



Electro-Pneumatic Regulator

IT1000/2000/4000

Proportionally Controlled Air Pressure



Linearity $\pm 1\%$ or less
Hysteresis 0.5% or less
Repeatability $\pm 0.5\%$ (At full span)
Six Output Pressure Ranges
Voltage/Current Type Input

A series for each output flow rate

IT1000 • IT2000 • IT4000

About 50 Nℓ/min About 800 Nℓ/min About 5000 Nℓ/min

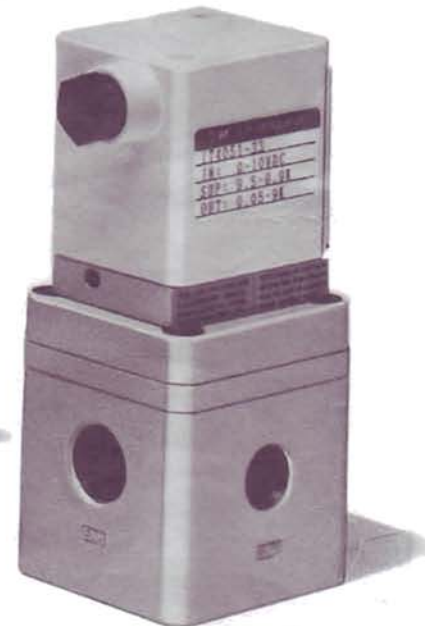
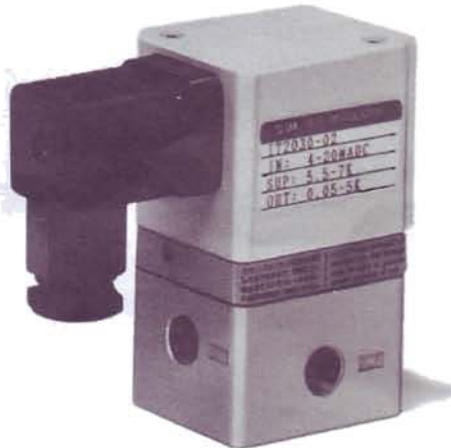
IT 1000 for low flow rates

- The output flow rate is about 50 Nℓ/min.
- Port sizes of M5 and PT1/8 are available.
- A model with the maximum output pressure of 7 PSI{0.51kgf/cm²} is available for the minimum pressure setting of 0.07 PSI {0.005kgf/cm²}.



Subdivided pressure range

- Pressure setting of 7 PSI{0.51kgf/cm²} (IT1000 only), 50 PSI{3.51kgf/cm²}, 100 PSI{7.1kgf/cm²} are available in addition to the existing pressure setting of 15 PSI{1.0kgf/cm²}, 72 PSI{5.1kgf/cm²}, and 130 PSI{9.2kgf/cm²}.
- The subdivided pressure range improves pressure accuracy.
- The change in zero span control range improves the controlling operation.



Electrical Connection

In addition to the existing conduit entry, a DIN connector is available.

Common mounting

The mounting dimensions are the same as those of the old NIT200 and NIT400 models.

Complete function

- | Feature | Update |
|---------------------------------|--------------------|
| • Dash-out prevention (voltage) | Standard equipment |
| • Reverse polarity protection | Standard equipment |
| • Improved 4-wire current type | Common grounding |

Centralized exhaust construction

A dedicated exhaust port (M5) is installed to remove air from the nozzle.

Monitor signal output

Shock and vibration resistant

Linearity ±1% or less
 Hysteresis 0.5% or less
 Repeatability ±0.5%
 (At full span)

