






Electro-pneumatic Regulator Electronic Vacuum Regulator Series *ITV*

	Series	Model	Regulating pressure range	Port size	Page
Electro-pneumatic Regulator	Series ITV0000 With a simplified high-density circuit board design, an extremely compact size has been achieved. 	ITV001□	0.001 to 0.1 MPa	Built-in One-touch fitting Metric size: ø4 Inch size: ø5/32	14-8-2
		ITV003□	0.001 to 0.5 MPa		
		ITV005□	0.001 to 0.9 MPa		
		ITV009□	-1 to -100 kPa		
	Series ITV1000 Controls air pressure steplessly in proportion to an electric signal. 	ITV101□	0.005 to 0.1 MPa	1/8, 1/4	14-8-14
		ITV103□	0.005 to 0.5 MPa		
		ITV105□	0.005 to 0.9 MPa		
	Series ITV2000 Controls air pressure steplessly in proportion to an electric signal. 	ITV201□	0.005 to 0.1 MPa	1/4, 3/8	14-8-14
		ITV203□	0.005 to 0.5 MPa		
		ITV205□	0.005 to 0.9 MPa		
	Series ITV3000 Controls air pressure steplessly in proportion to an electric signal. 	ITV301□	0.005 to 0.1 MPa	1/4, 3/8, 1/2	14-8-14
		ITV303□	0.005 to 0.5 MPa		
ITV305□		0.005 to 0.9 MPa			
Electronic Vacuum Regulator	Series ITV209□ Controls vacuum pressure steplessly in proportion to an electric signal. 	ITV209□	-1.3 to -80 kPa	1/4	14-8-30

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- AV
- AU
- AF
- AR
- IR
- VEX
- AMR
- ITV**
- IC
- VBA
- VE□
- VY1
- G
- PPA
- AL

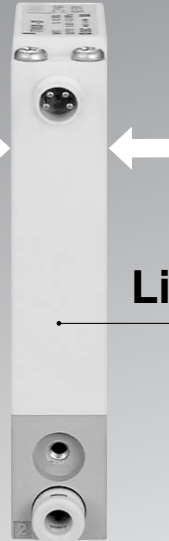
Compact Electro-pneumatic Regulator Series *ITV0000*

Compact **15 mm**

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

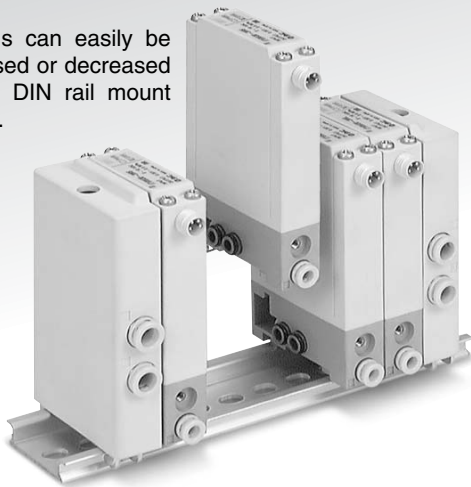
Lightweight **100 g**

Compact electro-pneumatic regulator
Series *ITV0000*



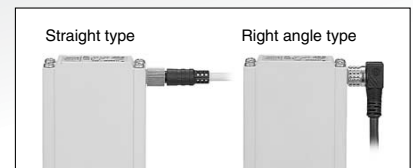
Realizes space-savings and reduction of weight for manifold use.

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



■ Cable connectors

Straight type and right angle type are available.

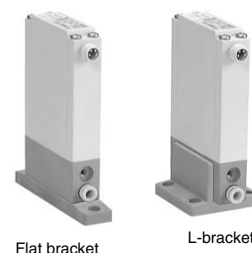


■ Built-in One-touch fitting

■ With error indication LED

■ Brackets

Flat and L-brackets are available.

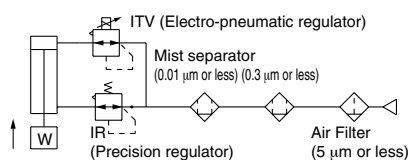


Model	Pressure range	Power supply voltage	Input signal	Output signal	Option
ITV001□	0.1 MPa	24 VDC	4 to 20 mA	Analog output	<ul style="list-style-type: none"> • Cable connectors Straight type Right angle type
ITV003□	0.5 MPa		0 to 20 mA		
ITV005□	0.9 MPa	12 VDC	0 to 5 VDC	1 to 5 V	<ul style="list-style-type: none"> • Brackets Flat bracket L-bracket
ITV009□	-100 kPa		0 to 10 VDC		

- Equivalent to IP65
- Linearity within $\pm 1\%$ (Full span)
- Hysteresis 0.5% (Full span)
- Repeatability $\pm 0.5\%$ (Full span)
- High-speed response time 0.1 sec (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

For single unit and single unit for manifold

ITV00 1 0 - 3 N

Pressure range

1	0.1 MPa
3	0.5 MPa
5	0.9 MPa
9 *	-100 kPa

* Option

Power supply voltage

0	24 VDC ±10%
1 *	12 to 15 VDC

* Option

Cable connector (Option)

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

Input signal

0 *	Current type 4 to 20 m A DC
1 *	Current type 0 to 20 m A DC
2 *	Voltage type 0 to 5 VDC
3	Voltage type 0 to 10 VDC

* Option

Built-in One-touch fittings 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 manifold

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"

Bracket/ Option for single unit only

Nil	Without bracket
B	Flat Bracket
C	L-bracket

Base type

Nil	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 appli cable stations in two digits.
(Maximum 10 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 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.)

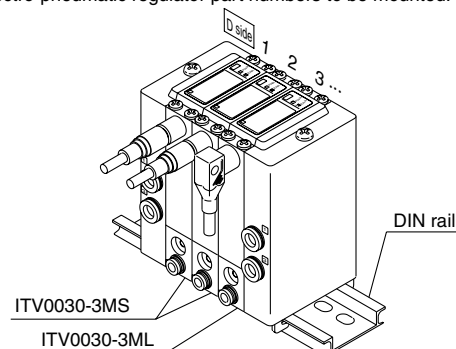
*ITV0030-3MS.....2 sets (Electro-pneumatic regulator part no. (1, 2 stations))

*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 having 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.



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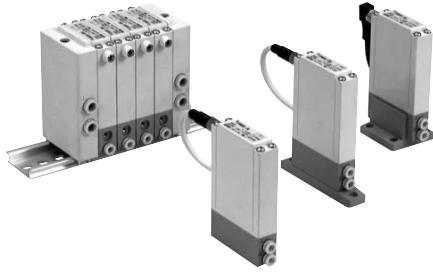
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Series ITV0000

Specifications



Model		ITV001□	ITV003□	ITV005□	ITV009□
Min. supply pressure		Set pressure +0.1 MPa			Set pressure -1 kPa
Max. supply pressure		0.2 MPa	1.0 MPa		-101 kPa
Regulating pressure range		0.001 to 0.1 MPa	0.001 to 0.5 MPa	0.001 to 0.9 MPa	-1 to -100 kPa
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)	2 l/min(ANR) (Supply pressure: -101 kPa)
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	Analog 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 (With no condensation)			
Enclosure		IP65 equivalent *			
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 ⁽¹⁾		100 g or less (without options)			

Note 1) Indicates the weight of a single unit.

For IITV00-n

Total weight (g) ≤ Stations (n) × 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 page 14-8-11 in Specific Product Precautions.)

Option

Bracket

Flat bracket assembly
P39800022



L-bracket assembly
P39800023



Tightening torque when assembling is 0.3 N·m.

Cable connector

Straight type
M8-4DSX3MG4



Right angle type
ELWIK-AKV4408 PVC025 2M

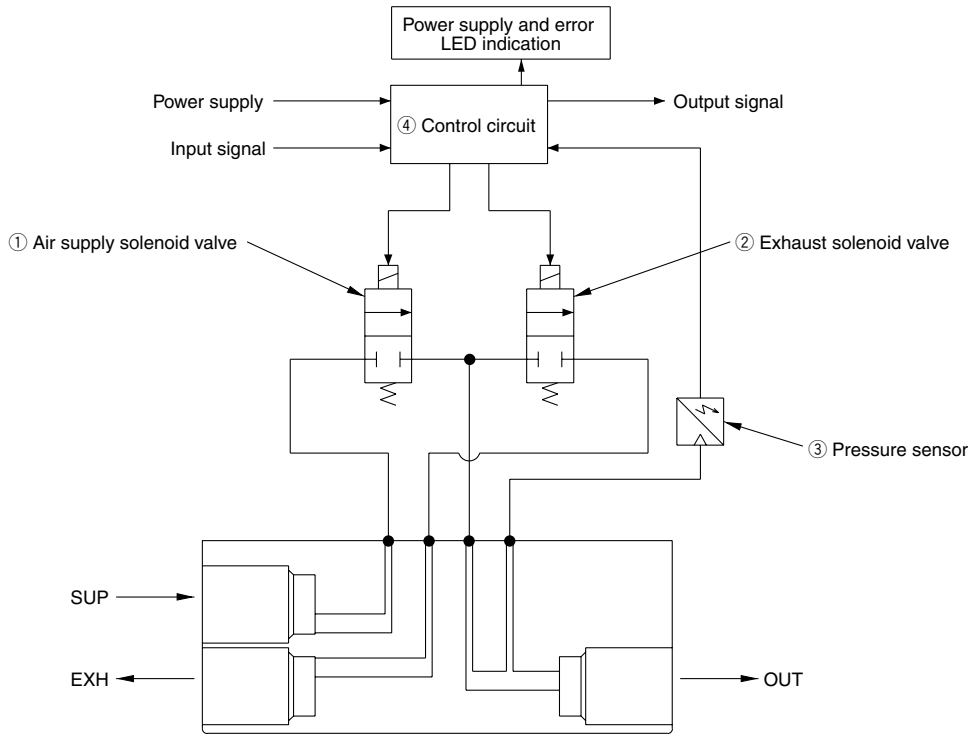


Compact Electro-pneumatic Regulator Series ITV0000

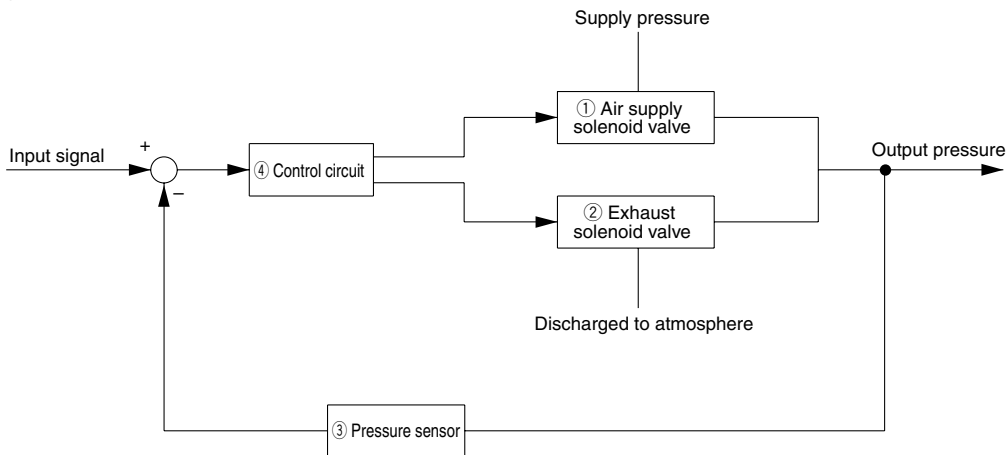
Working Principle

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 product 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



