Compact Electro-pneumatic Regulator

Series ITV0000

Compact and lightweight electro-pneumatic regulator

Compact 15mm

With a simplified high-density circuit board design, an extremely compact size has been achieved.

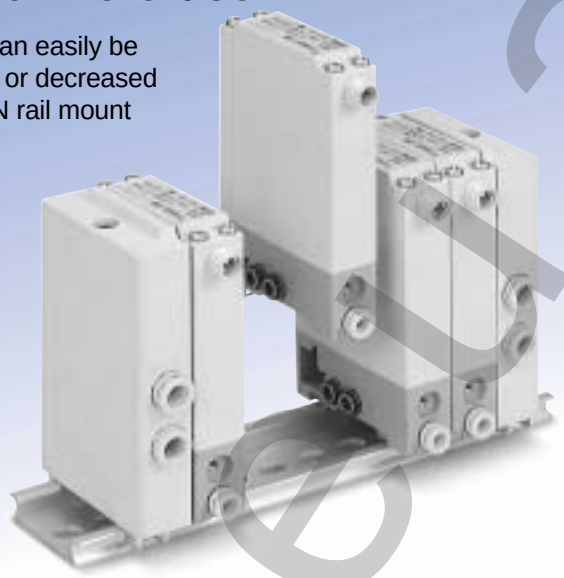
Full scale

Lightweight 100g

Compact Elctro-pneumatic Regulator
Series ITV0000

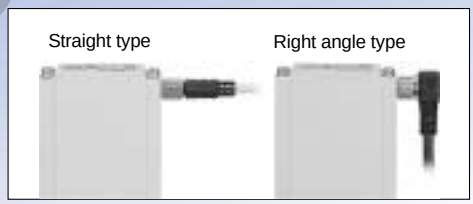
Realizes space savings and reduction of weight for manifold use

Stations can easily be increased or decreased due to DIN rail mount design.



Cable connectors

Straight type and right angle type are available.



Built-in One-touch fitting

With error indication LED

Brackets

Flat and L brackets are available.

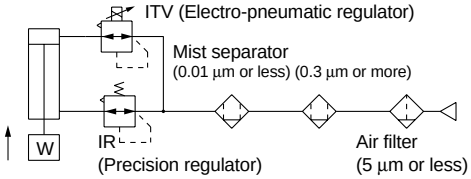
Flat bracket L bracket

Model	Pressure range	Power supply voltage	Input signal	Output signal	Option
ITV001□	0.1MPa	24VDC 12VDC	4 to 20mA 0 to 20mA 0 to 5VDC 0 to 10VDC	Analog output 1 to 5V	• Cable connectors Straight type Right angle type • Brackets Flat bracket L bracket
ITV003□	0.5MPa				
ITV005□	0.9MPa				
ITV009□	–100kPa				

- **Equivalent to IP65**
- **Linearity within ±1%** (full span)
  Hysteresis 0.5% (full span)
  Repeatability ±0.5% (full span)
- **High-speed response time 0.1sec** (without load)

- **High stability**

Stable pressure control is possible even when a metal cylinder is used.



Compact Electro-pneumatic Regulator

Series ITV0000

How to Order

Single unit and single unit for manifolds

ITV00 1 0 – 3 □ □ □ N

Pressure range

1	0.1MPa
3	0.5MPa
5	0.9MPa
9*	–100kPa

∗ Option

Power supply voltage

0	24VDC
1*	12 to 15VDC

∗ Option

Input signal

0*	Current type 4 to 20mADC
1*	Current type 0 to 20mADC
2*	Current type 0 to 5VDC
3	Current type 0 to 10VDC

∗ Option

Built-in One-touch fitting type

For single unit

Symbol		SUP (VAC) 1	OUT 2	EXH (ATM) 3
Nil	Metric size (light gray)	ø4		
U	Inch size (orange)	ø5/32"		

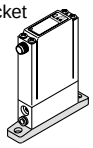
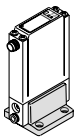
For manifolds

Symbol		SUP (VAC) 1	OUT 2	EXH (ATM) 3
Nil	Metric size (light gray)	ø6	ø4	ø6
U	Inch size (orange)	ø1/4"	ø5/32"	ø1/4"

Cable connector (option)

N	Without cable connector
S	Straight type 3m
L	Right angle type 2m

Bracket (option for single unit only)

Nil	Without bracket
B	Flat bracket 
C	L bracket 

Base type

Nil	For single unit
M	For manifold

Manifolds

IITV00 – 02 – n

Stations

02	2 stations
03	3 stations
⋮	⋮
10	10 stations

Option

If a DIN rail longer than the specified stations is required, specify the applicable stations in two digits.

(Maximum10 stations)

Example) **IITV00-05-07**

Note) A DIN rail with the length specified by the number of stations is attached to the manifold. For dimensions of the DIN rail, refer to page 8.

How to Order Manifold Assemblies (Example)

Indicate the part numbers of electro-pneumatic regulators and options to be mounted below the manifold part number.

Example)
Due to the common supply/exhaust feature, note that different pressure range combinations are not available.