Electro-Pneumatic Regulator

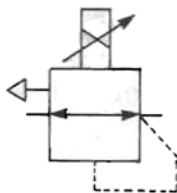
IT1000•2000•4000



Model

Model	Output pressure range PSI(kgf/cm ²)	Supply pressure range PSI(kgf/cm ²)	Port size		
			SUP, OUT port	EXH port	Gauge port
IT100	0.14-7 {0.01-0.5 1}	14-21 {1.0-1.5}	M5, PT,PF, NPT1/8		
IT101	.71-14 {0.05-1.0}	20-28 {1.4-2.0}	M5, PT,PF, NPT1/8		
IT201	.71-14 {0.05-1.0}	20-28 {1.4-2.0}	M5, PT,PF, NPT1/8		
IT202	.71-50 {0.05-3.51}	58-86 {4.1-6.1}	PT, PF, NPT 1/4, 3/8	PT, PF, NPT 1/4	PT, PF, NPT 1/8
IT203	.71-72 {0.05-5.1}	78-100 {5.51-7.1}			
IT204	.71-100 {0.05-7.1}	107-130 {7.51-9.2}			
IT205	.71-130 {0.05-9.2}	135-143 {9.51-10.1}			
IT400	.71-14 {0.05-1.0}	20-28 {1.4-2.0}			
IT402	.71-50 {0.05-3.51}	58-86 {4.1-6.1}	PT, PF, NPT 1/4, 3/8, 1/2	PT, PF, NPT 1/2	PT, PF, NPT 1/8
IT403	.71-72 {0.05-5.1}	78-100 {5.51-7.1}			
IT404	.71-100 {0.05-7.1}	107-130 {7.51-9.2}			
IT405	.71-130 {0.05-9.2}	135-143 {9.51-10.1}			

Symbol



Specifications

Input signal	Current	2-wire type: 4~20mADC, 4-wire type: 0~20mADC
	Voltage	3-wire type: 0-5VDC, 0-10VDC Max. current consumption 2mA or less
Voltage		3-wire type: 12VDC Max. current consumption 11mA or less
Input Impedance	4~20mA	500Ω
Impedance	0~20mA	200Ω
	0-5V, 0-10V	30kΩ
Linearity		±1% or less (Full span)
Hysteresis		0.5% or less (Full span)
Repeatability		±0.5% or less (Full span)
Temperature characteristics		±0.12% or less (Full span)/C°
Operating temp. range		32-122°F (0 ~ 50°C)
Electrical connection		Conduit, DIN connector

Options, Part No.

Pressure gauge	G43-□-01
Bracket	P3020114

(Note) Gauge port Rc(PT)1/8, Pressure gauge, 14{1.0}, 28{2.0}, 72{5.1}, 100{7.1}, 145{10.2}

How to Order

Model	Electrical connection	Bracket
10 1000	0 DIN connector	- Without bracket
20 2000	1 Conduit	B With bracket
40 4000		

Output pressure range	Port thread	Pressure gauge
0 7PSI {0.51kgf/cm ² }	- PT	- Without pressure gauge
1 14PSI {1.0kgf/cm ² }	N NPT	0 Indication of k and psi
2 50PSI {3.51kgf/cm ² }	T NPTF	1 Indication of psi and k
3 72PSI {5.1kgf/cm ² }	F PF	
4 100PSI {7.1kgf/cm ² }		
5 130PSI {9.2kgf/cm ² }		

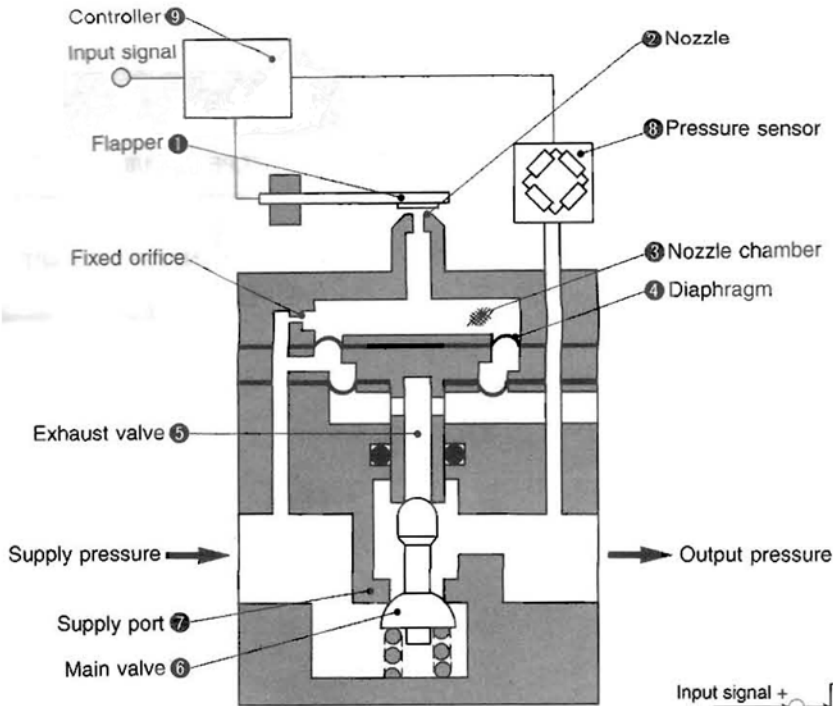
Input signal	Port size
0 Current 4~20mA	0 M5(1000)
1 Current 0~20mA	1 1/8(1000)
2 Voltage 0~5V	2 1/4(2000, 4000)
3 Voltage 0~10V	3 3/8(2000, 4000)
	4 1/2(4000)

