

Compact Electro-Pneumatic Regulator Series *ITV0000*



How to Order

For single unit and single unit for manifold

ITV00 1 0 - 3 **N - Q**

Pressure range

1	0.1 MPa
3	0.5 MPa
5	0.9 MPa

Power supply voltage

0	24 VDC $\pm 10\%$
1	12 to 15 VDC

Input signal

0	Current type 4 to 20 mA DC
1	Current type 0 to 20 mA DC
2	Voltage type 0 to 5 VDC
3	Voltage type 0 to 10 VDC

Built-in One-touch fittings type

For single unit

Symbol	SUP ¹	OUT ²	EXH ³
—	Metric size (Light grey)	$\phi 4$	
U	Inch size (Orange)	$\phi 5/32''$	

For manifold

Symbol		SUP ¹	OUT ²	EXH ³
—	Metric size (Light grey)	ø6	ø4	ø6
U	Inch size (Orange)	ø1/4"	ø5/32"	ø1/4"

Cable connector (Option)

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

CE compliant

Q CE compliant

* For detailed information on CE marked models, refer to SMC's website.

Bracket/Option for single unit only

—	Without bracket
B	Flat Bracket
C	L-bracket

Base type

—	For single unit
M	For manifolds

Manifold

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.
(Maximum 10 stations)
Example) IITV00-05-07

One-touch fitting size for supply/exhaust parts (End plate)

—	$\phi 6$ (Light grey)
U	$\phi 1/4''$ (Orange)

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 the external dimensions.

How to Order Manifold Assembly (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 no.)

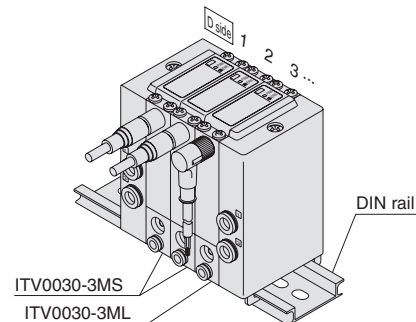
*ITV0030-3MS.....2 sets (Electro-pneumatic regulator part no. (1, 2 stations))

*ITV0030-3ML.....1 set (Electro-pneumatic regulator part no. (3 stations))

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

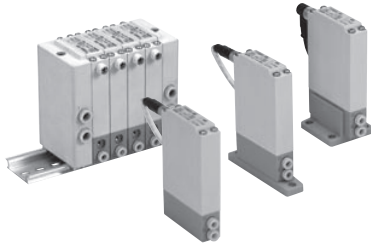
Note) Combination with different pressure ranges is not available due to common supply/exhaust features.

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



Compact Electro-Pneumatic Regulator *Series ITV0000*

Specifications



Model		ITV001□	ITV003□	ITV005□
Min. supply pressure		Set pressure +0.1 MPa		
Max. supply pressure		0.2 MPa	1.0 MPa	
Regulating pressure range		0.001 to 0.1 MPa	0.001 to 0.5 MPa	0.001 to 0.9 MPa
Maximum flow rate		3.5 ℓ/min(ANR) (Supply pressure: 0.2 MPa)	6 ℓ/min(ANR) (Supply pressure: 0.6 MPa)	6 ℓ/min(ANR) (Supply pressure: 0.6 MPa)
Power supply	Voltage	24 VDC ±10%, 12 to 15 VDC		
	Current consumption	Power supply voltage 24 VDC type: 0.12 A or less Power supply voltage 12 to 15 VDC type: 0.18 A or less		
Input signal	Voltage type	0 to 5 VDC, 0 to 10 VDC		
	Current type	4 to 20 mA DC, 0 to 20 mA DC		
Input impedance	Voltage type	Approximately 10 kΩ		
	Current type	Approximately 250 Ω		
Output signal	Analogue output	1 to 5 VDC (Load impedance: 1 kΩ 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 (No condensation)		
Enclosure		Equivalent to IP65 *		
Connection type		Built-in One-touch fittings		
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)}		100 g 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: 0.1 MPa, 0.5 MPa, 0.9 MPa, Power supply voltage: 24 VDC, Input signal: 0 to 10 VDC

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

* When using under the conditions equivalent to IP65, connect the fitting or tube to the breathing hole prior to use. (For details, refer to "Specific Product Precautions (1)" on back page 3)

Accessory (Option)

Bracket

Flat bracket assembly (includes 2 mounting screws)
P39800022



L-bracket assembly (includes 2 mounting screws)
P39800023



Tighting torque when assembling is 0.3 N-m.