IITV00-03 ..... **1 set (Manifold part number)**

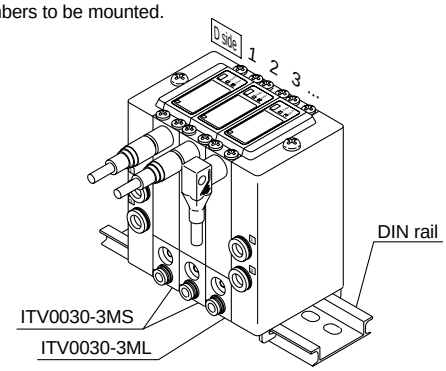
∗ **ITV0030-3MS** ... **2 sets [Electro-pneumatic regulator part number (1, 2 stations)]**

∗ **ITV0030-3ML** ... **1 set [Electro-pneumatic regulator part number (3 stations)]**

Indicate part numbers in order starting from the first station on the D side.

Note: Due to the common supply/exhaust feature, different pressure range combinations are not available.

The asterisk (∗) specifies mounting.
Add an astarisk (∗) at the beginning of electro-pneumatic regulator part numbers to be mounted.



Specifications

Model		ITV001□	ITV003□	ITV005□	ITV009□
Minimum supply pressure		Set pressure + 0.1MPa			Set pressure −1kPa
Maximum supply pressure		0.2MPa	1.0MPa		−101kPa
Set pressure range		0.001 to 0.1MPa	0.001 to 0.5MPa	0.001 to 0.9MPa	−1 to −100kPa
Maximum flow rate		3.5ℓ/min (ANR) (Supply pressure: 0.2MPa)	6ℓ/min (ANR) (Supply pressure: 0.6MPa)	6ℓ/min (ANR) (Supply pressure: 0.6MPa)	2ℓ/min (ANR) (Supply pressure: −101kPa)
Power supply	Voltage	24VDC ±10%, 12 to 15VDC			
	Current consumption	Power supply voltage 24VDC type: 0.12A or less Power supply voltage 12 to 15VDC type: 0.18A or less			
Input signal	Voltage type	0 to 5VDC, 0 to 10VDC			
	Current type	4 to 20mADC, 0 to 20mADC			
Input impedance	Voltage type	Approx. 10kΩ			
	Current type	Approx. 250kΩ			
Output signal	Analog output	1 to 5 VDC (Load impedance: 1kΩ or more) Output accuracy: Within ±6% (full span)			
Linearity		Within ±1% (full span)			
Hysteresis		Within ±0.5% (full span)			
Repeatability		Within ±0.5% (full span)			
Sensitivity		Within 0.2% (full span)			
Temperature characteristics		Within ±0.12% (full span)/°C			
Operating temperature range		0 to 50°C (with no condensation)			
Enclosure		Equivalent to IP65*			
Connection type		Built-in One-touch fitting			
Connection size	For single unit	Metric size	1, 2, 3: ø4		
		Inch size	1, 2, 3: ø5/32"		
	Manifold	Metric size	1, 3: ø6, 2: ø4		
		Inch size	1, 3: ø1/4", 2: ø5/32"		
Weight Note 1)		100g or less (without options)			

Note 1) Indicates the weight of a single unit.
For IITV00-n
Total weight (g) ≤ Stations (n) x 100 + 130 (Weight of end block A, B assembly) + Weight (g) of DIN rail

Note 2) Specifications other than the following are optional.
Pressure range: 0.1MPa, 0.5MPa, 0.9MPa, Power supply voltage: 24VDC, Input signal: 0 to 10VDC

Note 3) When there is a downstream flow consumption, pressure may become unstable depending on piping conditions.

* When used under conditions equivalent to IP65, use the regulator after piping a fitting/tube to the breathing hole. (For details, refer to "Specific Product Precautions 1" on page 11.)

Accessories (Optional)

