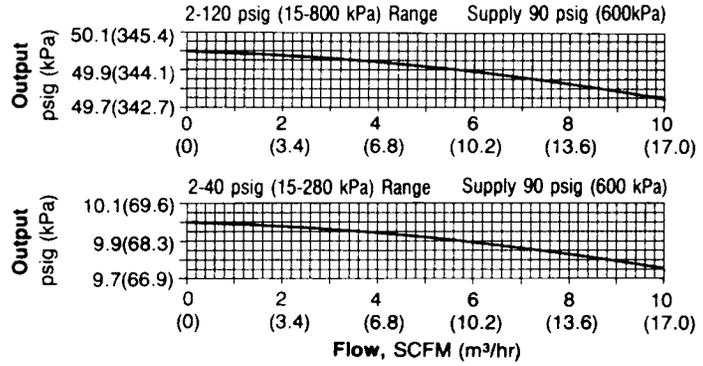


Precision Instrumentation

Flow Ratings (based on 100 PSIG inlet)

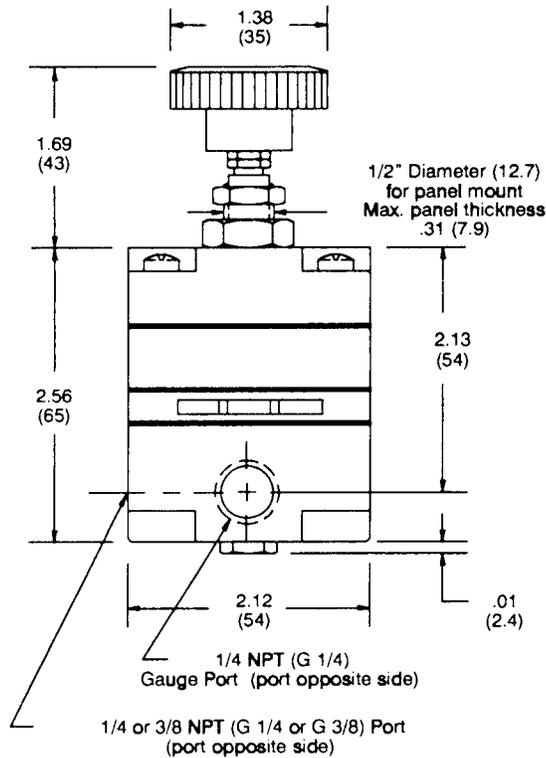


R820-02F pictured

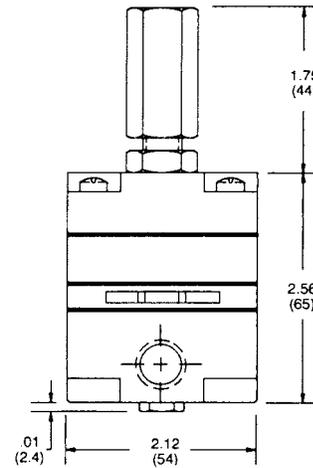


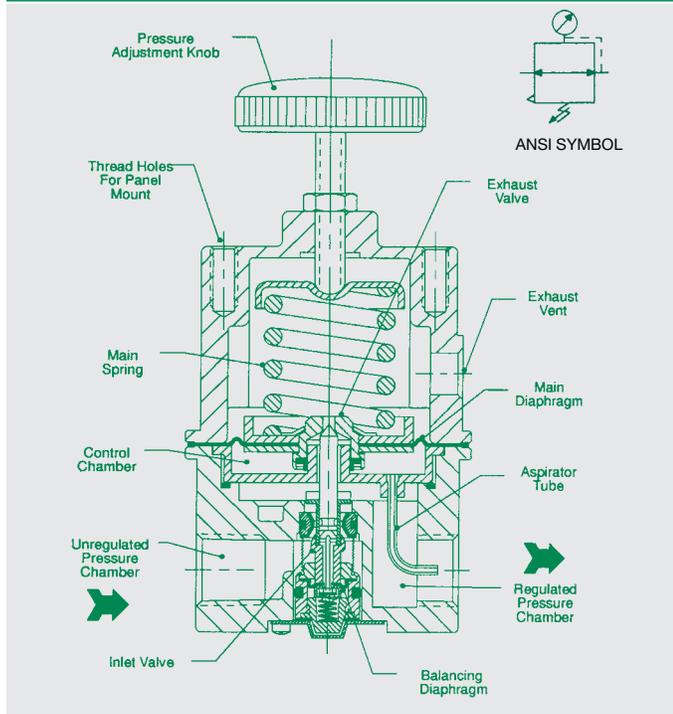
Dimensions

top dimensions = inches
bottom dimensions (in parenthesis) = millimeters



Tamperproof Model





R880 Pictured Above (NOT R881)

High Flow Precision Regulator R88 Series

Application

The 880 Series pressure control regulator is designed for high flow and accurate pressure control utilizing a rolling diaphragm to insure a constant output pressure. The 88 model maintains stability even with wide supply pressure variations.

The 881 Series back pressure regulator is a high flow, highly accurate pneumatic relief valve with an adjustable set point. Its primary function is to provide protection against over pressurization in the downstream portion of a pneumatic system. This precision unit is capable of handling