



Precision Control Devices



- | Electro-Pneumatic Servo Pressure Controllers |
- | Electro-Pneumatic I/P, E/P, & P/I Transducers |
- | Diaphragm Regulators & Relays |
- | Diaphragm Cylinders |
- | Filter - Regulator - Lubricators |
- | Gauge Protectors |



ISO 9001:2000
& AS9100:B

Electro-Pneumatic Transducers

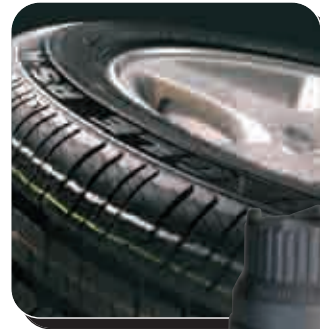
TYPE 1000 I/P & E/P

- Built-in booster provides flow capacity up to 12 SCFM
- Small size, lightweight
- Field reversible
- Explosion-proof, NEMA 4X and Intrinsically Safe models available
- Low Air Consumption
- Mounts at any angle
- Convenient external span and zero adjustments
- Wide supply pressure range
- Low supply pressure sensitivity
- CE approval



TYPE 1001 I/P & E/P

- 0.1% accuracy typical
- Zero-based output models available
- NEMA 3R & NEMA 4X explosion-proof models available
- Intrinsically safe (FM / CSA)
- Built in volume booster provides flows up to 12 SCFM
- Mounts at any angle (except Nema 3R)
- Low air consumption
- Removable orifice (restrictor) for easy maintenance
- Bottom port units available
- Vibration Insensitive
- CE approval

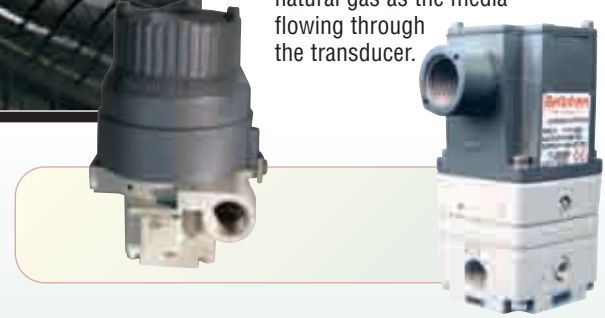


TYPE 2000 I/P & E/P

- High precision, 0.1% accuracy typical
- Vibration and position insensitive
- Reliable, simple piezo ceramic beam actuator
- DIP switches permit field selection of inputs and direct/reverse/split ranging
- Very wide selection of input and output ranges
- Precise, reliable performance under extreme conditions of temperature, vibration, orientation, supply pressure changes, supply voltage changes, RFI/EMI, humid / oil-laden media, and corrosive surroundings
- Explosion Proof, NEMA 4X and Intrinsically Safe models available
- Meets the requirements for CSA, Class 1, Division 1 Group D gas use, including natural gas as the media flowing through the transducer.

TYPE 1500 I/P & E/P

- 3, 5, & 10 unit Manifolds available
- Manifold mounting with ports on front & back of unit
- Low air consumption
- Field reversible
- Small footprint, compact
- CE Approval (conduit version only)
- FM, CSA, ATEX intrinsically safe (option)
- Durable weatherproof NEMA 4X housing (option)
- Built in Volume Booster provides 7 SCFM @ 15 psi / 1.0 BAR
- Wide selection of input and output ranges to 0-120 psi / 8.3 BAR
- Conduit fittings, terminal block, DIN connectors



TYPE 5000 P/I

- The T-5000 series is a compact, rugged and reliable family of two-wire pressure transmitters designed for industrial field service. These instruments convert a pressure signal input into a precise 4-20 or 10-50mA output
- The lightweight transmitter housing includes a 1/4" NPT pressure port and a 1/2" NPT conduit port for field wiring
- 0.1% accuracy typical
- Piezo resistive pressure sensor resists vibration
- NEMA 4X, Explosion Proof housing
- Easily accessible zero and span adjustments