(Note) The pressure range of the pressure gauge is as follows unless otherwise specified.

	PSI(kgf/cm ²)					
Pressure range	7 {0.51}	14 {1.0}	50 {3.51}	72 {5.1}	100 {7.1}	130 {9.2}
Pressure gauge	28 {2.0}	28 {2.0}	72 {5.1}	100 {7.1}	145 {10.2}	145 {10.2}

IT1000•2000•4000

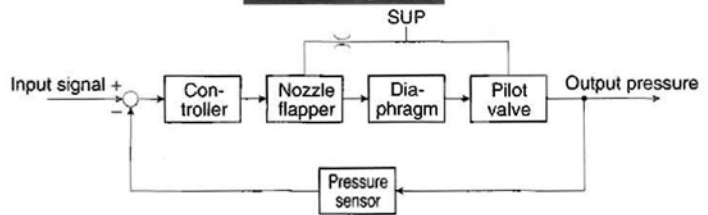
Construction/Operation



Operation

When the input signal increases, the piezo-electric flapper ① will deflect and the nozzle will close ②. This results in an increase in the nozzle chamber pressure ③ which acts upon the upper surface of the diaphragm ④, thus forcing the exhaust valve ⑤ down. The exhaust valve will then close and the main valve ⑥ will be pushed downwards, thus opening the supply port ⑦. Supply pressure will pass through the main valve resulting in an electrical signal by the pressure sensor ⑧ which provides feedback to the controller ⑨. The controller will balance the input signal and output pressure, ensuring that output pressure remains proportional to the input signal.