flows up to 50 SCFM. A rolling diaphragm provides the sensitivity that causes the unit to vent to atmosphere in response to the slightest upstream changes.

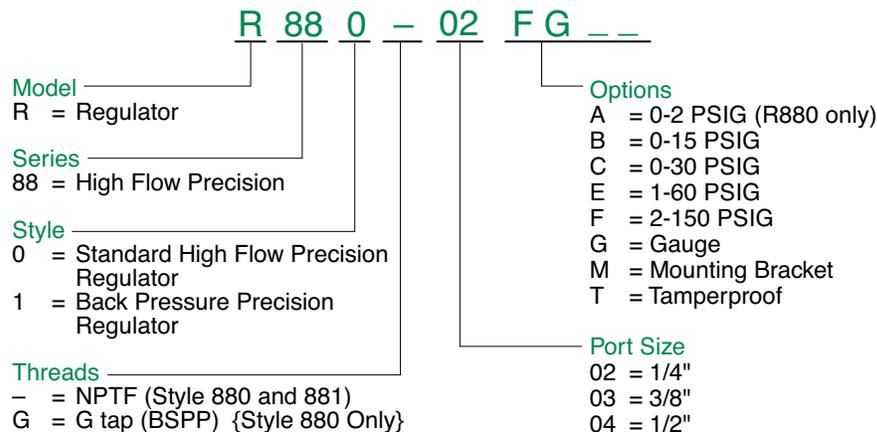
Recommended Uses

- Test Equipment
- Roll Loading
- Web Tensioning
- Actuators
- Gas Mixing
- Test Panels
- Clutch and Brake Controls

Specifications

High Flow Precision Regulator R88 Series	
Flow Capacity	see flow characteristics (next page)
Exhaust Capacity	4 SCFM (6.7 m3/hr)
Sensitivity	.25 inches (6.33 mm) of water
Total Air Consumption	1.0 to 12.5 SCFH (.03 to .37 m3/hr), depending on output pressure
Supply Pressure Variation	.1 PSI (.7 kPa) @ 100 PSI (700 kPa) change
Maximum Supply Pressure	250 PSIG (1750 kPa)
Temperature Range	-40 to +160 F (-40 to 71 C)
Weight	1.6 lbs (.74 kg)
Materials	Body: Die Cast Zinc Diaphragms: Buna - N Volume Capsule: Stainless Steel Knob: Phanollic Plastic

How To Order



Note: R881 Series available in NPT only

NEED MORE PARTS AND INFORMATION?