Bracket

Flat bracket assembly
P39800022

L bracket assembly
P39800023

Cable connector

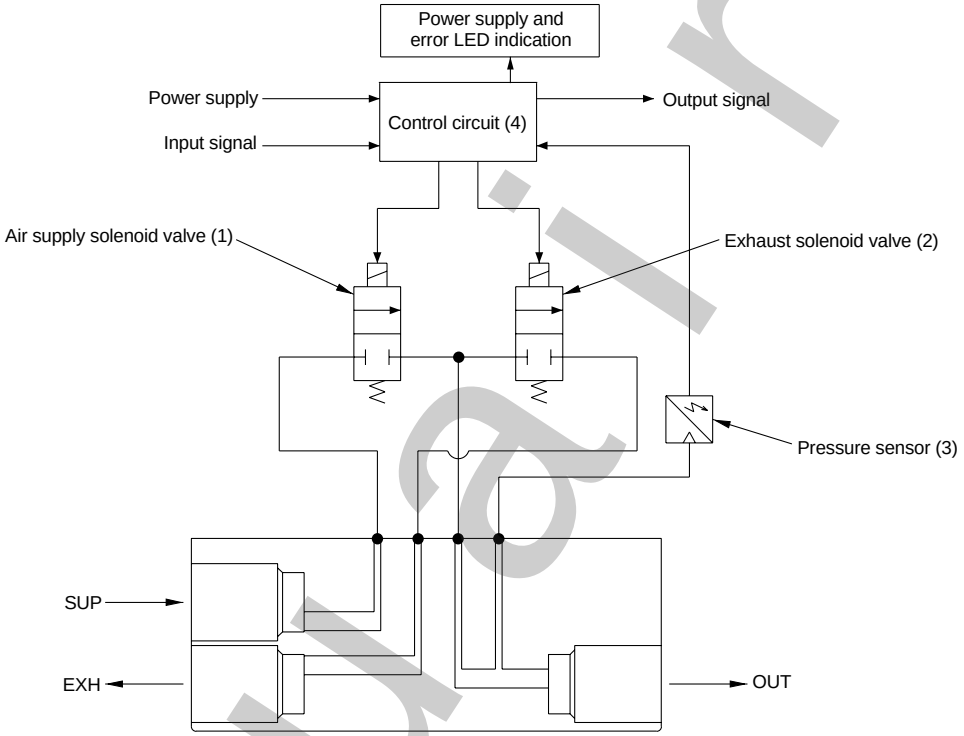
Straight type
M8-4DSX3MG4

Right angle type
ELWIKA-KV4408 PVC025 2M

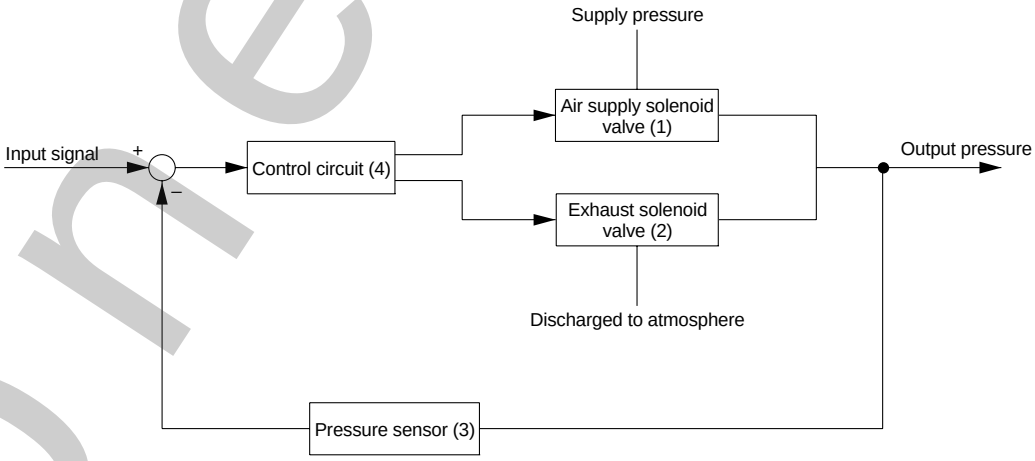
Working Principle

When the input signal rises, the air supply solenoid valve (1) turns ON. Due to this, part of the supply pressure passes through the air supply solenoid valve (1) and changes to output pressure. This output pressure feeds back to the control circuit (4) via the pressure sensor (3). Here, pressure corrections continue until output pressure becomes proportional to the input signal, enabling output pressure that is proportional to the input signal.