Block diagram

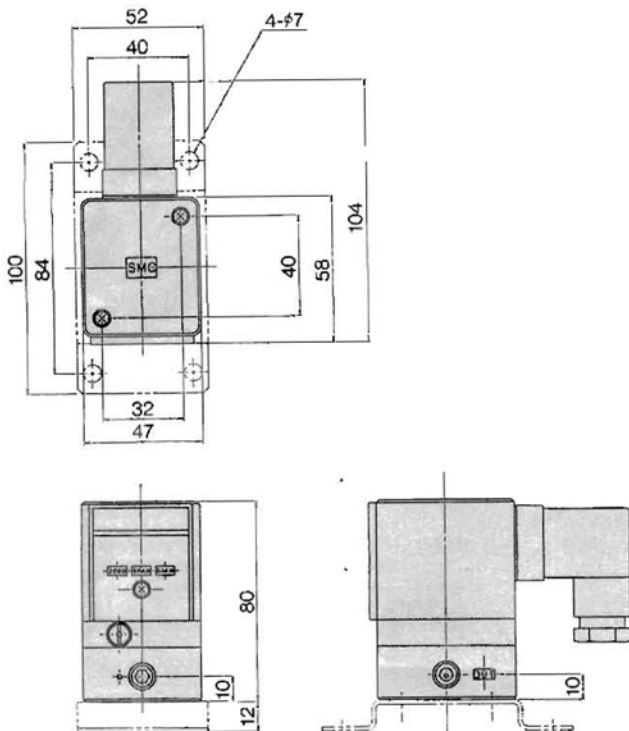


Dimensions

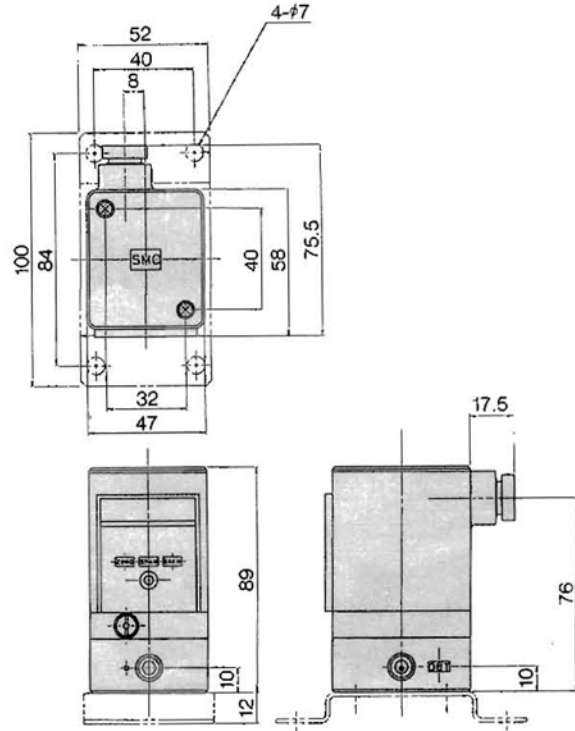
(mm)