• See page 22 for information on ordering replacement parts.



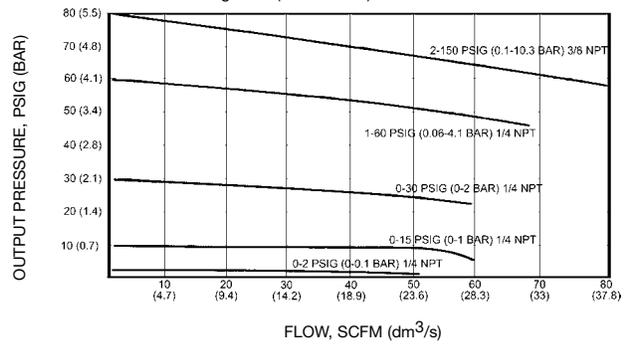
Precision Instrumentation

Flow Ratings (based on 100 PSIG inlet)

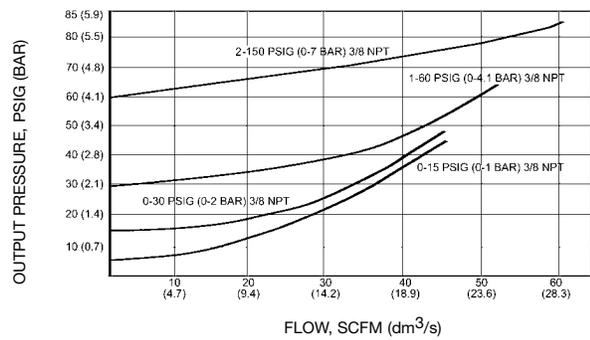


R880-02F pictured

Standard Precision Regulator (R880 Series)



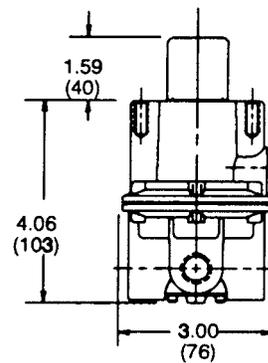
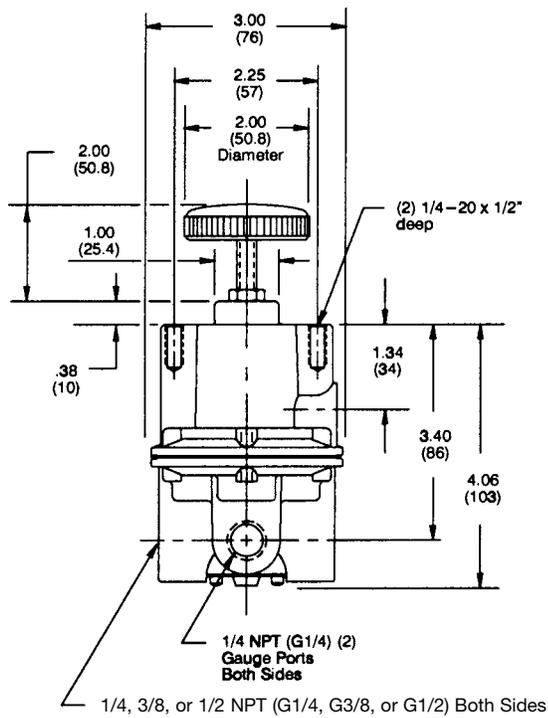
Back Pressure Precision Regulator (R881 Series)