Working principle diagram

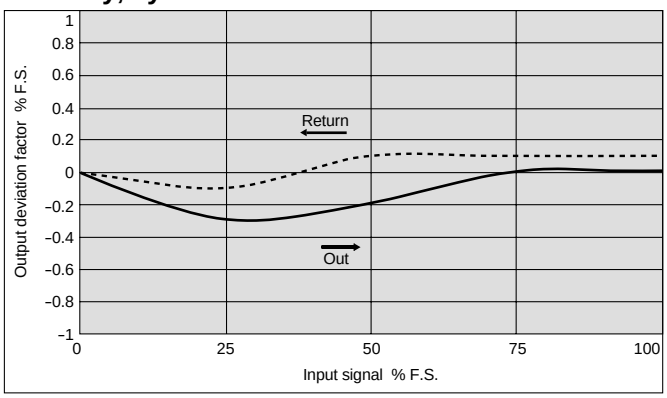


Block diagram



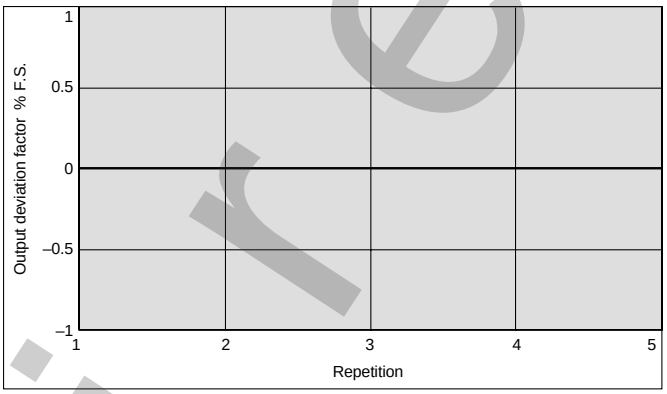
Series ITV001□

Linearity, hysteresis



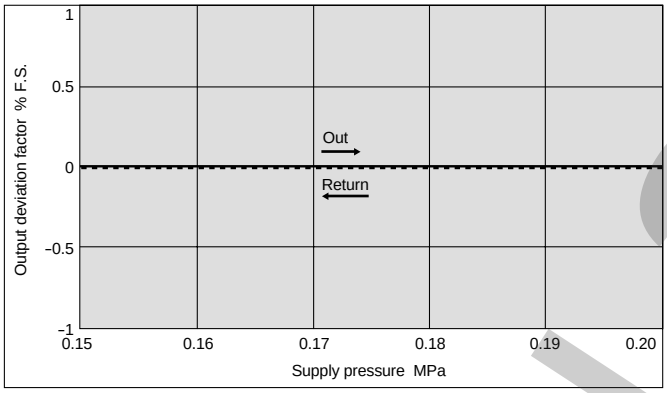
Repeatability

With 50% of signal input



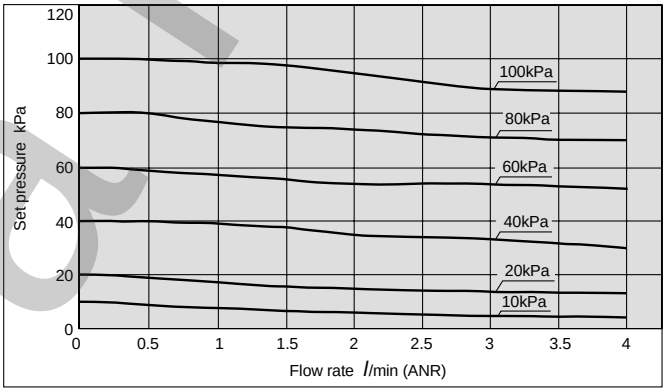
Pressure characteristics

Set pressure: 0.05MPa



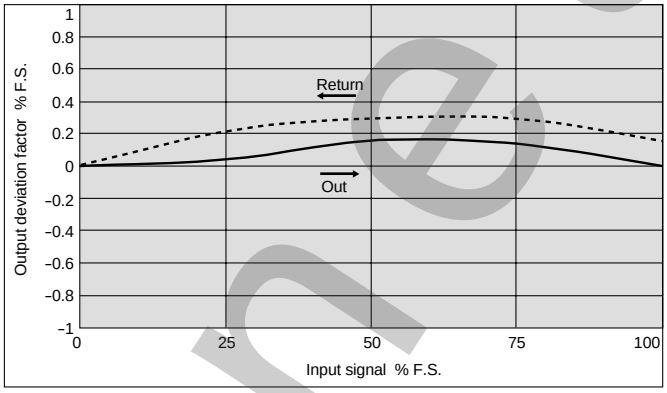
Flow characteristics

Supply pressure: 0.2MPa



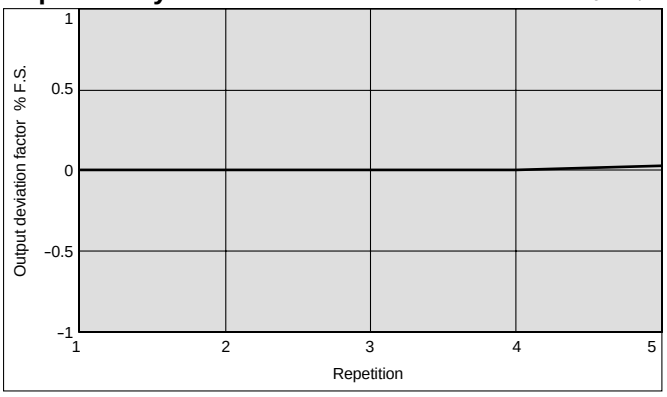
Series ITV003□

Linearity, hysteresis