Type 3000

- The industry's widest selection of electro-pneumatic servo pressure controllers. Modular design allows user-selection of enclosure, analog or digital control, and flow capacity.
- Feed-and-bleed design utilizes two solenoid valves and an internal pressure sensor to achieve better than +/- 0.5% accuracy. Higher accuracies achievable with two-loop units.
- Regulate pressures from 29" Hg vacuum to 1000 psig with 1.2 scfm flow capacity and negligible air consumption. Integral flow boosters available up to 200 scfm (150 psig maximum). External boosters available up to 2000 scfm (150 psig maximum).
- Industry-standard control signal inputs and pressure monitor outputs are user-selectable. 0-10 V, 4-20 mA, and others.
- Resistant to vibration, shock, and orientation. CE-marked for RFI/EMI protection.
- Corrosion-resistant NEMA 4X design (except T3100 & T3400).
- Two-loop versions available for regulation of user's Process Variable — flow, temperature, pressure, speed, position, tension, etc. User must provide Process Variable transducer.
- CMOS, TTL, and Open-Collector Logic Outputs to indicate 'setpoint reached' status



Type 3200

- Integral 14 and 50 scfm boosters are available (outputs between 0 and 150 psig)
- Traditional analog electronics

Type 3215

- Integral 200+ scfm booster (outputs between 0 and 150 psig)

TYPE 3311

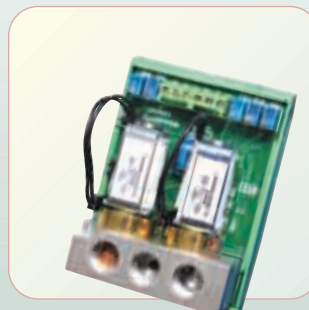
- Economical weatherproof regulator
- The T3311 controls pressure in proportion to a 0-10V or 4-20mA control signal.
- The T3311 includes an integral 15 scfm booster, 3-digit display and internal keypad.

T3500 Digital

- Advanced microprocessor control
- Digital signal processing and PID tuning for increased accuracy and stability
- Optional control methods: RS-485, RS-232, or USB (with converter accessory), keypad/display, DeviceNet
- Integral 14 and 50 scfm boosters are available (outputs between 0 and 150 psig)

TYPE 3411

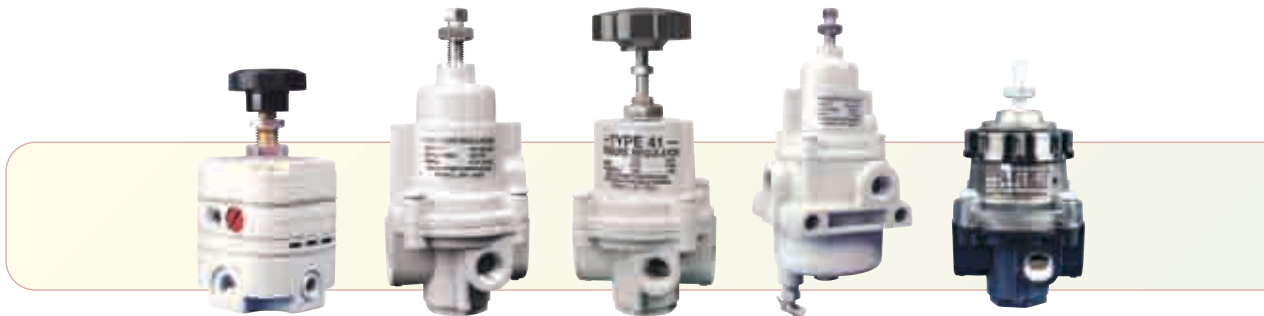
- Circuit card regulator with quiet valves
- The T3411 is a compact circuit-card regulator designed for use with spring-return air cylinders.
- It utilizes a patent-pending learning mode to achieve "Quiet" valve operation.