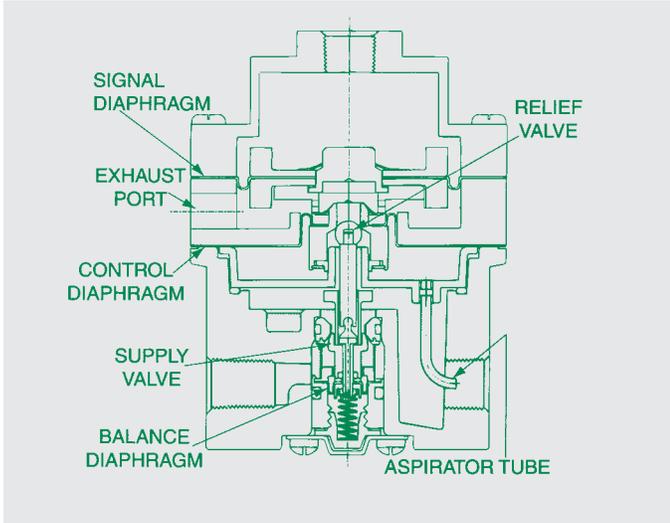


Dimensions

top dimensions = inches

bottom dimensions (in parenthesis) = millimeters





Ratio Relay Volume Booster

Applications

The 87 Series Volume Boosters are used extensively for increased flow capacity, pressure amplification, or remote pressure control applications. This includes web tensioning, roll loading, control valve actuators, I/P volume boosting, cylinder actuation, clutch and brake control, and gas flow control.

Features

- High flow capacity - allows flows up to 50 SCFM
- Amplified output - available in a signal to output pressure ratio of 1:6
- High exhaust capacity - large relief provides 15 SCFM flow capacity
- Stable output - Venturi aspirator maintains output pressure under varying flow conditions
- Balanced supply valve - rolling diaphragm design makes unit immune to supply pressure variation
- Negative bias - 4 PSI negative bias option allows “zero” of I/Ps

Specifications

	1:1 Ratio	1:6 Ratio
Flow capacity, SCFM (m3/hr) 100 PSIG (700 kPa) supply, 20 PSIG (140 kPa) output	50 (76.5)	50 (76.5)
Exhaust capacity, SCFM (m3/hr) Downstream 5 PSIG (35 kPa) above set pressure	15 (25.5)	7.5 (12.8)
Sensitivity, inches water (cm)	.25 (.64)	1.5 (3.8)
Ratio accuracy (%) of output span with 3-15 PSIG (20-105 kPa) signal	1.0	2.0
Zero error (%) - % of output span with 3-15 PSIG (21-105 kPa) signal	2.0	3.0
Effect of supply pressure change of 50 PSIG (350 kPa)	.1 PSI	.6 PSI
Maximum supply pressure, PSIG (kPa)	250 (1750)	250 (1750)
Maximum signal pressure, PSIG (kPa)	150 (1034)	25 (172)
Maximum Air Consumption	.03 SCFM (.07 m3/hr) typical	.05 SCFM (.14 m3/hr) typical
Ambient temperature limits, °F (°C)	-40 to 200 (-40 to 93)	-40 to 200 (-40 to 93)
Weight, lbs (gm)	1.4 (635)	1.4 (635)

Optional Fixed Negative Bias

The 87 Series Volume Booster is available with an optional 4±1 PSIG (30±7 kPa) less than the signal pressure (Z option). This option allows zero output when utilizing I/P transducers that typically only are capable of providing pressures down to 3 PSI. Note that the negative bias has a tolerance of ±1 PSI. This means that actual bias will range from -3 PSI to -5 PSI. Use the zero adjustment of the I/P to reach desired setting.

Mounting Bracket

The mounting bracket for the R87 Series Ratio Relay Volume Booster, part number PK88, is included.

How To Order

R 87 1 - 02 G _ _ _

Model
R = Regulator

Series
87 = Volume Booster

Style
1 = 1:1 Ratio
6 = 1:6 Ratio

Threads
- = NPTF
G = G tap (BSPP)

Options
B = Mounting Bracket
G = Gauge
Z = Negative Bias

Port Size
02 = 1/4
03 = 3/8
04 = 1/2

NEED MORE PARTS AND INFORMATION?

- See page 22 for information on ordering replacement parts.