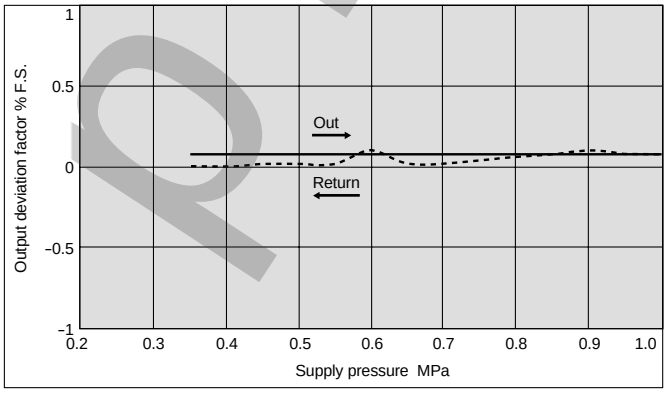
Repeatability

With 50% of signal input



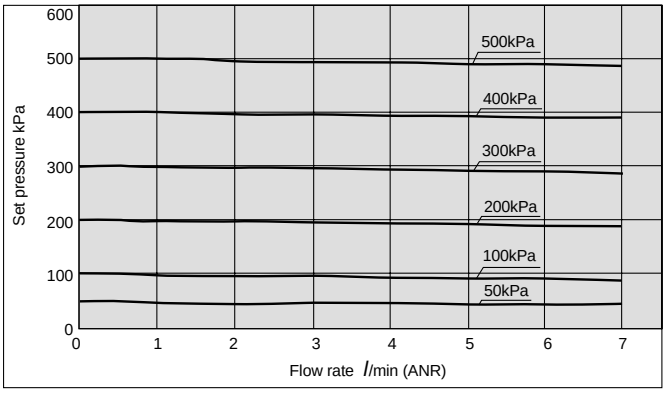
Pressure characteristics

Set pressure: 0.25MPa



Flow characteristics

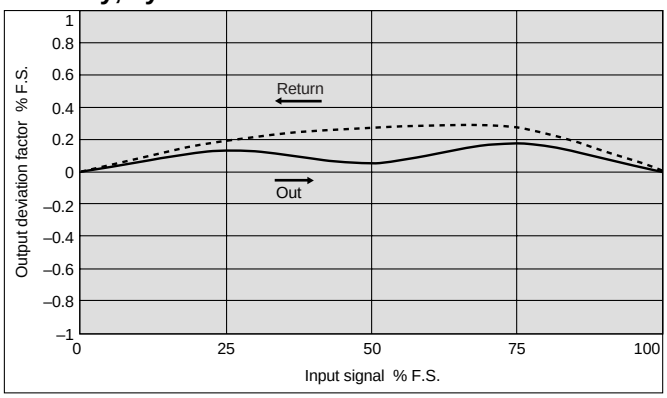
Supply pressure: 0.6MPa



Series ITV0000

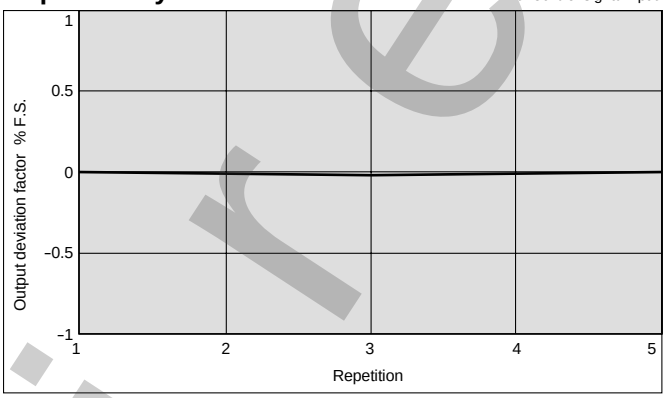
Series ITV005□

Linearity, hysteresis



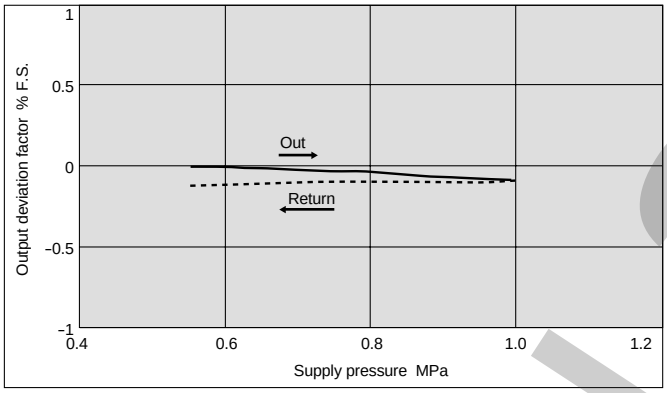
Repeatability

With 50% of signal input



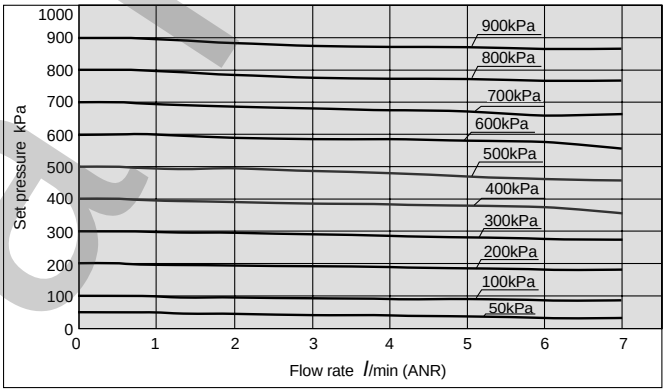