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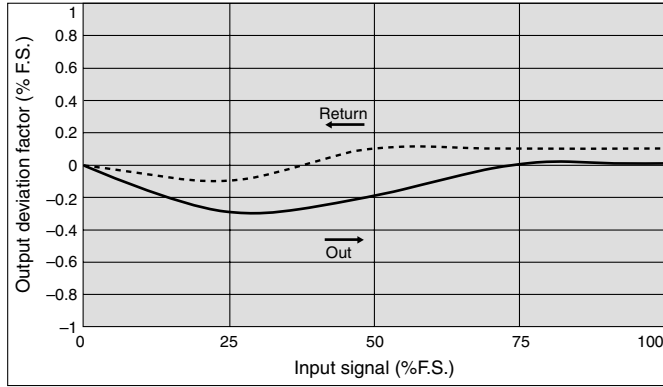
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Series ITV0000

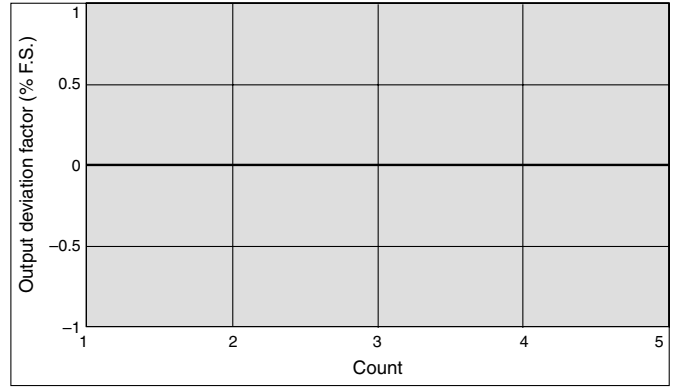
Series ITV001

Linearity, Hysteresis



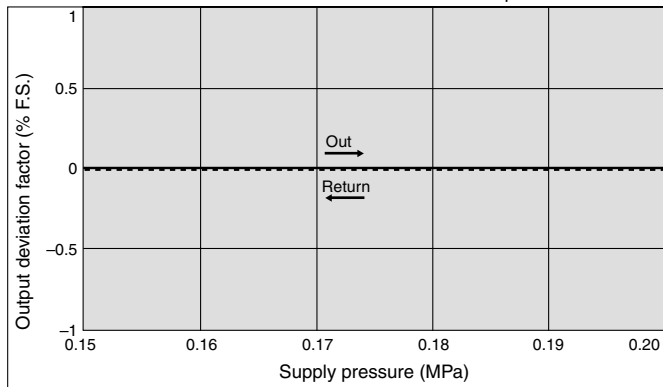
Repeatability

With 50% of signal input



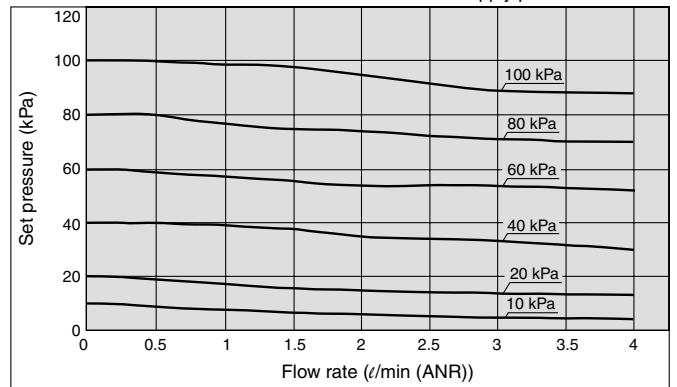
Pressure Characteristics

Set pressure: 0.05 MPa



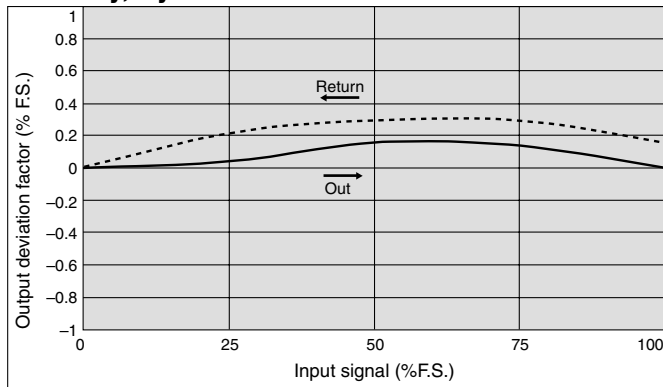
Flow Characteristics

Supply pressure: 0.2 MPa



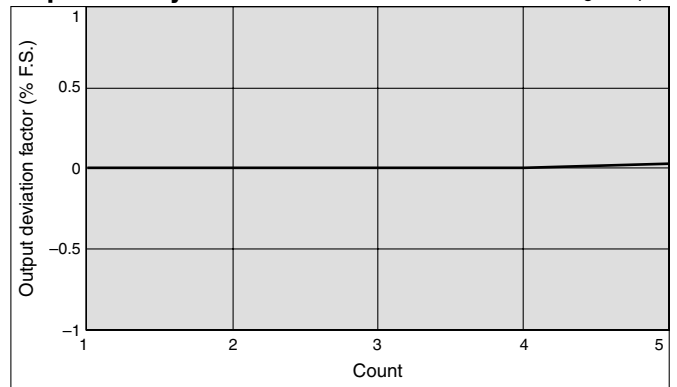
Series ITV003

Linearity, Hysteresis



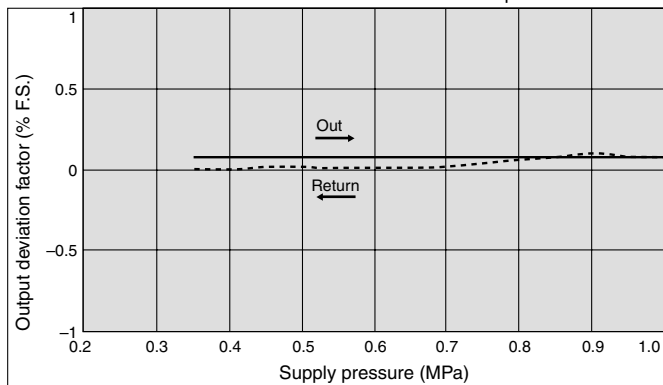
Repeatability

With 50% of signal input



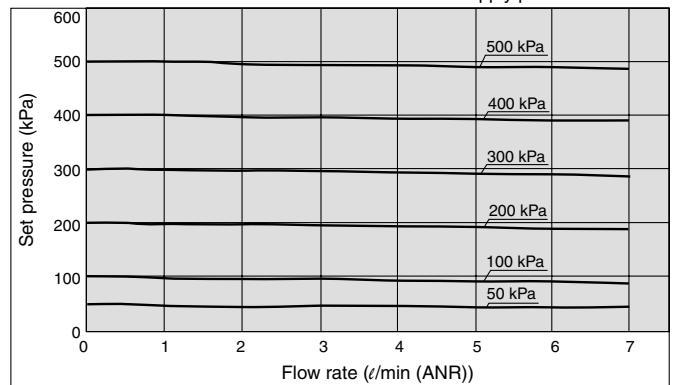
Pressure Characteristics

Set pressure: 0.25 MPa



Flow Characteristics

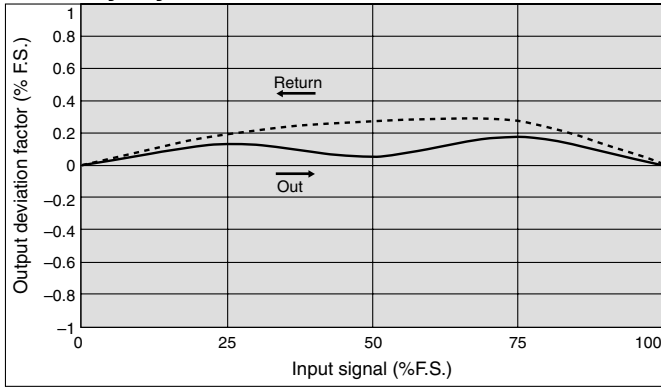
Supply pressure: 0.6 MPa



Compact Electro-pneumatic Regulator Series ITV0000

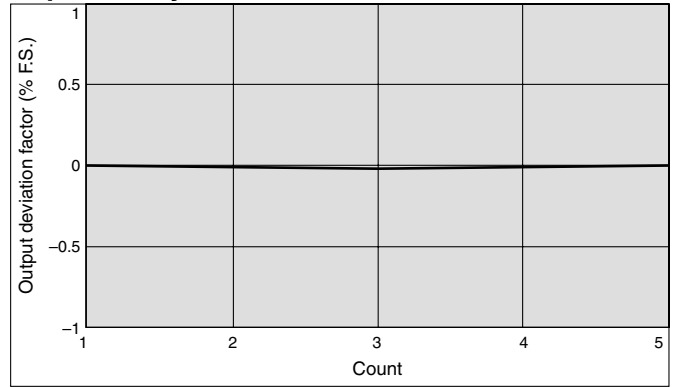
Series ITV005

Linearity, Hysteresis



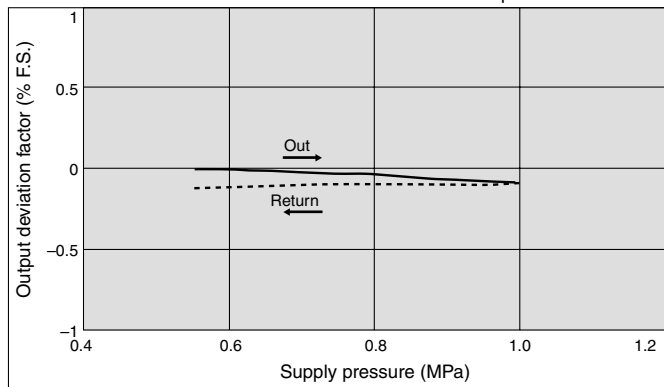
Repeatability

With 50% of signal input