Cable connector

Straight type
M8-4DSX3MG4



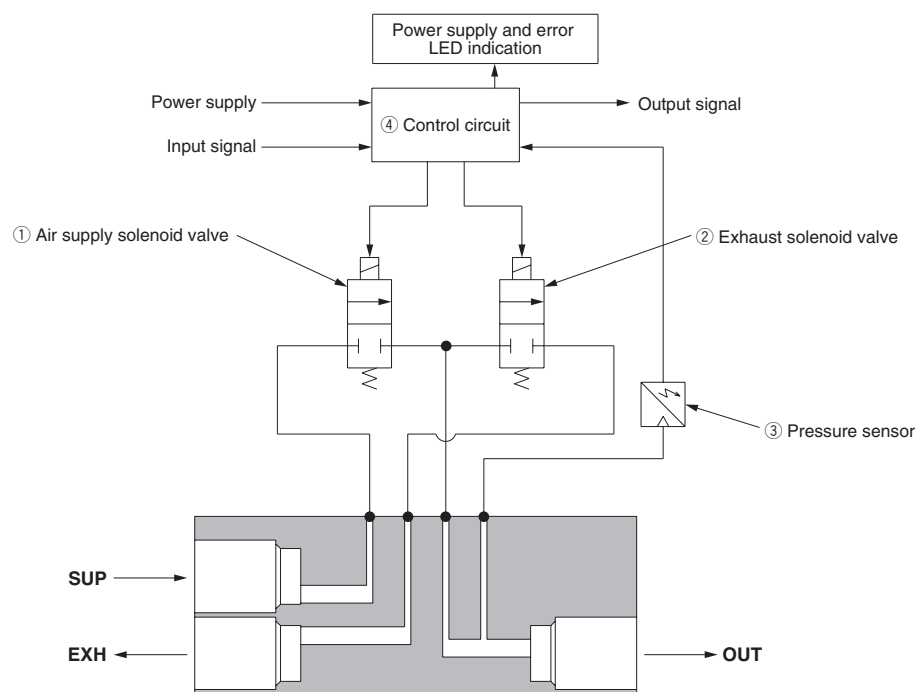
Right angle type
ELWIKA-KV4408 PVC025 2M



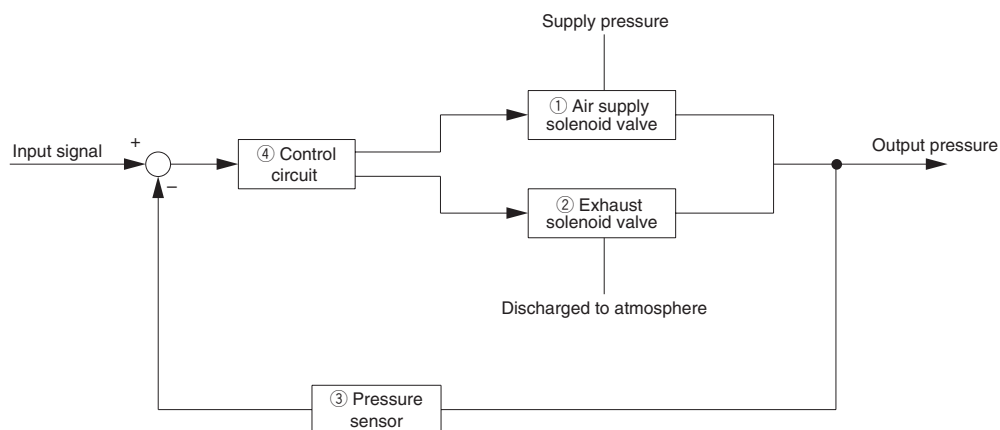
Working Principle

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.