IT1000

DIN connector



Conduit

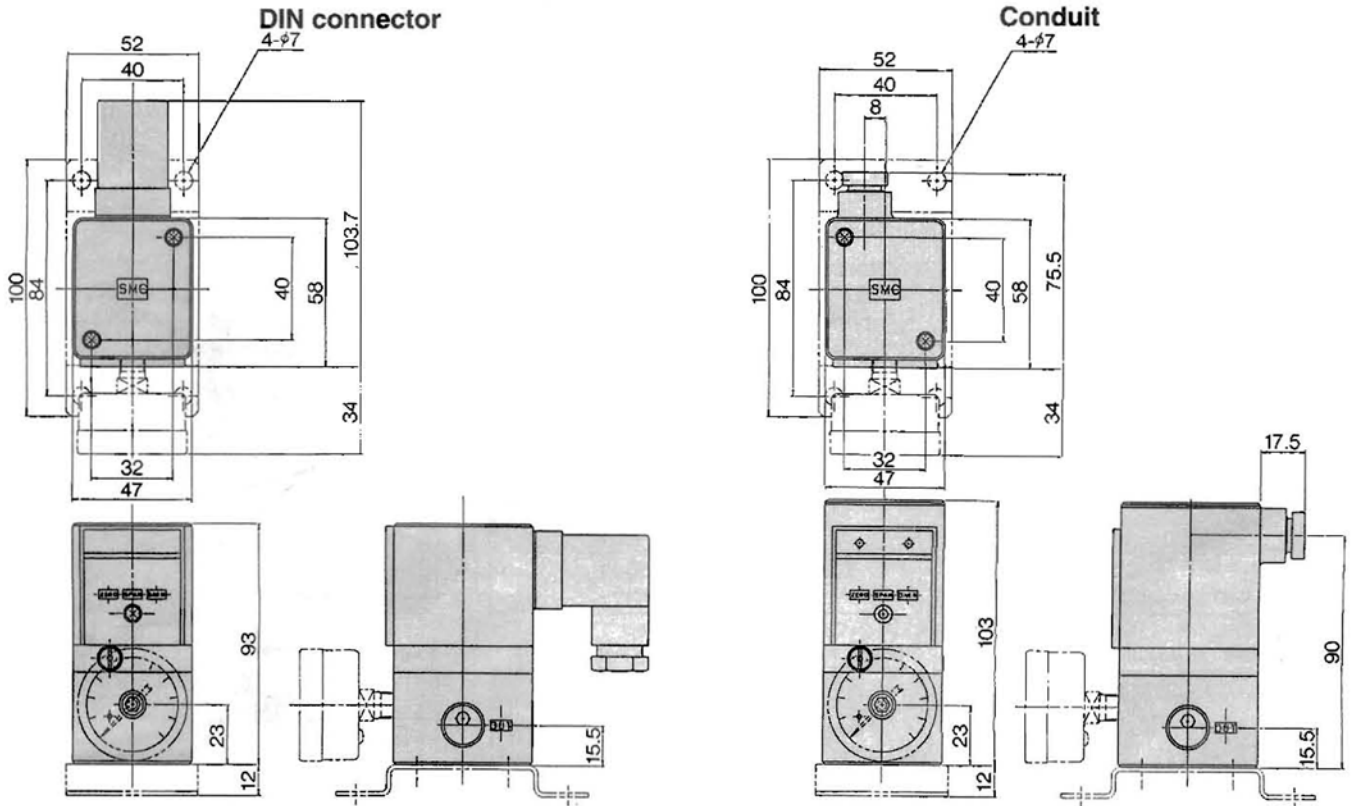


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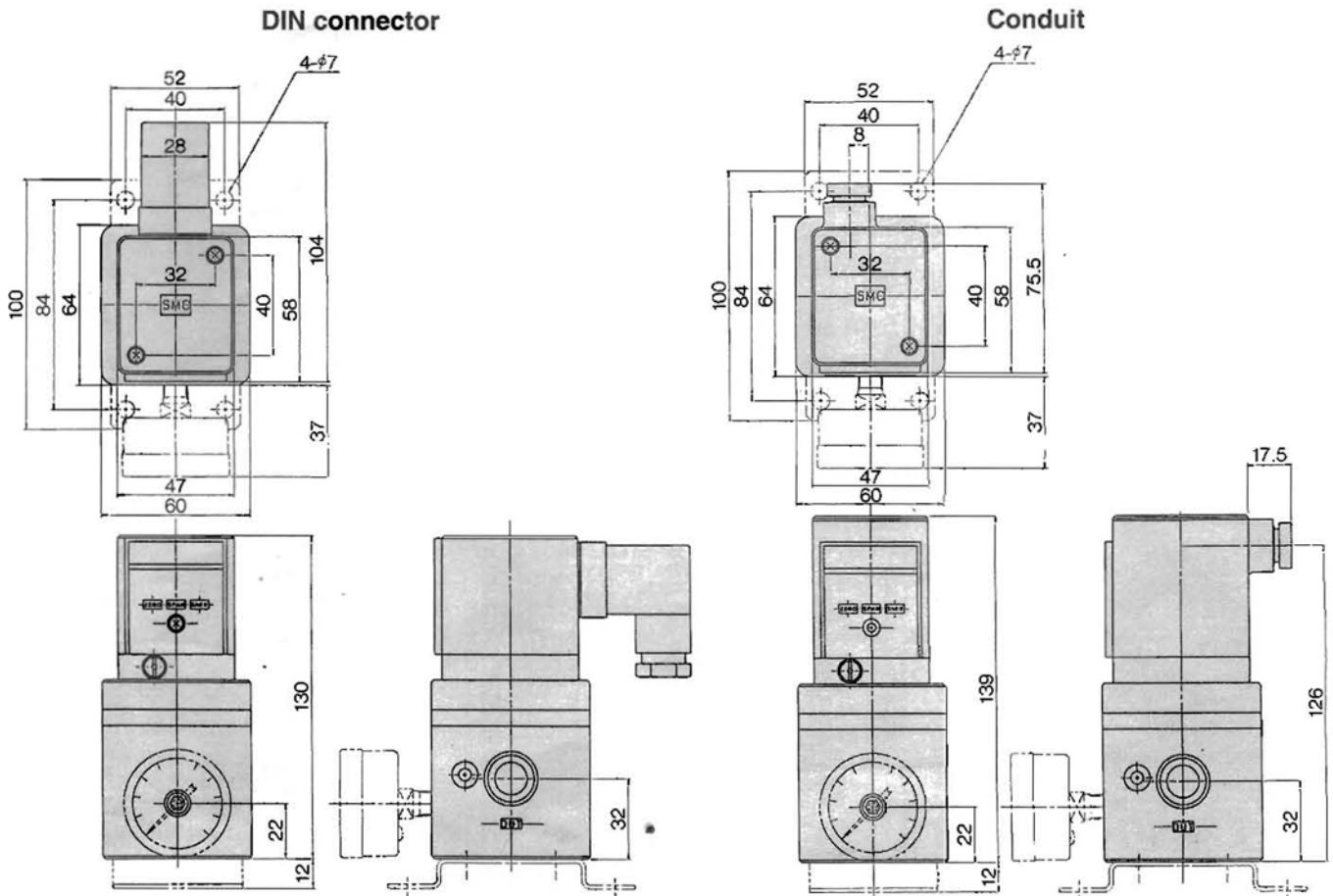
Dimensions