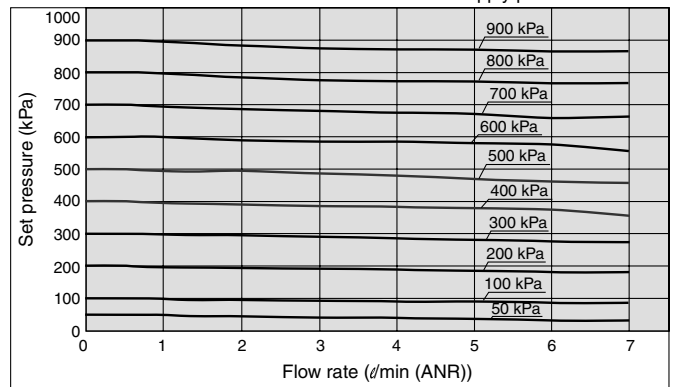
Pressure Characteristics

Set pressure: 0.45 MPa



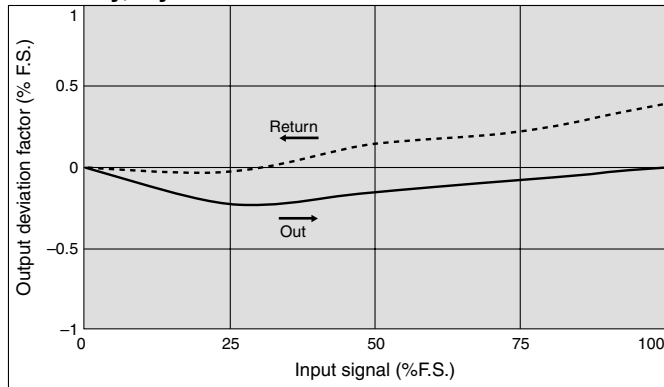
Flow Characteristics

Supply pressure: 1.0 MPa



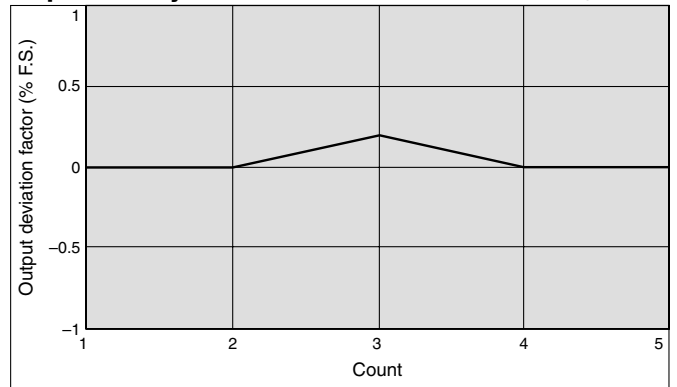
Series ITV009

Linearity, Hysteresis



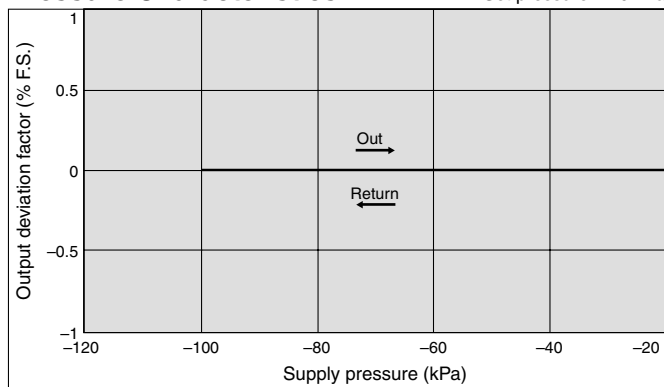
Repeatability

With 50% of signal input

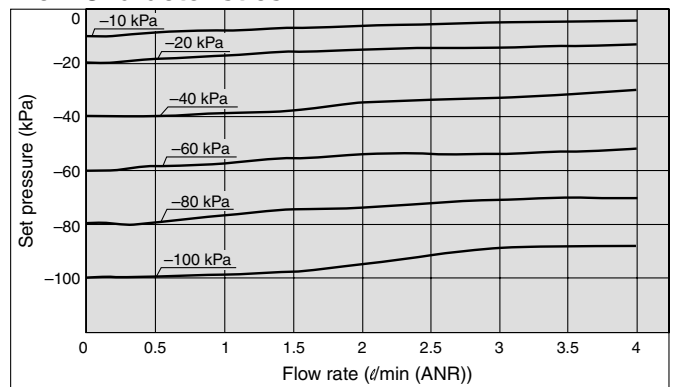


Pressure Characteristics

Set pressure: -10 kPa



Flow Characteristics



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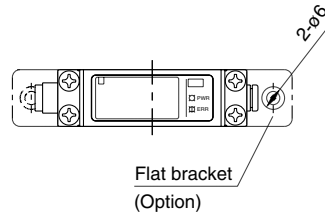
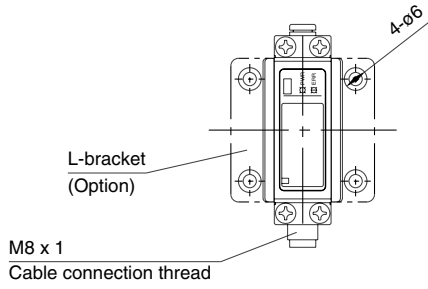
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Series ITV0000

Dimensions

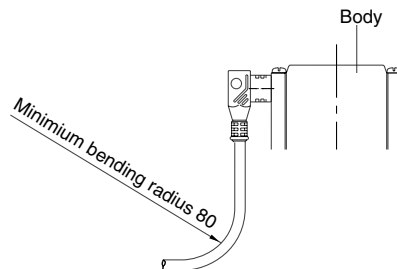
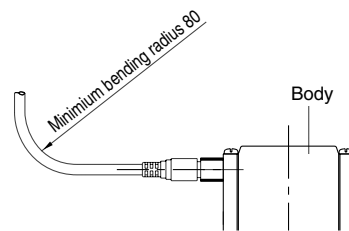
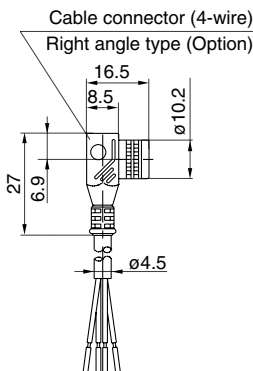
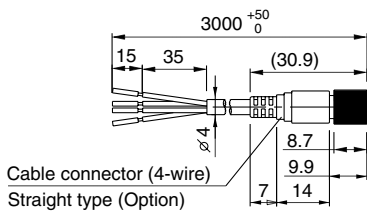
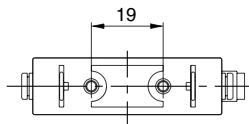
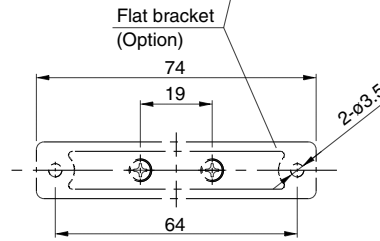
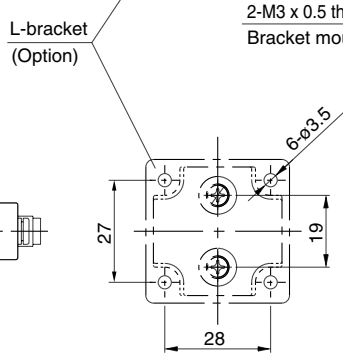
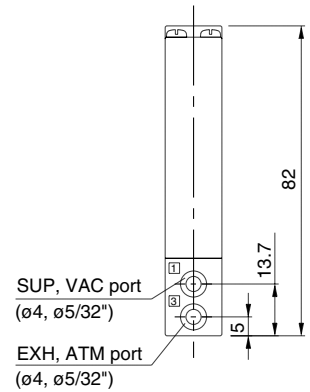
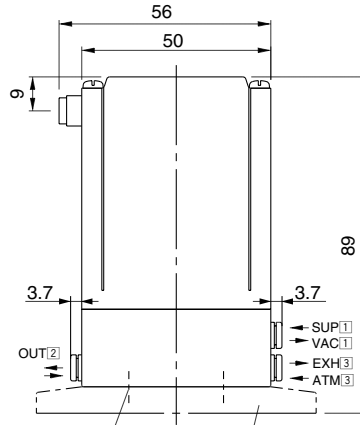
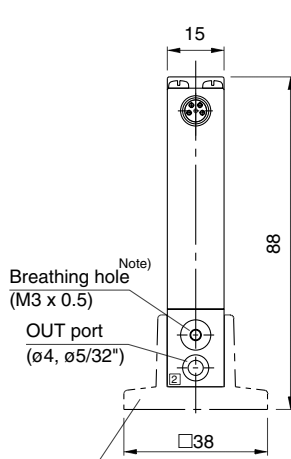
For Single Unit