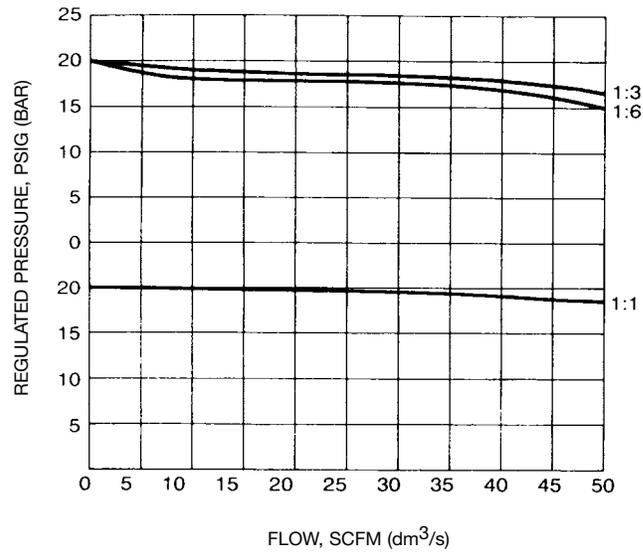


Precision Instrumentation

Flow Ratings



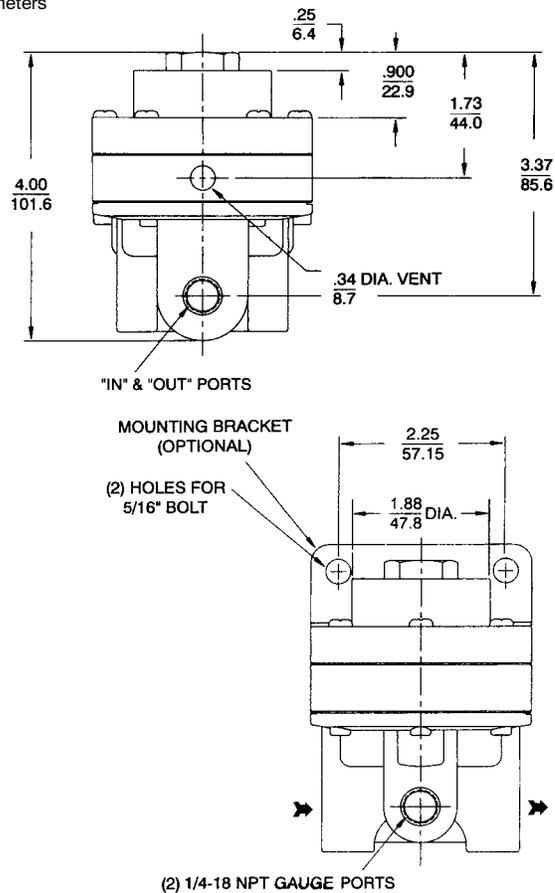
R871-02 pictured

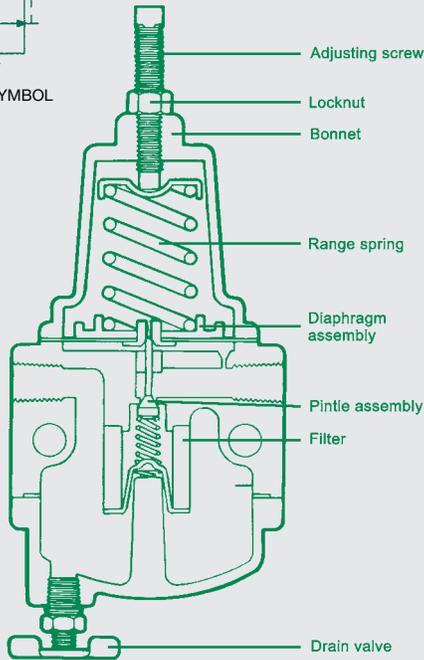


Dimensions

top dimensions = inches

bottom dimensions (in parenthesis) = millimeters





Instrument Air Regulator R89 Series

Application

The Instrument Air Regulator is designed to provide clean, accurate air pressure to instruments, valves, and other automatic control equipment. It is used extensively to supply air to pneumatic controllers, transmitters, transducers, valve positioners, air cylinders, and a wide range of pneumatic control systems.