(mm)

IT2000

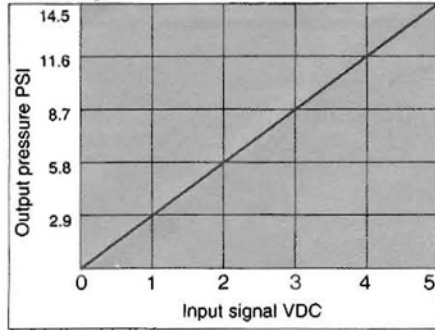


IT4000

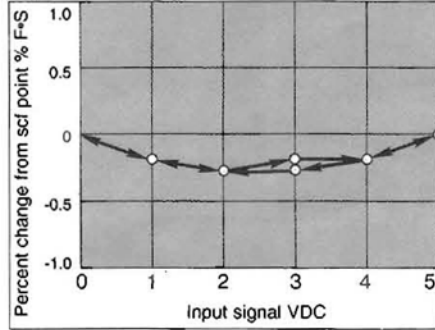


Series IT1000

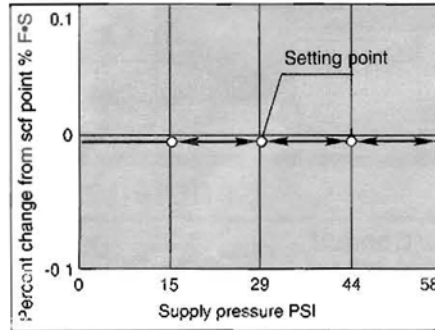
Linearity



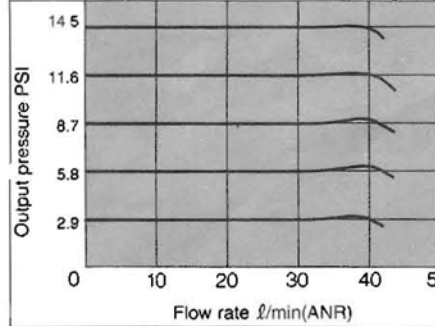
Hysteresis



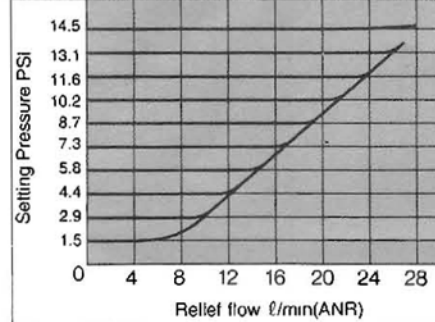
Pressure Characteristics



Flow Characteristics

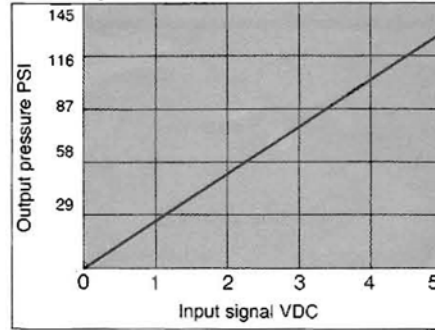


Relief Flow Characteristics

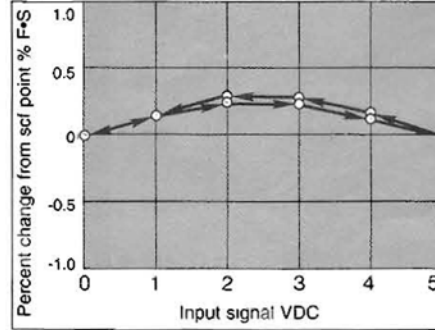


Series IT2000

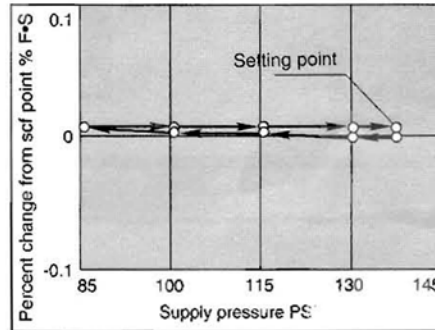
Linearity



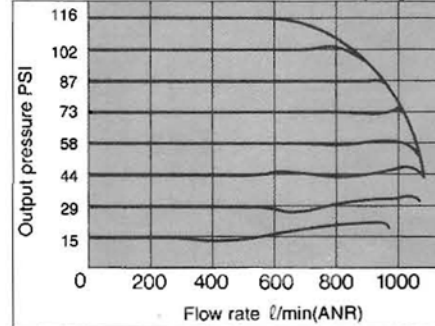
Hysteresis