Diagram of working principle

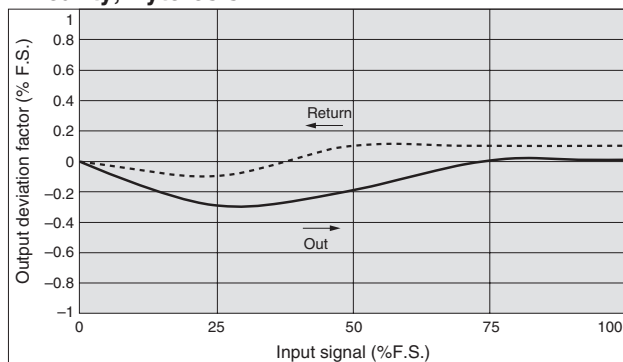


Block diagram



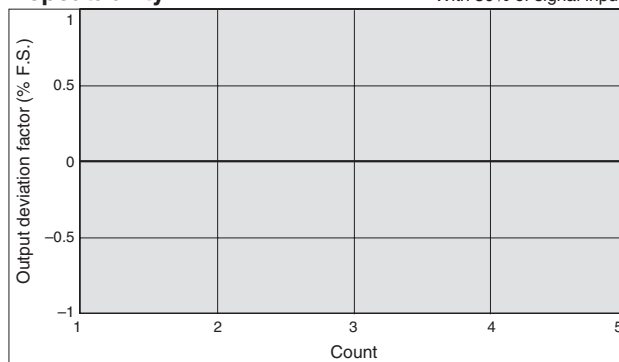
Series ITV001

Linearity, Hysteresis



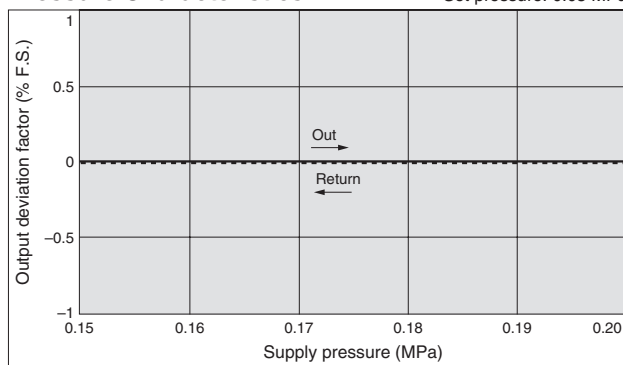
Repeatability

With 50% of signal input



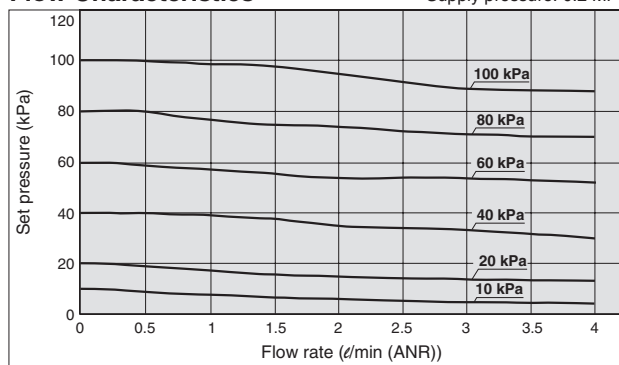
Pressure Characteristics

Set pressure: 0.05 MPa



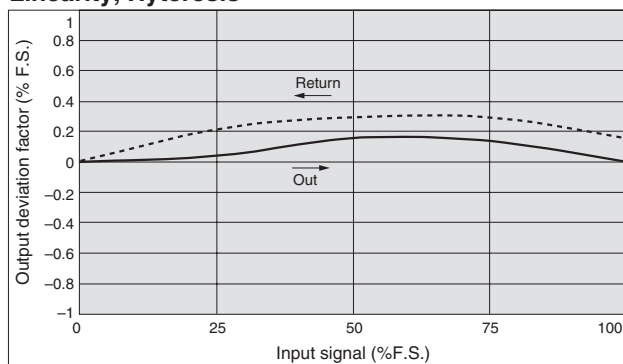
Flow Characteristics

Supply pressure: 0.2 MPa



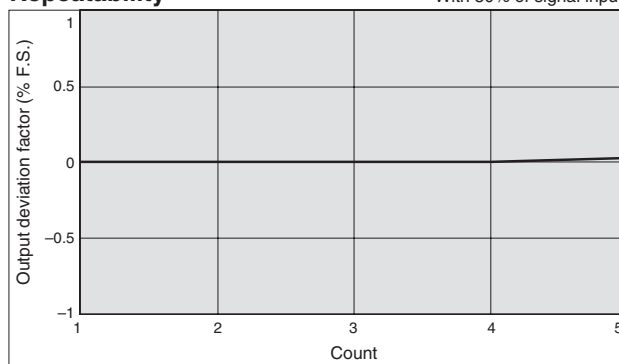
Series ITV003

Linearity, Hysteresis



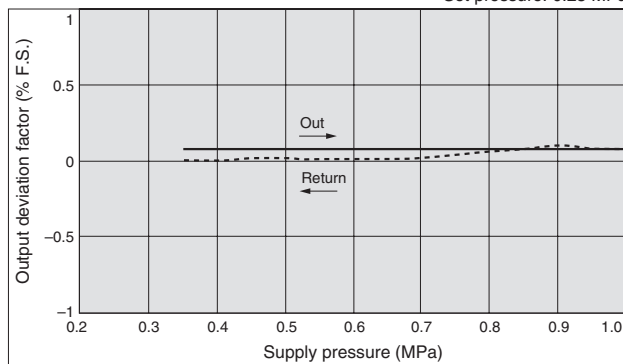
Repeatability

With 50% of signal input