Port Location

No.	1	2	3
ITV003	SUP	OUT	EXH
ITV009	VAC		ATM

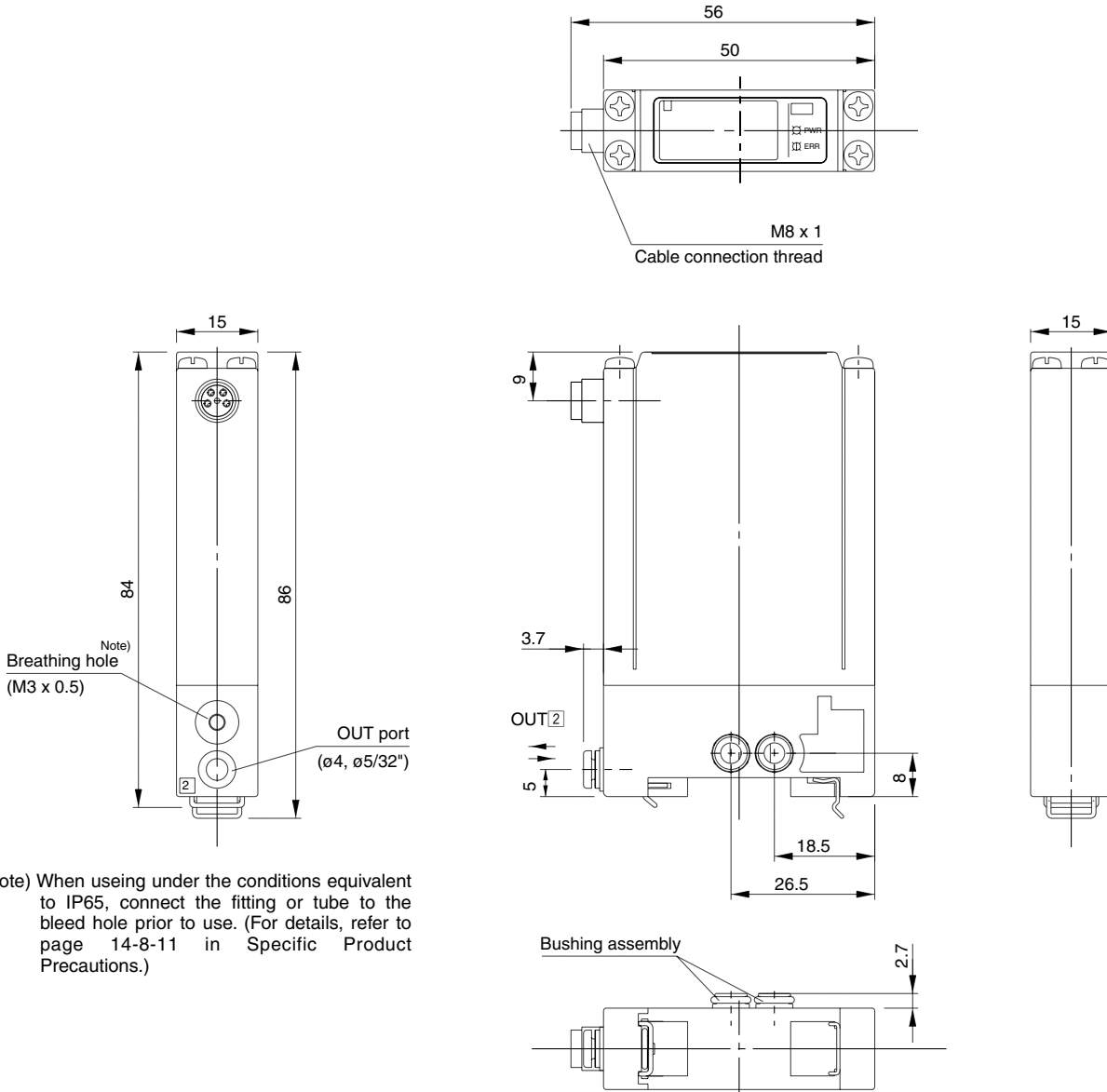
Note) When using under the conditions equivalent to IP65, connect the fitting or tube to the bleed hole prior to use. (For details, refer to page 14-8-11 in Specific Product Precautions.)



Compact Electro-pneumatic Regulator Series ITV0000

Dimensions

Single unit for manifold



Note) When using under the conditions equivalent to IP65, connect the fitting or tube to the bleed hole prior to use. (For details, refer to page 14-8-11 in Specific Product Precautions.)

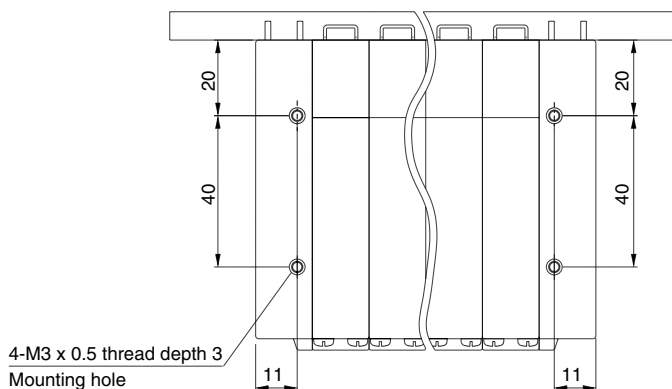
Note) For dimensions of the cable connector, refer to single unit on page 14-8-8.

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Series ITV0000

Dimensions

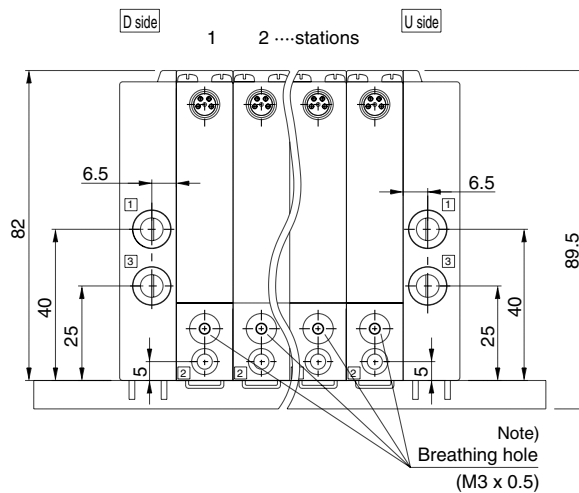
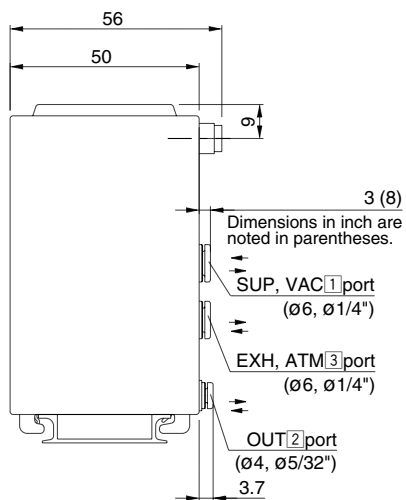
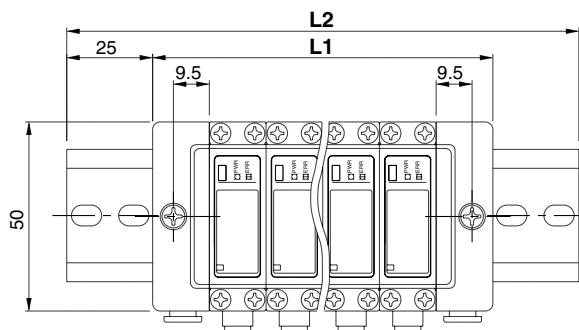
Manifold



Port Location

No.	1	2	3
1 ITV003□	SUP	OUT	EXH
5 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 14-8-8.

Note) When using under the conditions equivalent to IP65, connect the fittings or tubing to the bleed hole prior to use. (For details, refer to "Specific Product Precautions" on page 14-8-11.)

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

⚠ Precautions

Be sure to read before handling. Refer to pages 14-21-3 to 14-21-4 for Safety Instructions and Common Precautions.

Air Supply

⚠ Caution

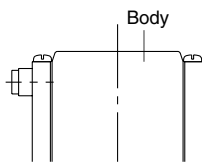
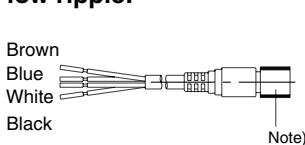
1. Install an air filter near this product on the supply side. Select a filtration degree of 5 μm or less.
2. Compressed air containing large amounts of drainage can cause malfunction of this product and other pneumatic equipment. As a countermeasure, install an aftercooler, air dryer or Drain Catch, etc.
3. If large amounts of carbon dust are generated by the compressor, it can accumulate inside this product and cause malfunction.

For details on the above compressed air quality, refer to 14-14-2.

Wiring

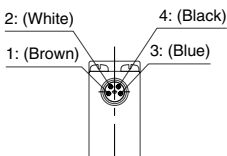
⚠ Caution

Connect the cable to the connector on the body with the wiring arranged as shown below. Proceed carefully, as incorrect wiring can cause damage. Further, use DC power with sufficient capacity and a low ripple.



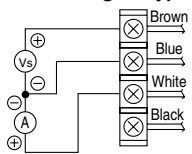
Terminal no.	1	2	3	4
Lead wire color	Brown	White	Blue	Black
Wiring	Power supply	Signal	COM	Monitor

Note) A right angle type is also available. The entry directions for the right angle type connector is downward (OUT port side). Never turn the connector as it is not designed to turn. If forced, it will damage the connector port.



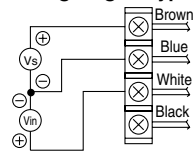
Wiring diagram

Current signal type



Vs : Power supply 24 VDC
12 to 15 VDC
A : Input signal 4 to 20 ADC
0 to 20 ADC

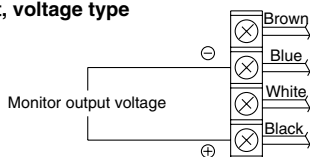
Voltage signal type



Vs : Power supply 24 VDC
12 to 15 VDC
Vin : Input signal 0 to 5 VDC
0 to 10 VDC

Monitor output wiring diagram

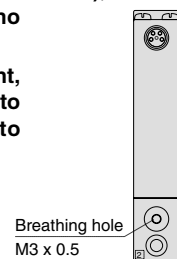
Analog output, voltage type



Handling

⚠ Caution

1. Do not use a lubricator on the supply side of this product, as this can cause a malfunction. When lubrication of terminal equipment is necessary, connect a lubricator on the output side of this regulator.
2. If electric power is shut off while pressure is being applied, output pressure will be maintained. However, this output pressure is held only temporarily and is not guaranteed. If exhausting of this pressure is desired, shut off the power after reducing the set pressure, and discharge the air using a residual pressure exhaust valve, etc.
3. If power supply to this regulator is cut off due to a power failure, etc., when it is in a regulated state, output pressure will be maintained temporarily. Handle carefully when operating with output pressure released to the atmosphere, as air will continue to flow out until reaching atmospheric pressure.
4. If supply pressure to this regulator is interrupted while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the solenoid valve may be shortened by this, be sure to shut off the power supply when supply pressure is shut off.
5. This product is adjusted for each specification at the time of shipment from the factory. Avoid unnecessary disassembly or removal of parts, as this can lead to a malfunction.
6. The optional cable connector is a 4-wire type. When the monitor output (analog output) is not being used, keep the monitor output wire (black) from touching the other wires as this can cause a malfunction.
7. Use caution that the right angle cable does not rotate and is limited to only one entry direction.
8. Take the following steps to avoid malfunction caused by noise.
 - 1) Remove power supply noise during operation by installing a line filter, etc. in the AC power line.
 - 2) Install this product and its wiring as far as possible from strong electric fields such as those of motors and power lines, etc.
 - 3) Make sure to take protective measures against load surge for an induction load (solenoid valves, relays, etc.).
9. Characteristics are limited only to the static state, and when air is consumed on the output side, pressure may fluctuate.
10. For details on the handling of this product, refer to the instruction manual included with the product.
11. In locations where the body is exposed to water, dust, etc., there is a possibility that they can enter into the body through the breathing hole. Use a fitting/tube (M-3AU-3 fitting and TIU01□-□□ tube are recommended), extend the piping to the location where there is no water, dust, etc.
12. When using in an enclosed environment, like an inspection box, etc., make sure to install a fan or other such device to prevent from overheating.