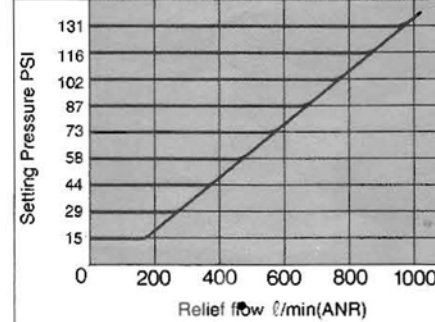
Pressure Characteristics



Flow Characteristics

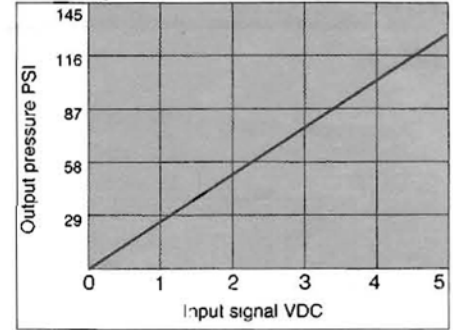


Relief Flow Characteristics

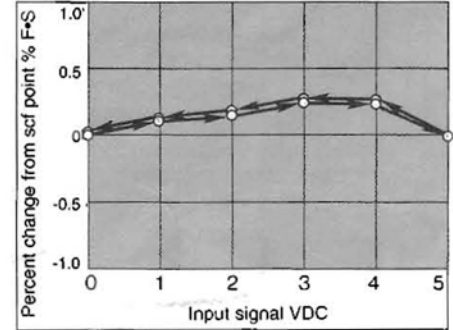


Series IT4000

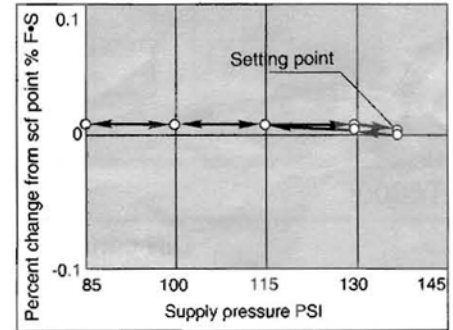
Linearity



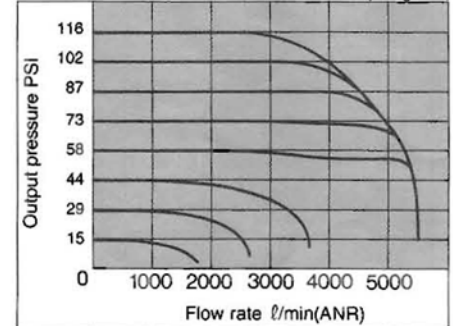
Hysteresis



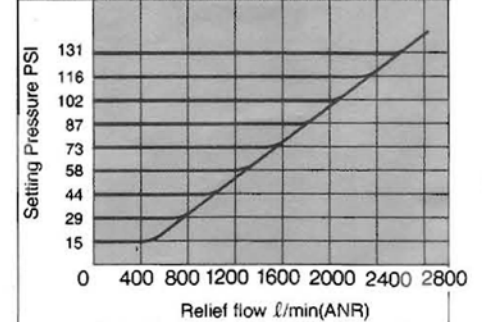
Pressure Characteristics



Flow Characteristics



Relief Flow Characteristics



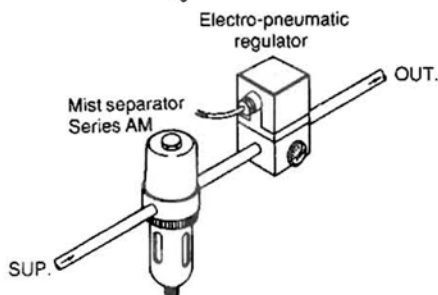
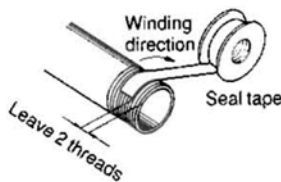
1 Kg/cm² = 14.223 PSI
1 MPa = 145 PSI