Circuit Card Regulators

- Analog (T3100) or digital RS-485 interface (T3400)
- RS-232/USB with converters
- DeviceNet communications
- Mounts on panel, DIN rail, or manifold

Precision & General Purpose Regulators



	Type 10 10 LR / HR / EXHR	Type 40	Type 41	Type 50 also available in NACE version	Type 51R
Output Pressure Ranges	0.5-25, 2-25, 2-60, 2-120 psig 0.03-1.7, 0.14-1.7, 0.14-4.1, 0.14-8.3 BAR	0-10, 0-30, 0-60, 0-120 psig 0-0.7, 0-2.1, 0-4.1, 0-8.3 BAR	0-2, 0-10, 0-30, 0-60, 0-100 psig 0-0.14, 0-0.69, 0-2.1, 0-4.1, 0-6.9 BAR	0-10, 0-30, 0-60, 0-120 psig 0-0.69, 0-2.1, 0-4.1, 0-8.3 BAR	0-30, 0-60, 0-120 psig 0-2.1, 0-4.1, 0-8.3 BAR T-51 also available in Stainless Steel and Corrosive Tec
Sensitivity	1/8" Water 3.2 mm	1" Water 25.4 mm	1" Water 25.4 mm	1" Water 25.4 mm	1" Water 25.4 mm
Flow Capacity	4 to 14 SCFM 113-397 LPM	20 SCFM 566 LPM	25 SCFM 708 LPM	20 SCFM 566 LPM	20 SCFM 566 LPM
Effect of Supply Pressure on Output (for $\Delta P_s = 25$ psig)	<0.005 psig <0.0004 BAR	<0.2 psig <0.01 BAR	<0.35 psig <0.02 BAR	<0.2 psig <0.01 BAR	0.45 psig max 0.03 BAR max
Exhaust Capacity (for P_o raised 5 psig above set pt.)	2/10/15 SCFM 57/283/424 LPM	0.1 to 0.45 SCFM 2.8-12.7 LPM	0.1 to 0.4 SCFM 2.8-11.3 LPM	0.1 to 0.45 SCFM 2.8-12.7 LPM	0.1 to 0.45 SCFM 2.8-12.7 LPM
Max Supply Pressure	50 or 150 psig 3.5 or 10.3 BAR	250 psig 17.2 BAR	250 psig 17.2 BAR	250 psig 17.2 BAR	250 psig 17.2 BAR
Port Sizes	1/8", 1/4", 3/8"	1/4"	1/4"	1/4"	1/4"
Preset Pressure	No	No	No	No	No
Tamper Proof	Optional	Optional	No	Optional	No
Filter/Dripwell	No	No	No	Yes	No
Mounting Options	Pipe or Panel	Pipe, Panel or Bracket	Pipe, Panel or Bracket	Pipe, Panel, Bracket, or Thru Body Holes	Pipe, Panel or Bracket

Specialist in Monitoring, Measuring and Regulating Products



	Type 51FR	Type 60	Type 65	Type 70 70BP	Type 77 Vacuum	M3	Type 78
	0-30, 0-60, 0-120 psig 0-2.1, 0-4.1, 0-8.3 BAR T-51 also available in Stainless Steel and Corrosive Tec	0-20, 20-40, 40-60 psig 0-1.4, 1.4-2.8, 2.8-4.1 BAR	0-20, 20-40, 40-60 psig 0-1.4, 1.4-2.8, 2.8-4.1 BAR	0-2, 0-10, 0-30, 1-60, 2-150, 3-200 psig 0-0.14, 0-0.7, 0-2.1, 0.1-4.1, 0.2-13.8, 0.14-10.3 BAR	Vacuum to: 0-2, 0-10, 0-30, 0-60, 0-150 psig 0-0.14, 0-0.7, 0-2.1, 0-4.1, 0-10.3 BAR	0-30, 0-60, 0-120 psig 0-2.1, 0-4.1, 0-8.3 BAR M3 also available in a Filter Regulator Version	0-2, 0-10, 0-30, 0-60, 0-125 psig 0-0.14, 0-0.69, 0-2.1, 0-4.1, 0-8.6 BAR
	1" Water 25.4 mm	1" Water 25.4 mm	1" Water 25.4 mm	1/4" Water 6.4 mm	1/2" Water 12.7 mm	N/A	<1" Water <25.4 mm
	20 SCFM 566 LPM	20 SCFM 566 LPM	20 SCFM 566 LPM	40, 50, 80 SCFM 1133, 1416, 2266 LPM	2.5 SCFM (70.8 LPM) @ 29" Hg, 40 SCFM (1133 LPM) @100 psig (6.9 BAR)	275 SCFM 7700 LPM	>200 SCFM >5664 LPM
	0.45 psig max 0.03 BAR max	<0.2 psig <0.01 BAR	<0.2 psig <0.01 BAR	<0.025 psig <0.002 BAR	<0.1 psig <0.0007 BAR	<0.2 psig <13.8 mBAR	<0.1 psig <0.007 BAR
	0.1 to 0.45 SCFM 2.8-12.7 LPM	0.1 SCFM 2.8 LPM	0.1 to 0.4 SCFM 2.8-11.3 LPM	4 SCFM 113 LPM	4 SCFM 113 LPM	0.25 SCFM 7 LPM	14 SCFM 397 LPM
	250 psig 17.2 BAR	250 psig 17.2 BAR	250 psig 17.2 BAR	250 psig 17.2 BAR	250 psig 17.2 BAR	145 psig 10.0 BAR	400 psig 27.6 BAR
	1/4"	1/4"	1/4"	1/4", 3/8", 1/2"	1/4", 3/8"	3/4", 1"	3/8", 1/2", 3/4", 1"
	No	Standard	Standard	No	No	No	No
	No	Standard	Standard	Optional	No	No	Optional
	Yes	Yes	No	No	No	No	No
	Pipe, Panel or Bracket	Pipe, Bracket, or Thru Body Holes	Pipe or Bracket	Pipe, Panel, or Bracket	Pipe, Panel, or Bracket	Pipe, Panel, or Bracket	Pipe, Panel, or Bracket