Features

- Stable output and repeatability
- Corrosion-resistant construction
- 5 micron depth filter
- Self-relieving
- Low droop at high flow levels
- Tight shut off

Materials of Construction

Body: die cast aluminum alloy, irridite, baked epoxy finish
 Filter: 5 micron phenolic impregnated cellulose
 Diaphragms: nitrile elastomer and nylon fabric
 Valve Seat Plug: nitrile elastomer
 Additional Materials: brass, zinc, plated steel, acetal

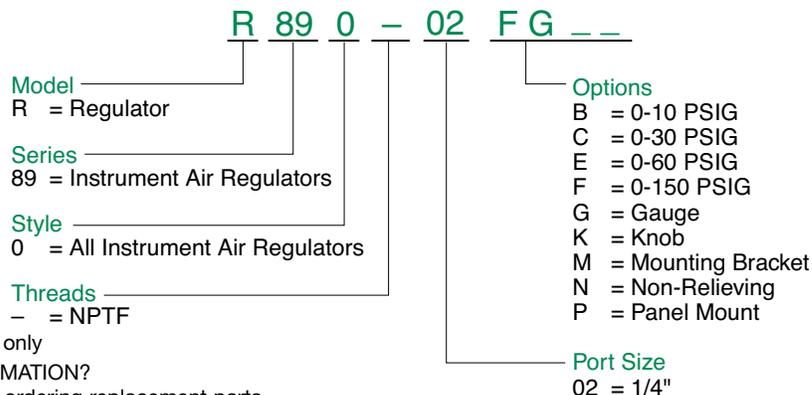
Mounting Bracket

The mounting bracket for the R89 Series Instrument Air Regulator, part number PK89, is available and sold separately.

Specifications

Instrument Air Regulator R89 Series	
Port Size	1/4 NPT
Standard Output Pressure	0 - 120 PSIG (0 - 800 kPa)
Maximum Supply Pressure	250 PSIG (1700 kPa)
Mounting	pipe or integral mounting
Flow Capacity	see flow characteristics (next page)
Exhaust Capacity	.1 SCFM (.17 m3/hr) @ 5 PSIG (35 kPa) above set point
Sensitivity	1" (2.5 cm) of water
Air Consumption	less than 5 SCFH (.17 m3/hr)
Effect of Supply Pressure Variation:	less than .2 PSIG (1.4 kPa) @ 25 PSI (170 kPa) change
Weight	1.6 lbs (.74 kg)

How To Order



Note: R89 Series available in NPT only
 NEED MORE PARTS AND INFORMATION?
 • See page 22 for information on ordering replacement parts.

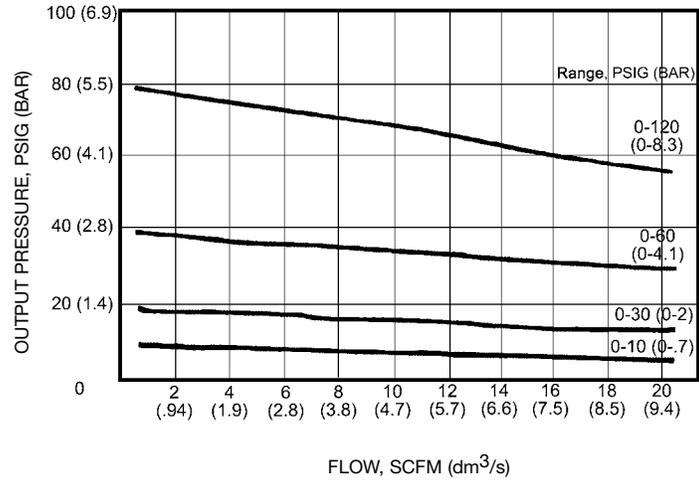


Precision Instrumentation

Flow Ratings (based on 100 PSIG inlet)