Pressure characteristics

Set pressure: 0.45MPa



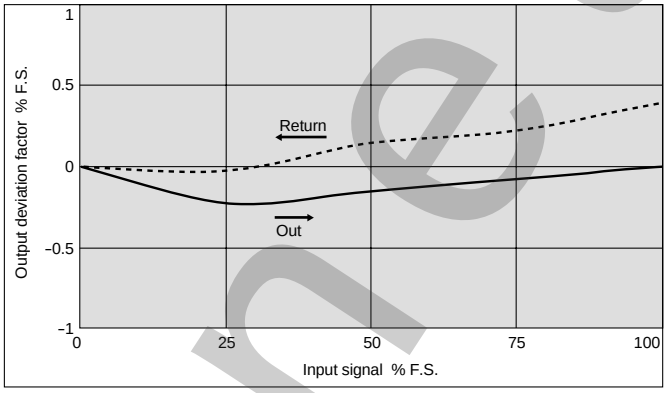
Flow characteristics

Supply pressure: 1.0MPa



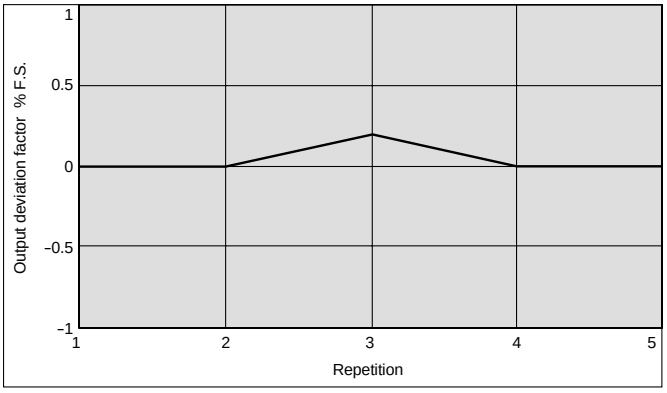
Series ITV009□

Linearity, hysteresis

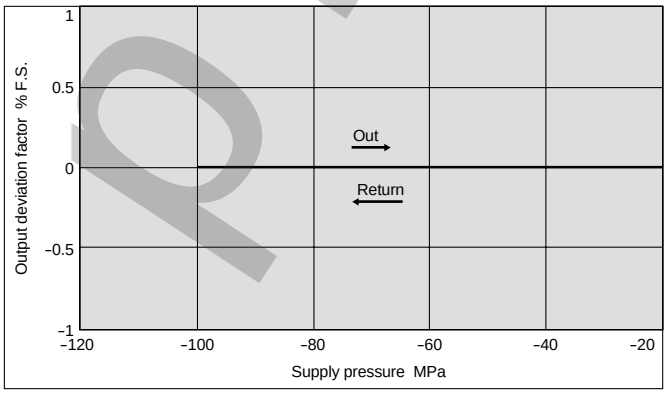


Repeatability

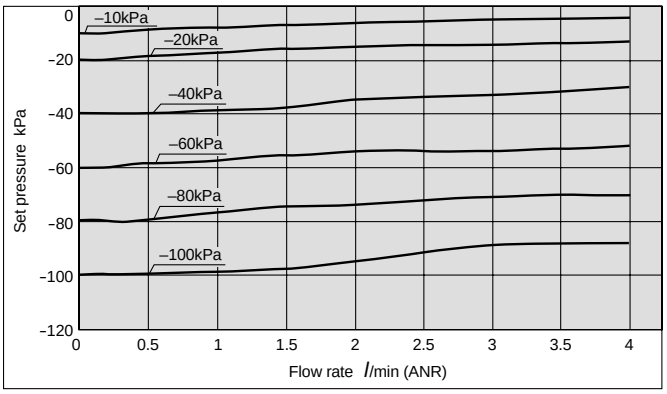
With 50% of signal input



Pressure characteristics

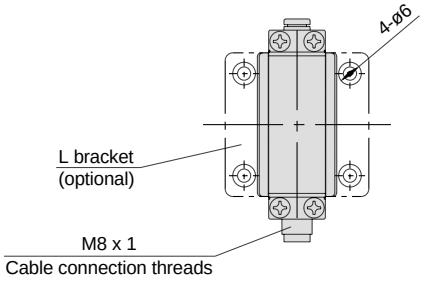


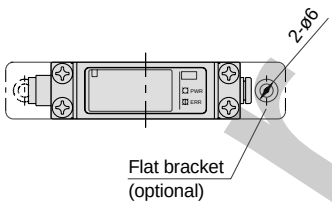
Flow characteristics



Dimensions