Miniature Air Regulators & Air Volume Boosters



TYPE M1 Regulators

- 1/8" & 1/4" NPT Port Sizes
- 0-10, 0-30, 0-60, 0-120 psi / 0.7, 2.1, 4.1, 8.3 BAR output pressure
- 145 psi / 10.0 BAR max supply pressure
- Flows to 60 SCFM
- Featuring Bellofram Rolling Diaphragms

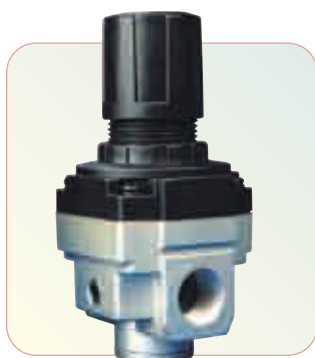
TYPE M2 Regulators

- 1/4", 3/8" & 1/2" NPT Port Sizes
- 0-10, 0-30, 0-60, 0-120 psi / 0.7, 2.1, 4.1, 8.3 BAR output pressure
- 145 psi / 10.0 BAR max supply pressure
- Flows to 120 SCFM
- Featuring Bellofram Rolling Diaphragms



TYPE 91

- Designed for applications with limited space and for low flow or dead end service
- Small package: 3.3" high (max), 7/8" diameter, 2.2 ounces
- Corrosion-resistant anodized aluminum exterior



TYPE 20 Air Relay

- Extremely accurate 1:1 relay utilizes a two-stage pilot system which is activated by a highly sensitive pressure measuring capsule
- Adjusting screw creates positive or negative bias of ± 30 psig / 2.1 BAR
- Accepts supply pressure of 150 psig / 10.3 BAR Maximum
- Flow Capacity of 14 SCFM
- Signal pressures from 3 to 120 psig / 0.2 to 8.3 BAR
- Compact - only 2-7/8" (73 mm) high



TYPE 75 & 75HR

- General purpose and high exhaust relays suitable where increased flow capacity, pressure amplification, or remote pressure control is required
- Choice of 1:1, 1:2, 1:4 or 1:6 signal-to-output ratios
- High exhaust capacity to 15 SCFM (T75 HR)
- Available with internal 4 psig / 0.3 BAR negative bias spring.



TYPE 72 Positive Bias Relay

- Generates a stable output pressure which is the sum of an input signal pressure and an adjustable positive bias spring
- Exceptionally high flow capacity up to 50 SCFM
- Four adjustable bias ranges, from 0-10 psi / 0.7 BAR to 2-150 psi / 0.1 to 10.3 BAR
- Dampening action of aspirator tube maintains stable output pressure
- Quick response to changes in downstream pressure
- 1:1 signal-to-output ratio standard: 1:2, 1:4 and 1:6 ratios available

TYPE 79 High Flow Relay

- Balanced pintle design for applications where a precise control of air flow is needed
- Low droop, high accuracy and fine adjustment sensitivity
- High flow capacity - up to 275 SCFM
- Field serviceable
- Large port sizes available
- Exhaust capacity 31 SCFM
- Accepts supply pressure of 400 psig / 27.6 BAR maximum
- Available in Valve Control version with integral bypass valve and soft seats



Small Bore Cylinders

Bellofram 0.7"/17.8mm and 1.5"/38.1mm equivalent bore diaphragm cylinders combine the performance of the diaphragm cylinder with small size. Two different stroke options are available in either size with either flush or extended rods on 0.7"/17.8mm cylinders.