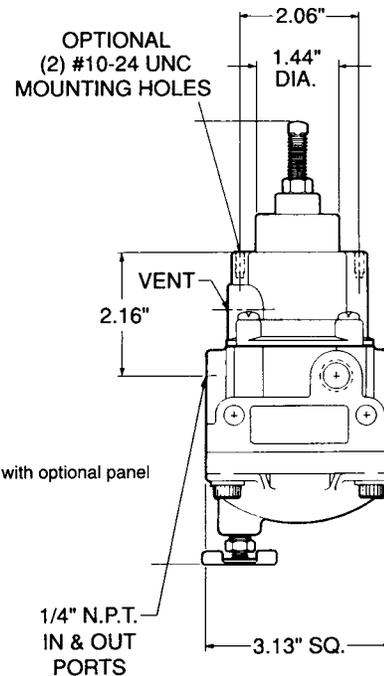
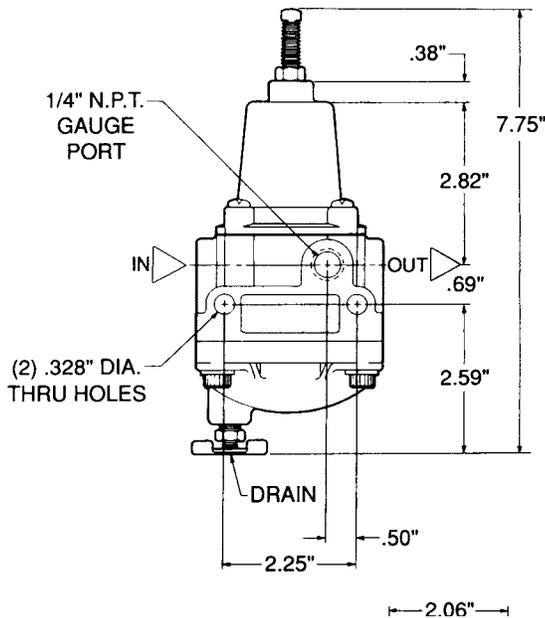
R890-02F pictured



Dimensions

top dimensions = inches

bottom dimensions (in parenthesis) = millimeters



Note:
This view shown with optional panel mount capability.



Replacement Kits

Precision Regulators

> Precision Regulator Repair Kits

kit #	description
RKR800D	for 2-40 pressure range models
RKR800E	for 2-60 pressure range models
RKR800F	for 2-120 pressure range models
RKR820F	for 2-120 pressure range models

> Replacement Adjustment Knob Kits

kit #	description
RP8002	for R800 and R820 models

Electropneumatic Transducers

> Electropneumatic Transducer Repair Kits

kit #	description
RKR831BC	for 3-15 and 3-27 pressure range models
RKR831EF	for 2-60 and 3-120 pressure range models

High Flow Precision Regulators

> High Flow Precision Regulator Repair Kits

kit #	description
RKR880A	for 0-2 pressure range models
RKR880B	for 0-15 pressure range models
RKR880C	for 0-30 pressure range models
RKR880E	for 1-60 pressure range models
RKR880F	for 2-150 pressure range models
RKR881	for back pressure regulator

> Replacement Adjustment Knob Kits

kit #	description
RP81	for R880 models

Mounting Brackets

> High Flow Precision Regulator

kit #	description
PK80	80 & 82 Series Bracket
PK88	87 & 82 Series Bracket
PK89	89 Series Bracket