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Electro-pneumatic Regulator

Series *ITV1000/2000/3000*

Stepless control of air pressure proportional to an electrical signal

ITV1000
200 ℓ/min (ANR)*

ITV2000
1500 ℓ/min (ANR)*

ITV3000
4000 ℓ/min (ANR)*

200 ℓ/min type is newly introduced to the series.
Oil-free specifications (wetted parts)



* Pressure range: 0.9 MPa, Supply pressure: 1.0 MPa

Sensitivity: **0.2** kPa (100 kPa specifications)

IP65

Linearity: Within **±1%** (F.S.)

Hysteresis: Within **±0.5%** (F.S.)

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Electro-pneumatic Regulator

ITV1000/2000/3000

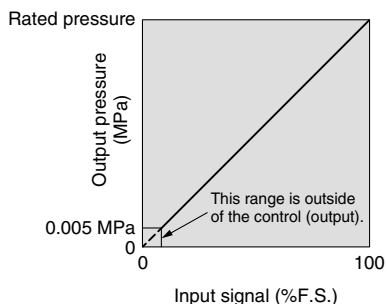
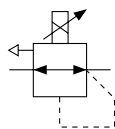
Standard Specifications



Straight type

Right angle type

JIS Symbol



Graph (1) Input/output characteristics chart

Model		ITV101□	ITV103□	ITV105□
		ITV201□	ITV203□	ITV205□
		ITV301□	ITV303□	ITV305□
Minimum supply pressure		Set pressure +0.1 MPa		
Maximum supply pressure		0.2 MPa	1.0 MPa	
Set pressure range ^{Note 1)}		0.005 to 0.1 MPa	0.005 to 0.5 MPa	0.005 to 0.9 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	Current type ^{Note 2)}	4 to 20 mA, 0 to 20 mA (Sink type)		
	Voltage type	0 to 5 VDC, 0 to 10 VDC		
	Preset input	4 points		
Input impedance	Current type	250 Ω or less		
	Voltage type	Approx. 6.5 kΩ		
	Preset input	Approx. 2.7 kΩ		
Output signal ^{Note 3)} (monitor output)	Analog output	1 to 5 VDC (Load impedance: 1 kΩ or more) 4 to 20 mA (Sink type) (Load impedance: 250 Ω or less)		
	Switch output	NPN open collector output: Max. 30 V, 30 mA PNP open collector output: Max. 30 mA		
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		
Output pressure display	Accuracy	±3% (full span)		
	Minimum unit	MPa: 0.01, kgf/cm ² : 0.01, bar: 0.01, PSI: 0.1 ^{Note 4)} , kPa: 1		
Ambient and fluid temperature		0 to 50°C (with no condensation)		
Enclosure		IP65		
Weight	ITV10□□	Approx. 250 g (without options)		
	ITV20□□	Approx. 350 g (without options)		
	ITV30□□	Approx. 645 g (without options)		

Note 1) Please refer to "Graph (1)", relation to the differences between the set pressure and input. Additionally, refer to page 14-8-29 for the set pressure range by units of standard measured pressure. Additionally, refer to page 14-8-29 as maximum set pressure differs on unit of standard measure.

Note 2) 2-wire type 4 to 20 mA is not available. Power supply voltage (24 VDC or 12 to 15 VDC) is required.

Note 3) Select either analog output or switch output. Further, when switch output is selected, select either NPN output or PNP output.

Note 4) The minimum unit for ITV205□ is 1PSI.

Note 5) The above characteristics are confined to the static state. When air is consumed on the output side, the pressure may fluctuate.

How to Order

ITV 3 0 1 0 - 0 1 2 S - Q

Model

1	1000
2	2000
3	3000

Pressure range

1	0.1 MPa
3	0.5 MPa
5	0.9 MPa

Power supply voltage

0	24 VDC
1	12 to 15 VDC

Input signal

0	Current 4 to 20 mA (Sink type)
1	Current 0 to 20 mA (Sink type)
2	Voltage 0 to 5 VDC
3	Voltage 0 to 10 VDC
4*	Preset input

* Option

Monitor output

0*	None (for preset input)
1	Analog output 1 to 5V DC
2*	Switch output/NPN output
3*	Switch output/PNP output
4*	Analog output 4 to 20 mA (Sink type)

* Option

Thread type

-	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Port size

1	1/8 (1000 type)
2	1/4 (1000, 2000, 3000 type)
3	3/8 (2000, 3000 type)
4	1/2 (3000 type)

Pressure display unit ^{Note 1)}

-	MPa
2	kgf/cm ²
3	bar
4	PSI
5	kPa

* Option

Cable connector type

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

* Option

CE compliance

-	-
Q	CE compliant

* Please visit our SMC homepage: <http://www.smcworld.com> for the latest details on our CE compliant products.

Bracket

-	Without bracket
B*	Flat bracket
C*	L-bracket

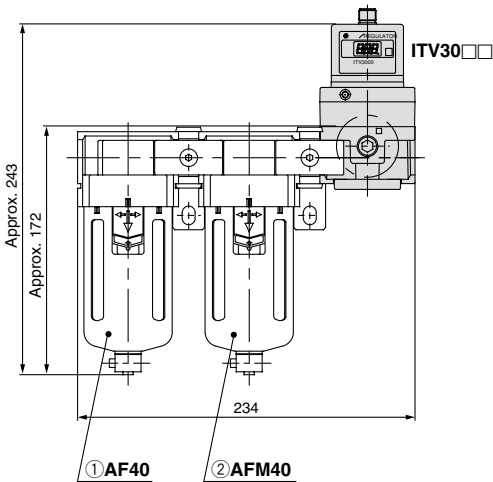
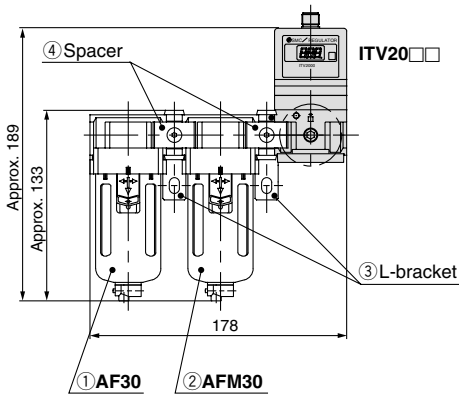
* Option

Electro-pneumatic Regulator Series ITV1000/2000/3000

Combinations

Standard specifications
 Combination possible
 Combination not possible

* ITV10□□ models are not applicable.



Specifications		Symbol	Applicable model	
			ITV20□□	ITV30□□
Standard specifications	Set pressure max. 0.1 MPa	1	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	Set pressure max. 0.5 MPa	3	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	Set pressure max. 0.9 MPa	5	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	Connection Rc 1/4	02	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	Connection Rc 3/8	03	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	Connection Rc 1/2	04	<input type="checkbox"/>	<input checked="" type="radio"/>
Accessories	Bracket	B	<input type="radio"/>	<input type="radio"/>
	Bracket	C	<input type="radio"/>	<input type="radio"/>
Optional specifications	Connection NPT1/4	N02	<input type="radio"/>	<input type="radio"/>
	Connection NPT3/8	N03	<input type="radio"/>	<input type="radio"/>
	Connection NPT1/2	N04	<input type="checkbox"/>	<input type="radio"/>
	Connection G 1/4	F02	<input type="radio"/>	<input type="radio"/>
	Connection G 3/8	F03	<input type="radio"/>	<input type="radio"/>
	Connection G 1/2	F04	<input type="checkbox"/>	<input type="radio"/>

Modular Products and Accessory Combinations

* ITV10□□ models are not applicable.

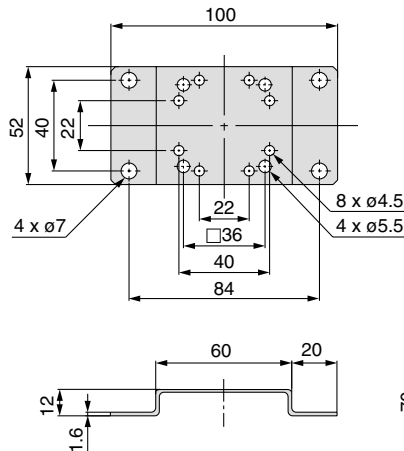
Applicable products and accessories	Applicable model	
	ITV20□□	ITV30□□
① Air filter	AF30	AF40
② Mist separator	AFM30	AFM40
③ L-bracket	B310L	B410L
④ Spacer	Y30	Y40
⑤ Spacer with L-bracket (③ + ④)	Y30L	Y40L

Accessory (Option)/Part No.