Bellofram 0.7"/17.8mm Cylinders have aluminum alloy shells and end caps, and carbon steel rods. 1.5"/38.1mm Cylinders have die-cast aluminum shells and end caps, and chrome-plated carbon steel rods.

All varieties have oil-impregnated bronze bearings, polyester fabric reinforced nitrile diaphragms, and music wire springs. Optional foot mounts are available for the 1.5"/38.1mm cylinders.



Standard Cylinders

Standard Bellofram Air Cylinders are available in eight sizes. Each size is available in both a spring-return and a double-acting variety, with one or two stroke variations.

Super Cylinders

Bellofram Super Cylinders are standard spring-return cylinders equipped with linear ball bearings and hardened steel rods. This refinement allows an absolute minimum of friction for applications where maximum sensitivity is needed.



All Diaphragm Cylinders feature Bellofram Rolling Diaphragms for low friction and increased sensitivity!



FILTERS

- Mini & standard sizes
- 1/8", 1/4", 3/8", & 1/2" NPT Port Sizes
- 5 or 50 micron filtration
- 145 psi/10.0 BAR max pressure
- Manual, Semi-Automatic, or Automatic Drains



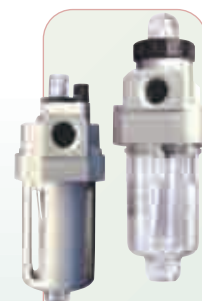
REGULATORS

- Mini & standard sizes
- 1/8", 1/4", 3/8", & 1/2" NPT Port Sizes
- 0-10, 0-30, 0-60, & 0-120 psi
0-0.7, 0-2.1, 0-4.1, & 0-8.3 BAR regulation
- Featuring Bellofram Rolling Diaphragms
- 1/8" NPT Gauge Port
- 145 psi/10.0 BAR max pressure



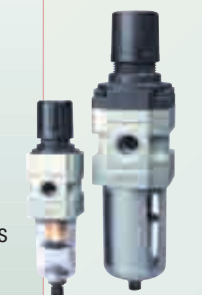
LUBRICATORS

- Mini & standard sizes
- 1/8", 1/4", 3/8", & 1/2" NPT Port Sizes
- 145 psi/10.0 BAR max pressure
- Field adjustable dial provides for variable lubrication requirements between 0-90 drips per minute



FILTER-REGULATORS

- Mini & standard sizes
- 1/8", 1/4", 3/8", & 1/2" NPT Port Sizes
- 0-10, 0-30, 0-60, & 0-120 psi regulation
0-0.9, 0-2.1, 0-4.1, & 0-8.3 BAR regulation
- 5 or 50 micron filtration
- 145 psi / 10.0 BAR max pressure
- Manual, Semi-Automatic, or Automatic Drains
- Featuring Bellofram Rolling Diaphragms



Gauge Protectors



TYPE 12000

- Diaphragm-type chemical seals shield gauges and other sensors from hazardous process media
- Vacuum to 2500 psi / 17.2 BAR
- Choice of steel, 316 stainless steel, or PVC housings; Nitrile, or Fluorocarbon diaphragms
- Available in 1/4" or 1/2" NPT process and instrument connections

TYPE B-8498

- Economy diaphragm seal for lower pressure applications
- Vacuum to 200 psi / 13.8 BAR
- Chrome plated zinc housing, nitrile, fluorocarbon or neoprene diaphragms
- 1/4" NPT process and instrument connections



Custom Designs

| Specialized in meeting OEM design requirements |

| Forward Flows to 2000 SCFM |

| Supply Pressures to 1000 PSI / 70 BAR |

| Vacuum to 1000 PSI / 70 BAR regulated output |

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ISO 9001:2000 & AS9100:B

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