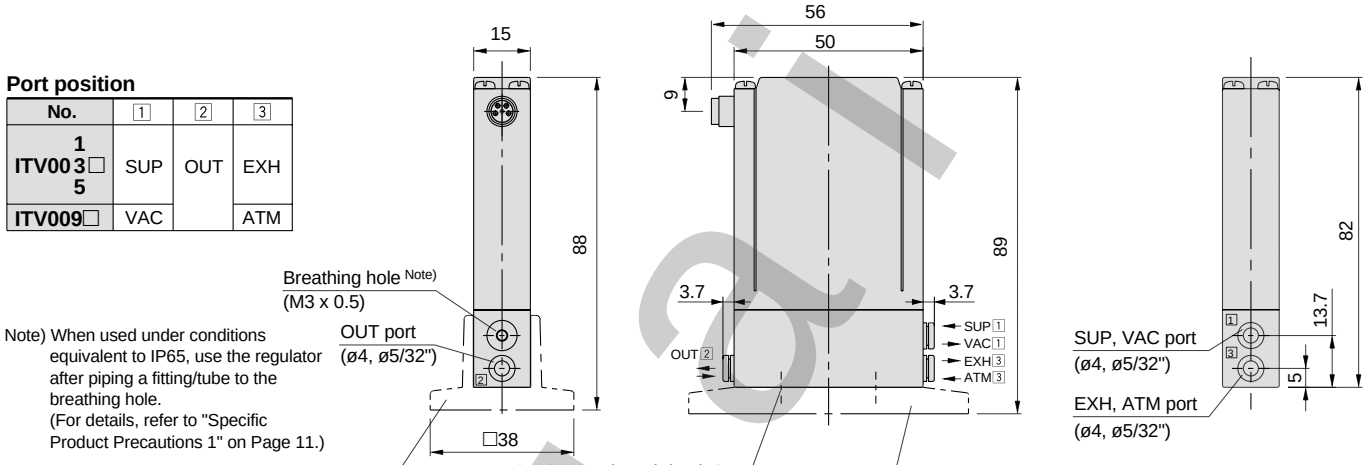
Single unit



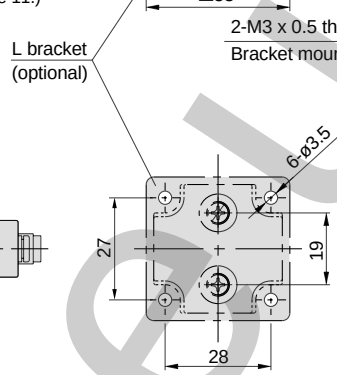


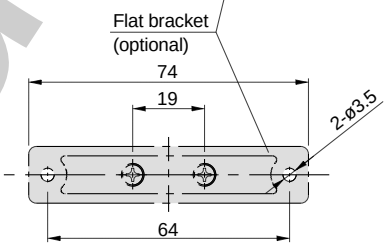
Port position

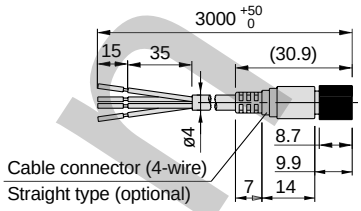
No.	1	2	3
1 ITV00 3□ 5	SUP	OUT	EXH
ITV009□	VAC		ATM

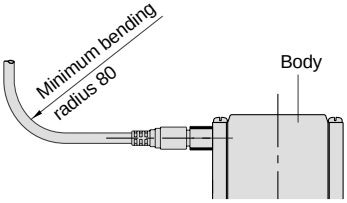


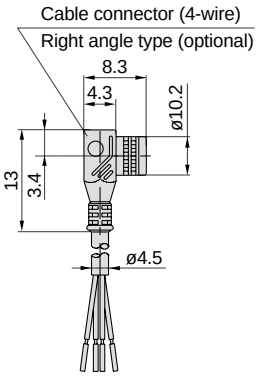
Note) When used under conditions equivalent to IP65, use the regulator after piping a fitting/tube to the breathing hole.
(For details, refer to "Specific Product Precautions 1" on Page 11.)