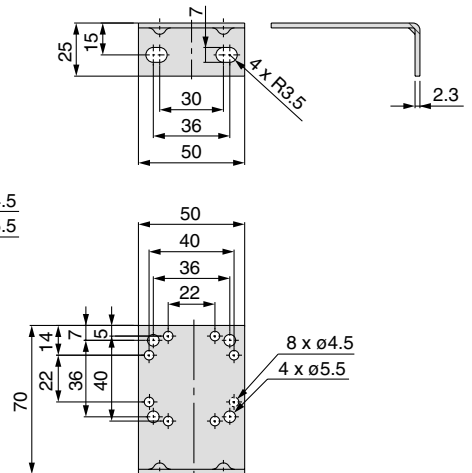
Description	Part no.		
	ITV10□□	ITV20□□	ITV30□□
Flat bracket	P3020114 (Mounting thread is not included.)		
L-bracket	INI-398-0-6 (Mounting thread is not included.)		
Cable connector	Straight type 3 m	TM-4DSX3HG4	
	Right angle type 3 m	TM-4DLX3HG4	

Dimensions

Flat bracket



L-bracket



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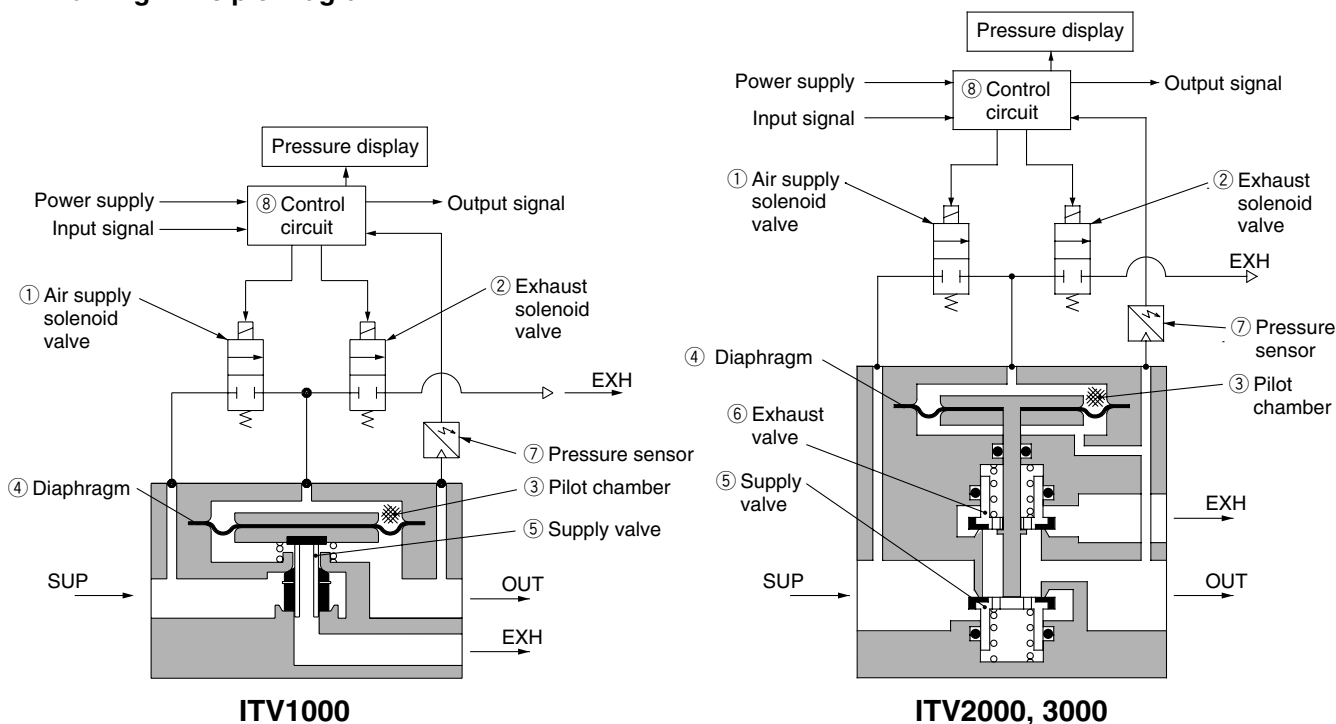
Working Principle

When the input signal rises, the air supply solenoid valve ① turns ON, and the exhaust solenoid valve ② turns OFF. Therefore, supply pressure passes through the air supply solenoid valve ① and is applied to the pilot chamber ③. The pressure in the pilot chamber ③ increases and operates on the upper surface of the diaphragm ④.

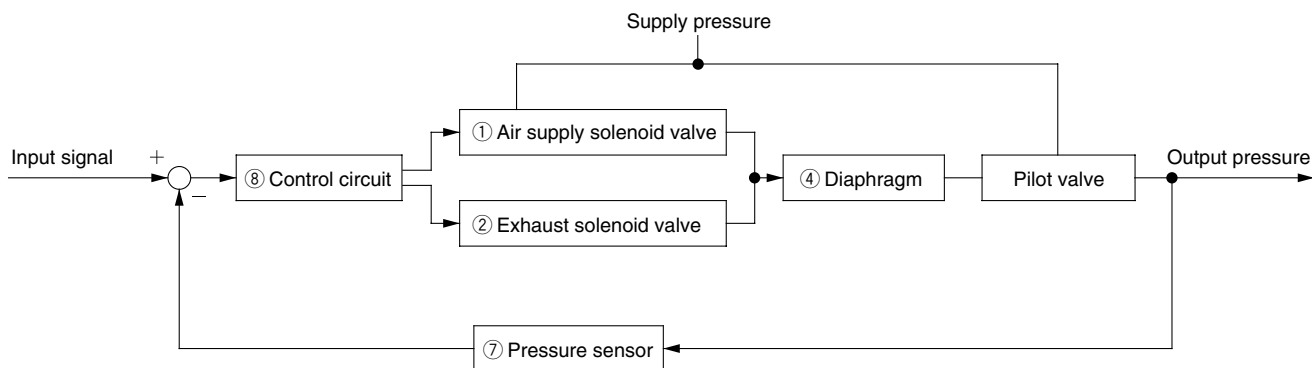
As a result, the air supply valve ⑤ linked to the diaphragm ④ opens, and a portion of the supply pressure becomes output pressure.

This output pressure feeds back to the control circuit ⑧ via the pressure sensor ⑦. Here, a correct operation functions until the output pressure is proportional to the input signal, making it possible to always obtain output pressure proportional to the input signal.

Working Principle Diagram



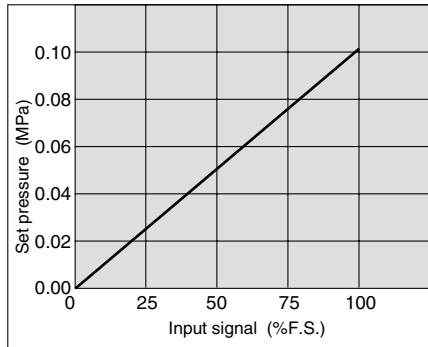
Block diagram



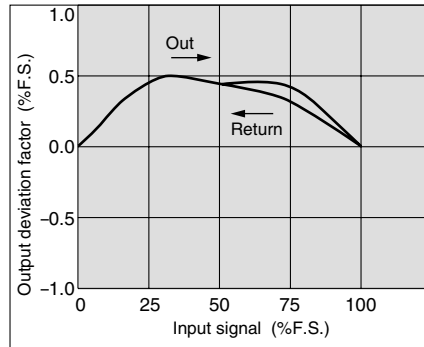
Electro-pneumatic Regulator Series ITV1000/2000/3000