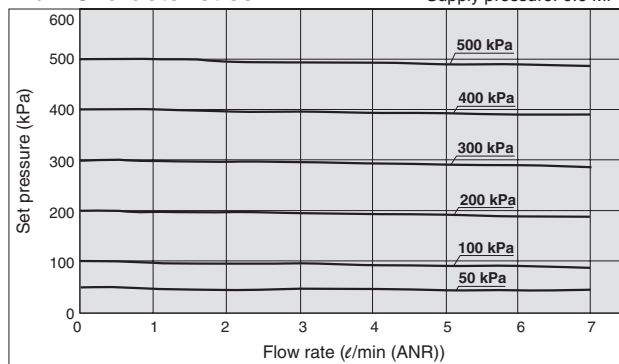
Pressure Characteristics

Set pressure: 0.25 MPa



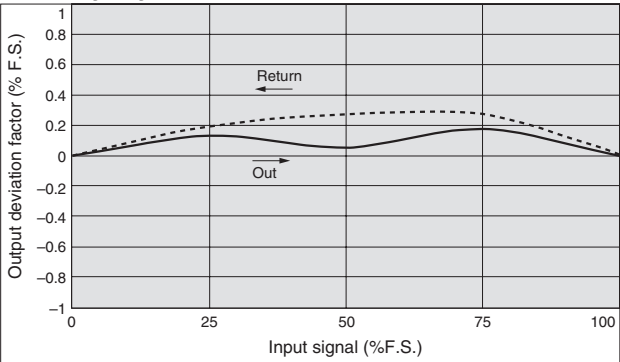
Flow Characteristics

Supply pressure: 0.6 MPa



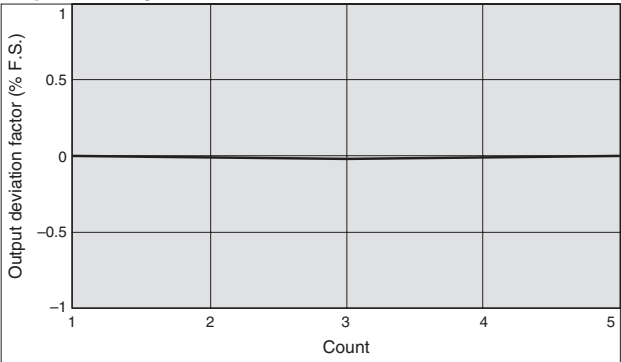
Series ITV005

Linearity, Hyteresis



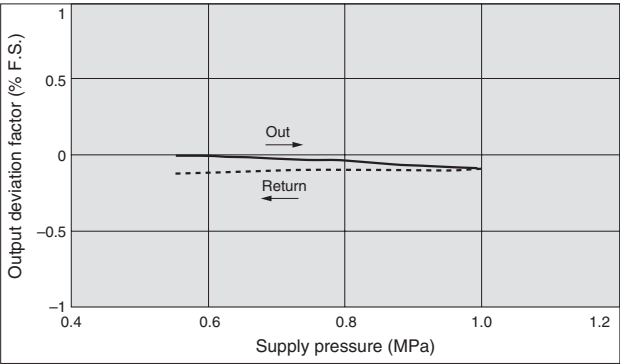
Repeatability

With 50% of signal input



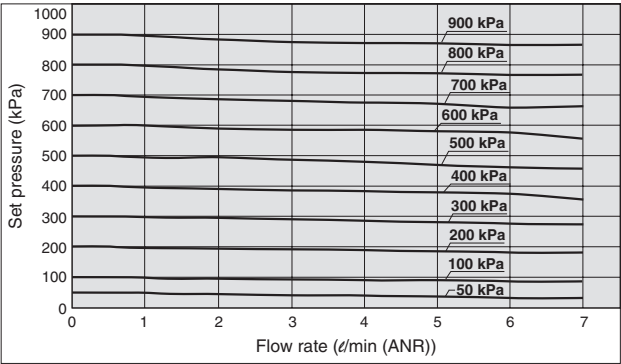
Pressure Characteristics

Set pressure: 0.45 MPa



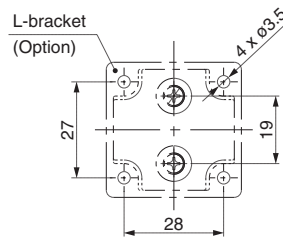
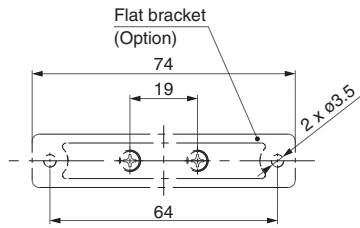
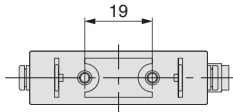
Flow Characteristics

Supply pressure: 1.0 MPa



Dimensions