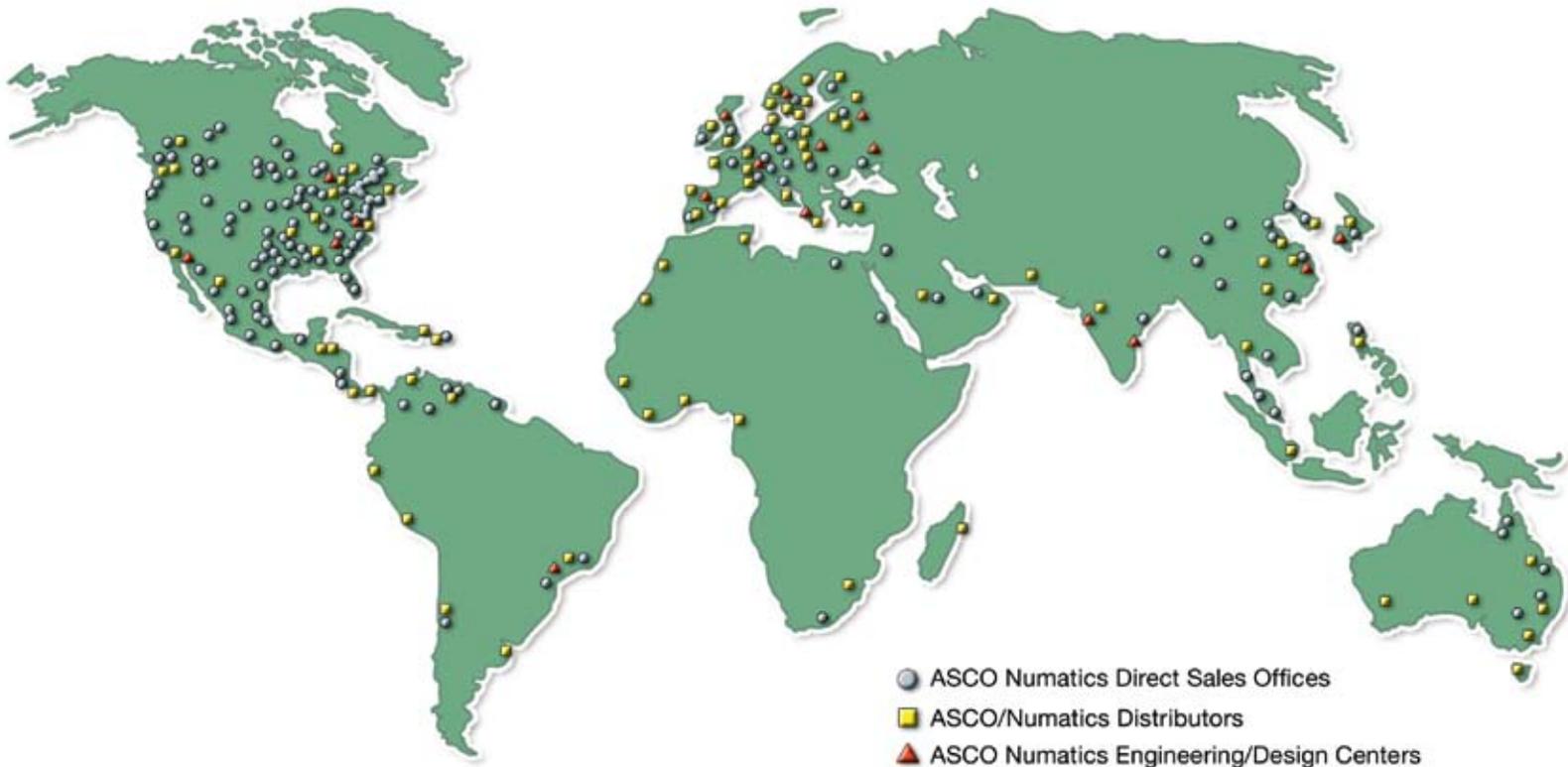
Instrument Air Regulators

> Instrument Air Regulator Repair Kits

kit #	description
RKR89	for all models

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