Series ITV101

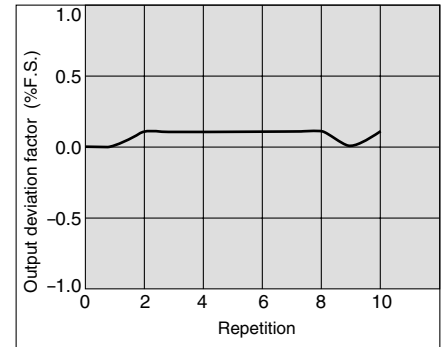
Linearity



Hysteresis

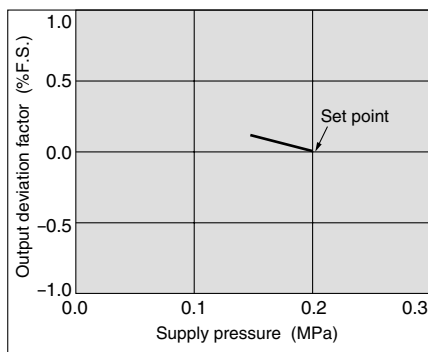


Repeatability



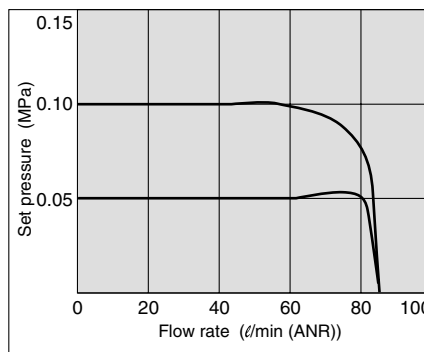
Pressure Characteristics

Set pressure: 0.05 MPa



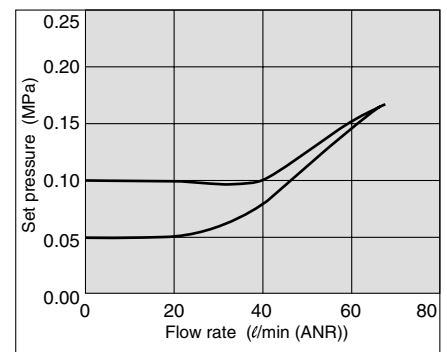
Flow Characteristics

Supply pressure: 0.2 MPa



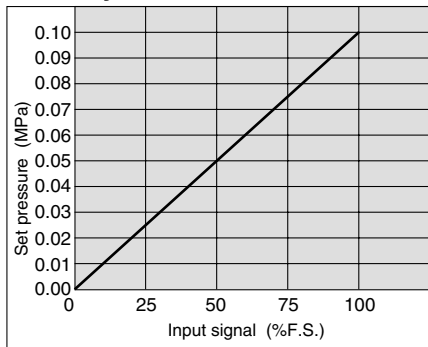
Relief Flow Characteristics

Supply pressure: 0.2 MPa

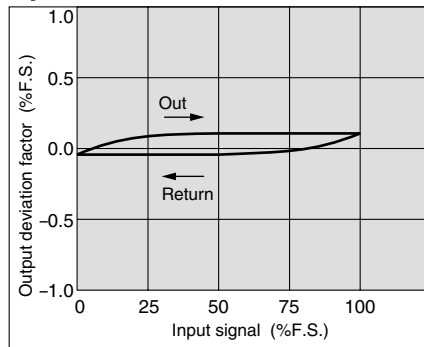


Series ITV201

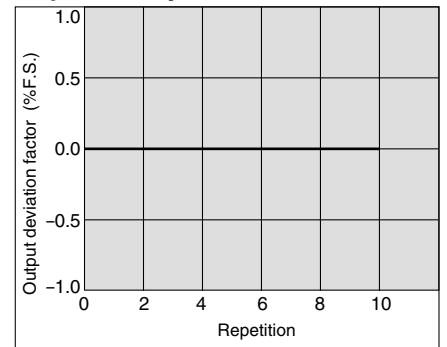
Linearity



Hysteresis

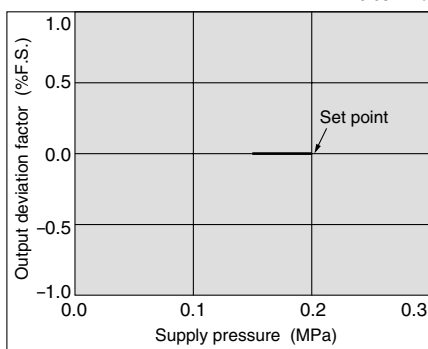


Repeatability



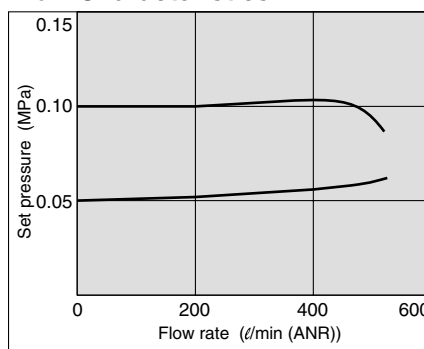
Pressure Characteristics

Set pressure: 0.05 MPa



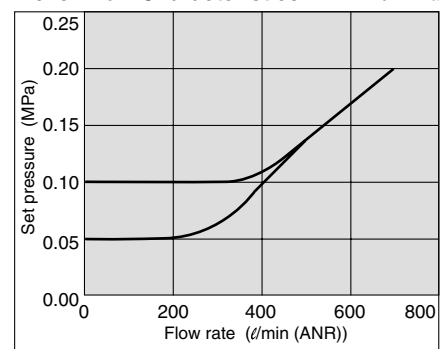
Flow Characteristics

Supply pressure: 0.2 MPa



Relief Flow Characteristics

Supply pressure: 0.2 MPa



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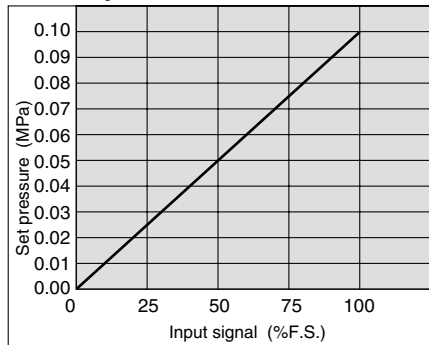
PPA

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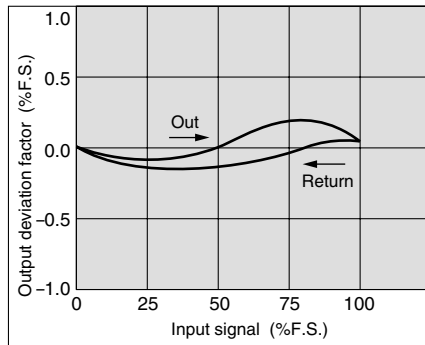
Series ITV1000/2000/3000

Series ITV301

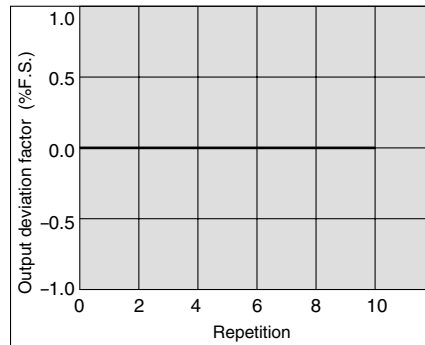
Linearity



Hysteresis

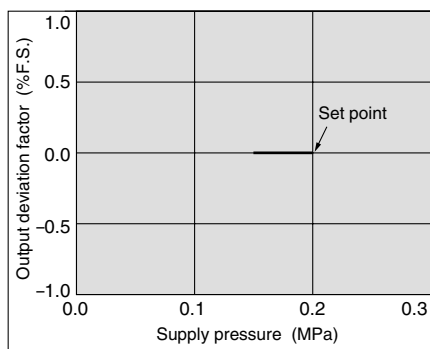


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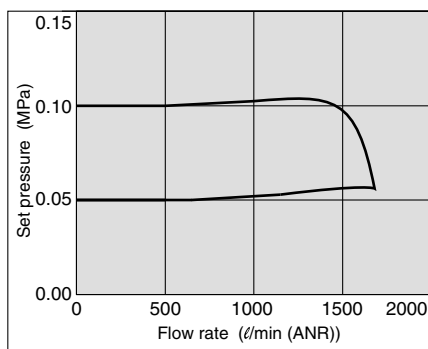
Pressure Characteristics

Set pressure:
0.05 MPa



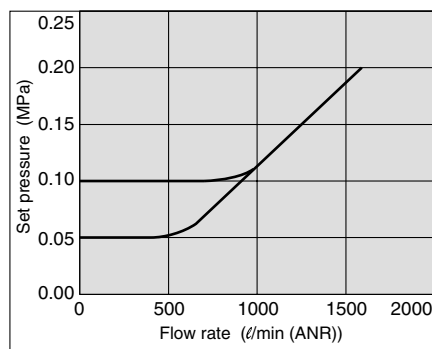
Flow Characteristics

Supply pressure:
0.2 MPa



Relief Flow Characteristics

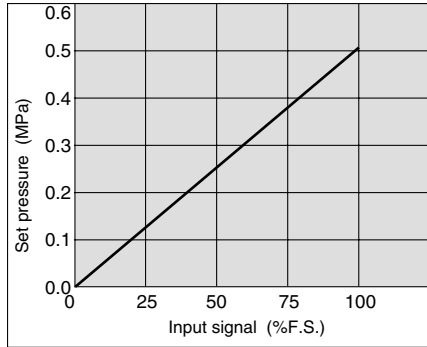
Supply pressure:
0.2 MPa



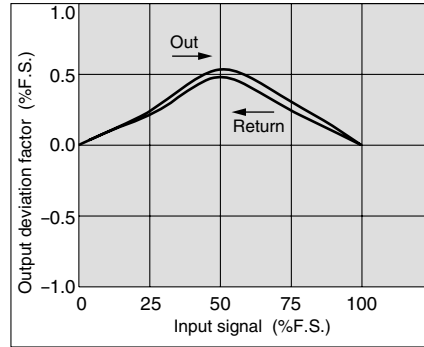
Electro-pneumatic Regulator Series ITV1000/2000/3000

Series ITV103

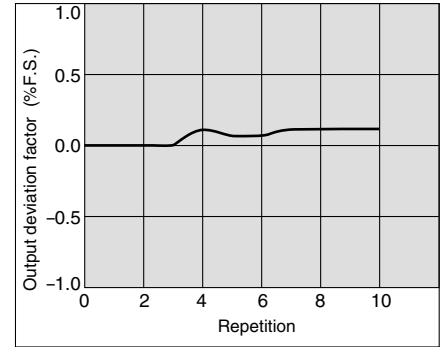
Linearity



Hysteresis

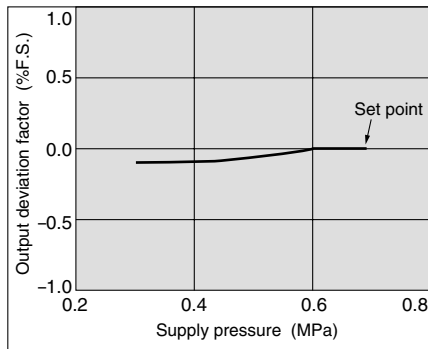


Repeatability



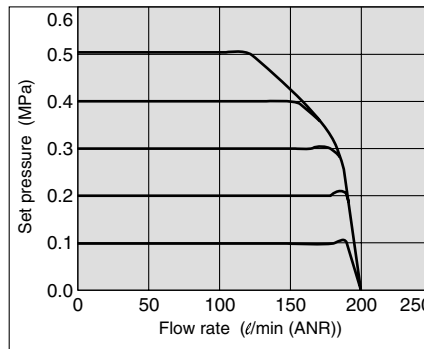
Pressure Characteristics

Set pressure: 0.2 MPa



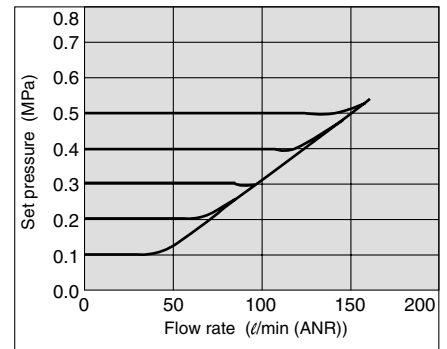
Flow Characteristics

Supply pressure: 0.7 MPa



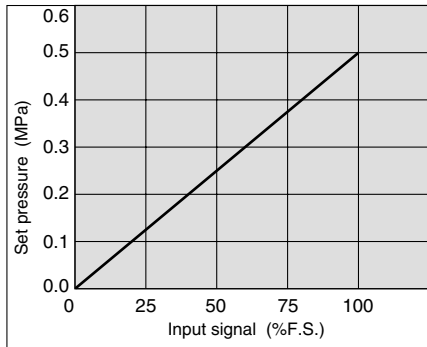
Relief Flow Characteristics

Supply pressure: 0.7 MPa

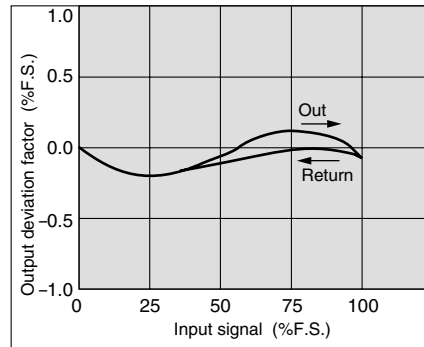


Series ITV203

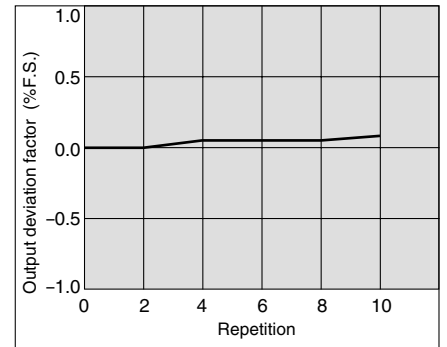
Linearity



Hysteresis

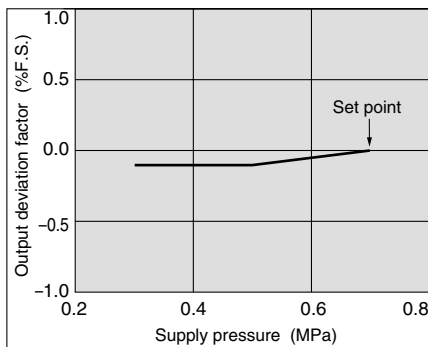


Repeatability



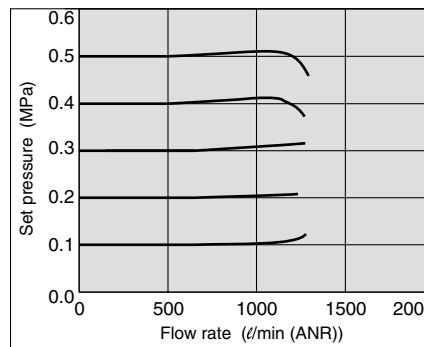
Pressure Characteristics

Set pressure: 0.2 MPa



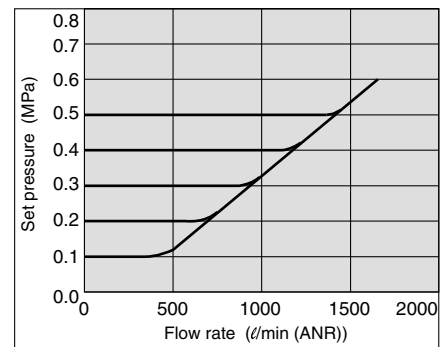
Flow Characteristics

Supply pressure: 0.7 MPa



Relief Flow Characteristics

Supply pressure: 0.7 MPa



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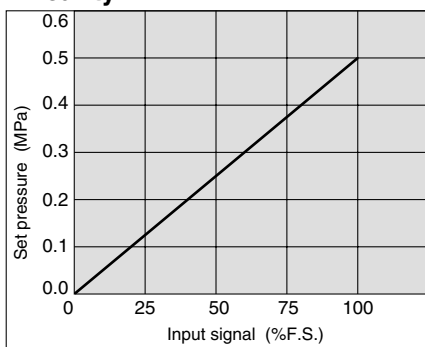
PPA