Electro-Pneumatic Regulator **IT1000•2000•4000**

Precautions

Piping

- 1 Before piping air, flushing and/or cleaning should be done to completely remove sludge, cutting oil, dust etc. that may exist in the pipe.
- 2 Before piping and screwing in couplings, please make sure that sludge from pipe threading and sealing materials do not go into the pipe. When seal tape is used, tape winding should be done so that 2 threads are left untaped on the end.



※Please be sure to use clean filtered air the supply.

- 3 The Air Filter and Mist Separator should be maintained periodically. (Exhaust drain, clean or change elements etc.)
- 4 Do not fit a lubricator at the units' supply port as this will cause the fixed orifice to become blocked, causing the unit to malfunction. If terminal equipment requires lubrication, a lubricator must be installed in the air line after the E/P regulator.
- 5 If the volume to be charged on the output side of the unit is large, and a relieving function is required through the unit, the noise of exhausting air may be loud. In this case, a silencer (series AM) can be mounted at the EXHAUST port. Refer to the following chart for port sizes.

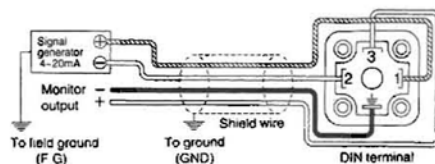
Model	Port size
IT1000	1/8
IT2000	1/4
IT4000	1/2

Caution for wiring

The current type and voltage type E/P regulators require different wiring. Incorrect wiring will damage the electrical circuit.

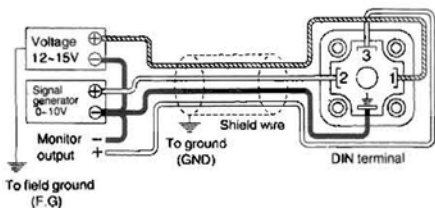
DIN

Current Type 2-wire: 4~20mA



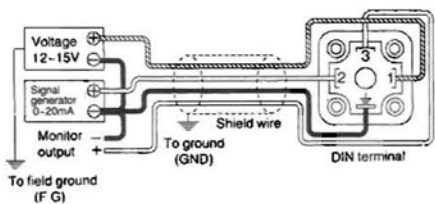
Voltage 3-wire: 0~5V, 0~10V

Input impedance: 30(KΩ)



Current 4-wire: 0~20 mA

Input impedance: 200(Ω) equivalent



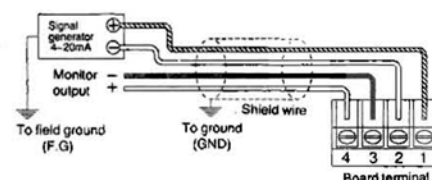
Cables to be used

Use 0.5-1.5 (mm²) 2-core, 3-core, or 4-core shielded cables for power supply, signal input, and monitor output according to the required number of cores. The shielded cable should be connected to the ground either on the signal generator side or on the electro-pneumatic regulator side. It is recommended that the E/P regulator be installed in an environment that is free of electrical interference. If such an environment can not be avoided; install a line filter or noise/surge suppressor in the power and signal lines. The power and signal cables should be kept as short as possible.

Conduit

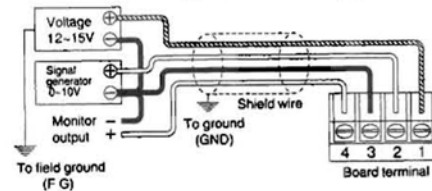
Current Type 2-wire:

Current type 2-wire type: Input signal and power supply of 4~20(mA)



Voltage 3-wire:

Input signal of 0~5, 0~10(V)
Power supply of 12~15(V)



Current 4-wire:

Input signal of 0~20(mA)
Power supply of 12~15(V)