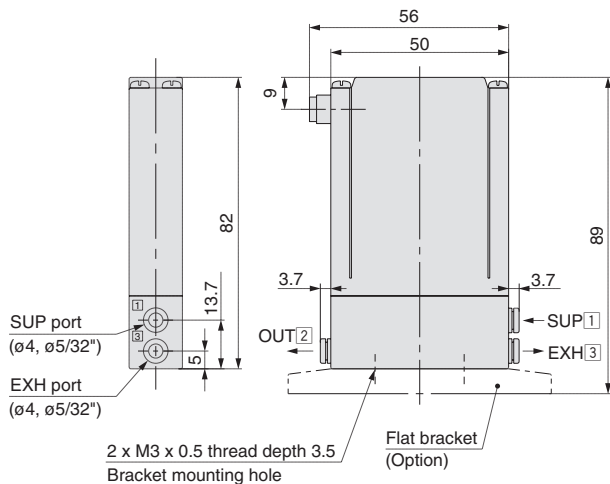
For Single Unit



Port Location

No.	1	2	3
1 ITV003 <input type="checkbox"/> 5	SUP	OUT	EXH

Note) When using under the conditions equivalent to IP65, connect the fittings or tube to the breathing hole prior to use. (For details, refer to "Specific Product Precautions 1" on back page 3)



Note)

Breathing h

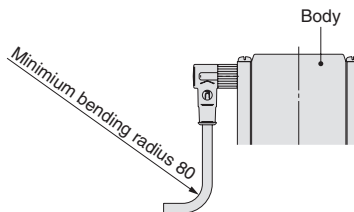
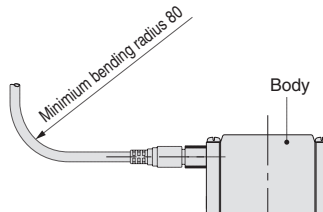
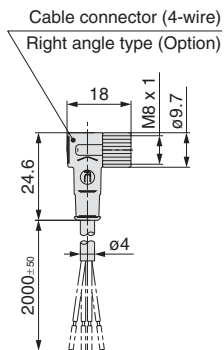
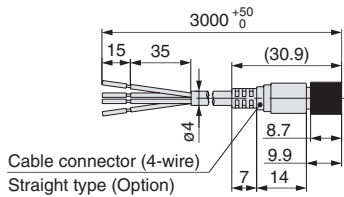
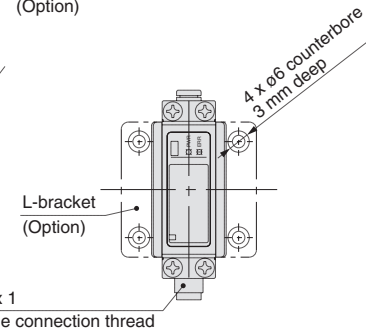
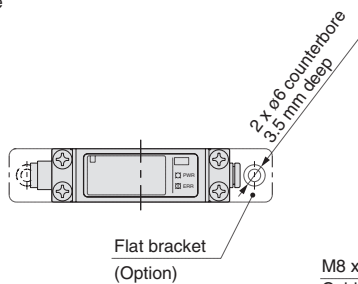
(M3 x 0.5)