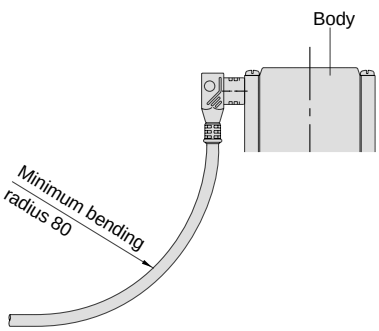






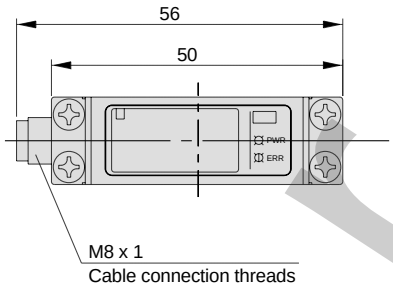


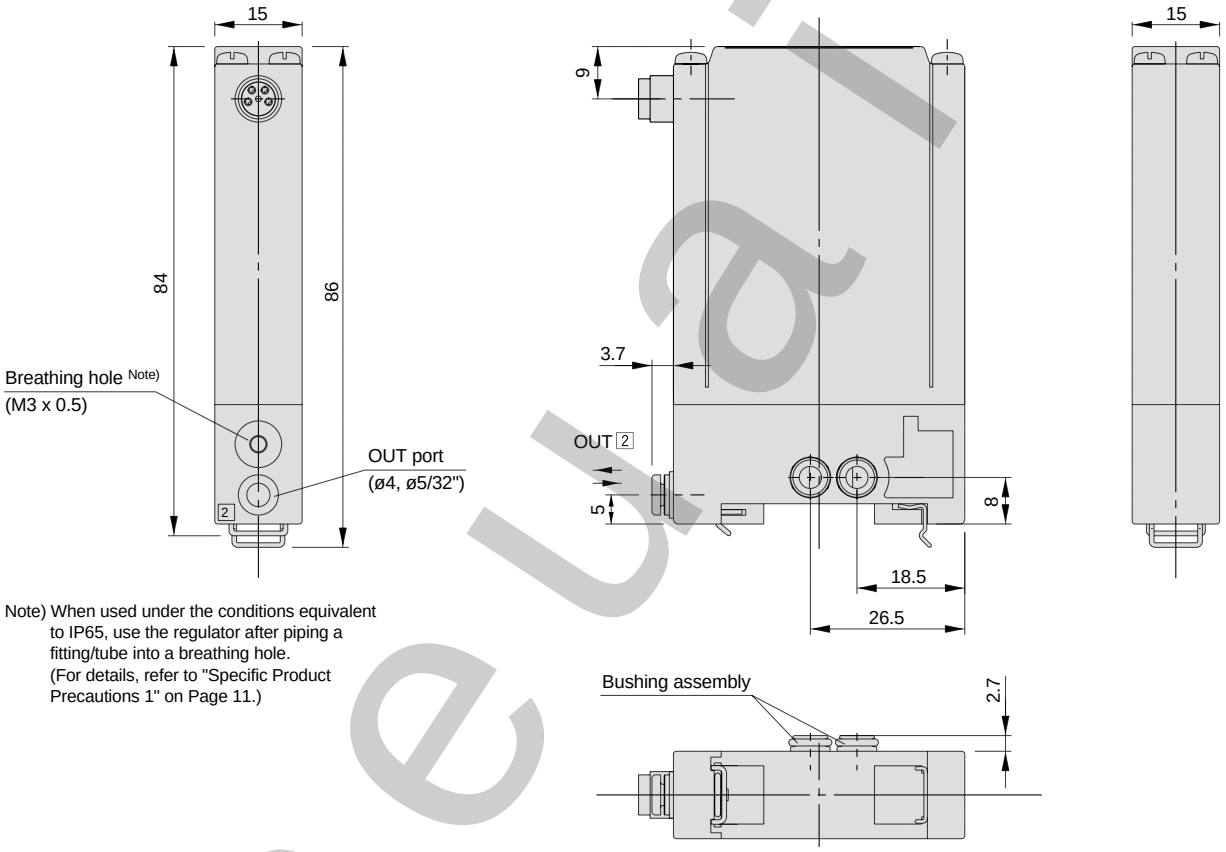




Dimensions

Single unit for manifolds



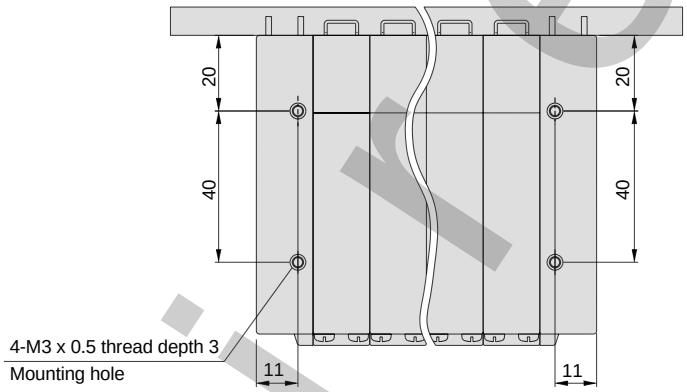


Note) When used under the conditions equivalent to IP65, use the regulator after piping a fitting/tube into a breathing hole. (For details, refer to "Specific Product Precautions 1" on Page 11.)

Note) For dimensions of the cable connector, refer to single unit on page 6.

Dimensions

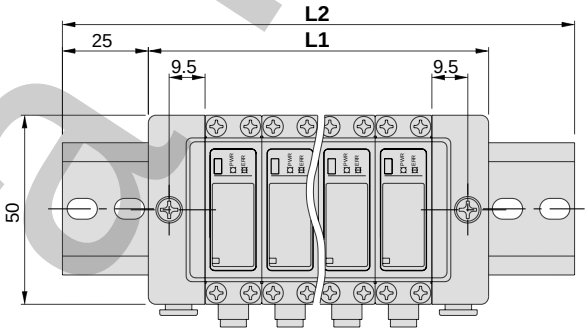
Manifolds

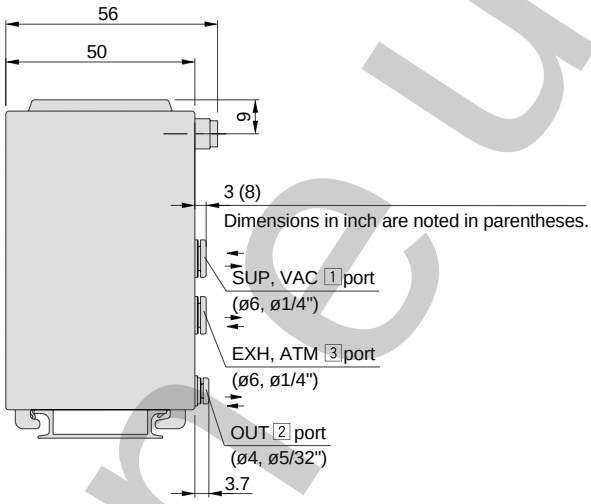


Port position

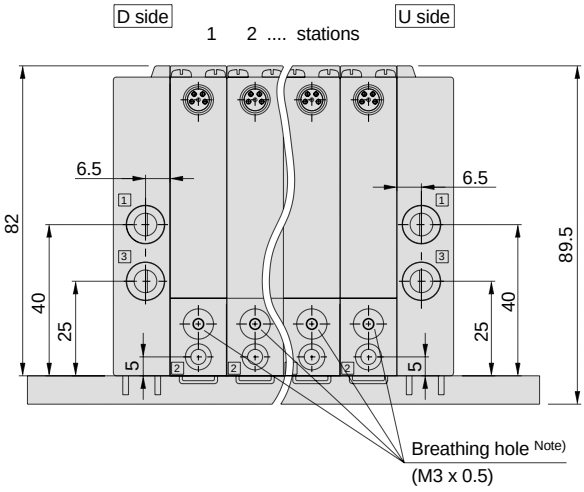
No.	1	2	3
ITV00**1**3□**5**	SUP	OUT	EXH
ITV009□	VAC		ATM

Note) Stations are counted starting from the D side.





Note) For dimensions of the cable connector, refer to single unit on page 6.



Note) When used under conditions equivalent to IP65, use the regulator after piping a fitting/tube to the breathing hole.
(For details, refer to "Specific Product Precautions 1" on page 11.)

(mm)

Manifold stations n	2	3	4	5	6	7	8	9	10
L1	60	75	90	105	120	135	150	165	180
L2	110.5	123	148	160.5	173	185.5	198	223	235.5