OUT port

(ø4, ø5/32")

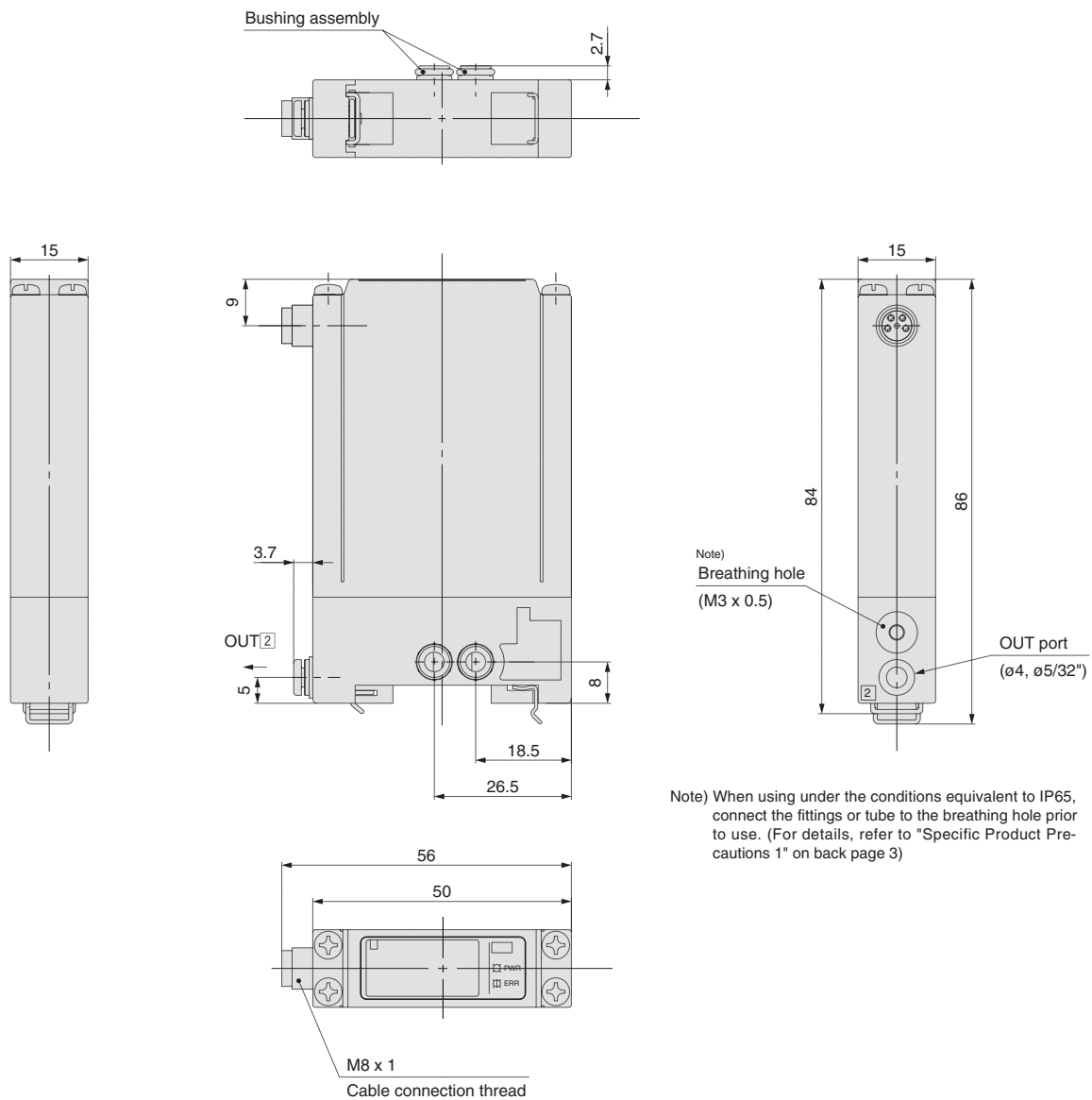
L-bracket

(Option)



Dimensions

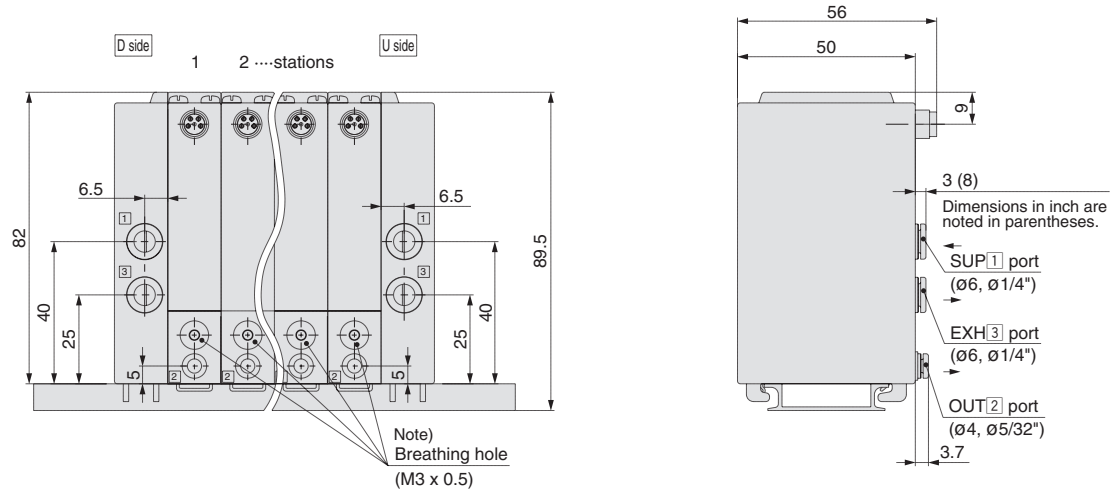
Single unit for manifold



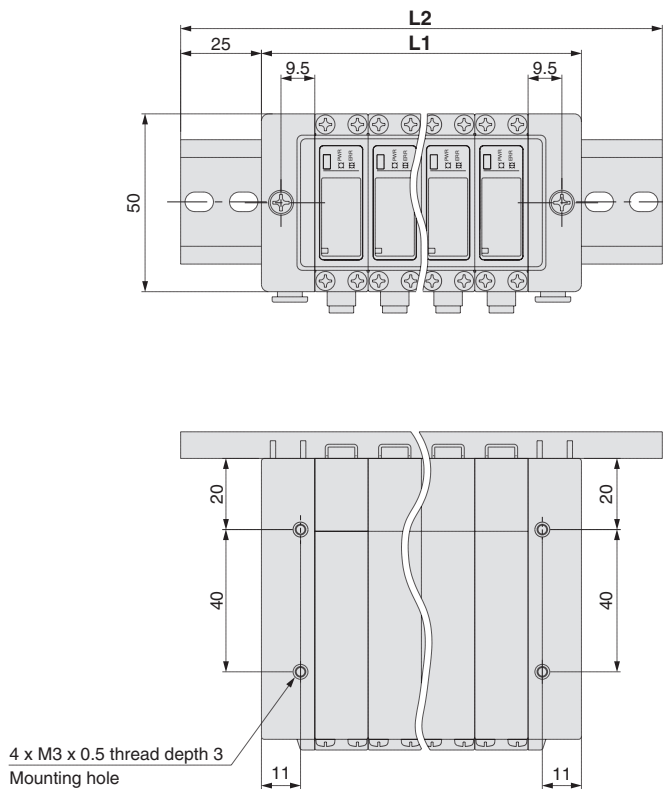
Note) For dimensions of the cable connector, refer to single unit on page 6.

Dimensions

Manifold



Note) When using under the conditions equivalent to IP65, connect the fittings or tubing to the breathing hole prior to use. (For details, refer to "Specific Product Precautions 1" on back page 3).



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

(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
Weight of DIN rail (g)	20	22	27	29	31	34	36	41	43