AL

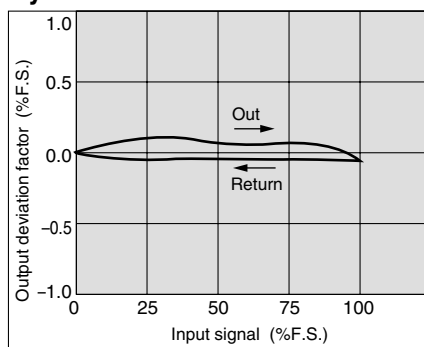
Series ITV1000/2000/3000

Series ITV303

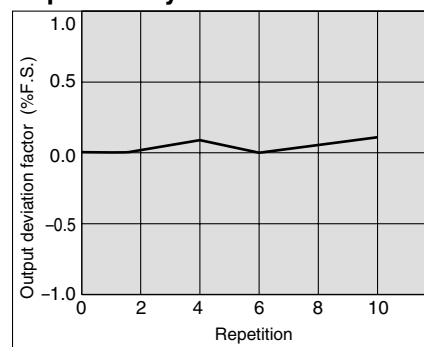
Linearity



Hysteresis

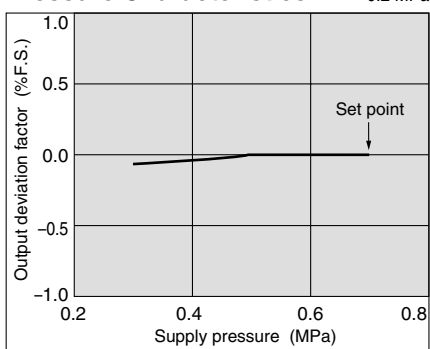


Repeatability



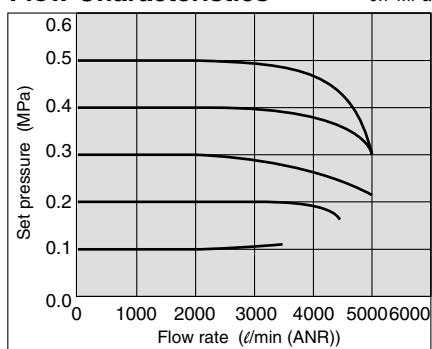
Pressure Characteristics

Set pressure:
0.2 MPa



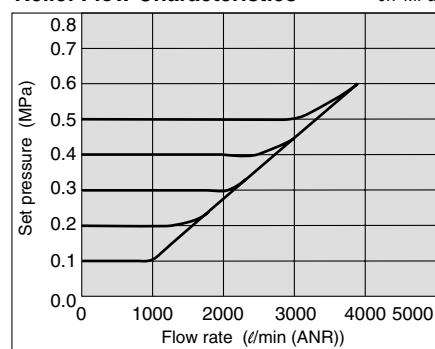
Flow Characteristics

Supply pressure:
0.7 MPa



Relief Flow Characteristics

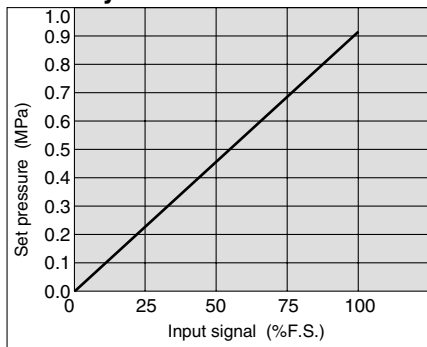
Supply pressure:
0.7 MPa



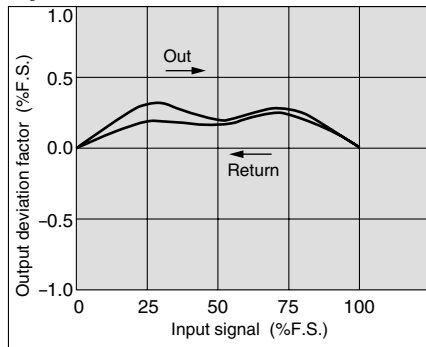
Electro-pneumatic Regulator Series ITV1000/2000/3000

Series ITV105

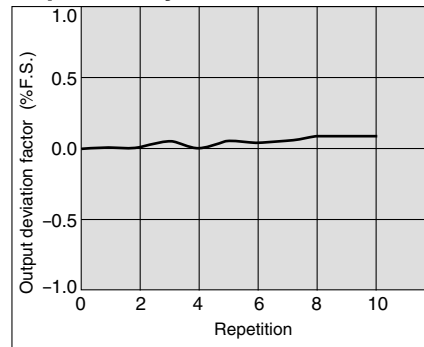
Linearity



Hysteresis

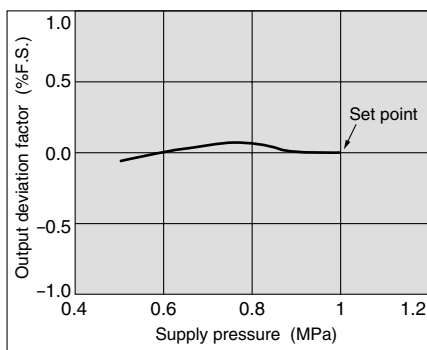


Repeatability



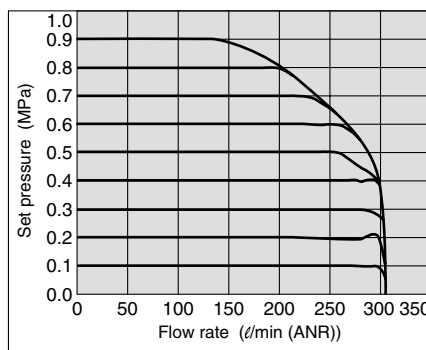
Pressure Characteristics

Set pressure: 0.4 MPa



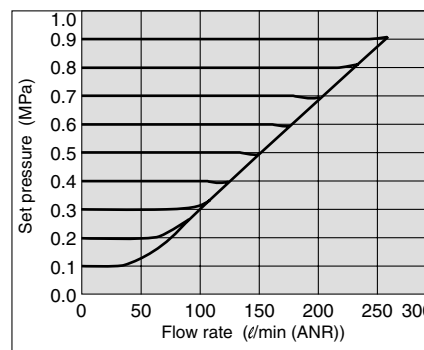
Flow Characteristics

Supply pressure: 1.0 MPa



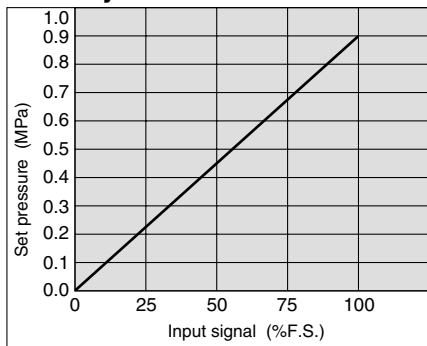
Relief Flow Characteristics

Supply pressure: 1.0 MPa

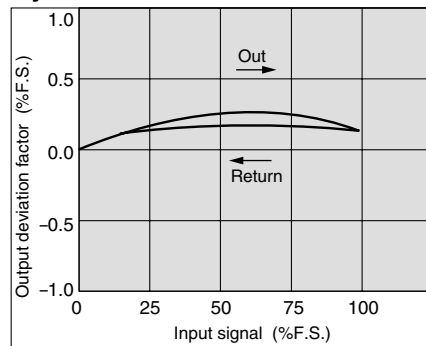


Series ITV205

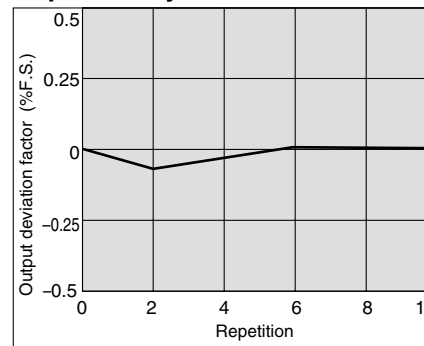
Linearity



Hysteresis

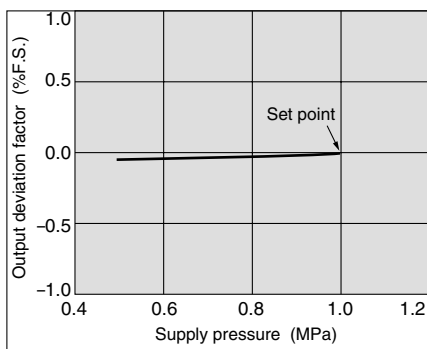


Repeatability



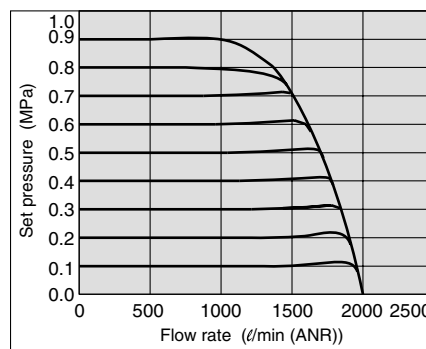
Pressure Characteristics

Set pressure: 0.4 MPa



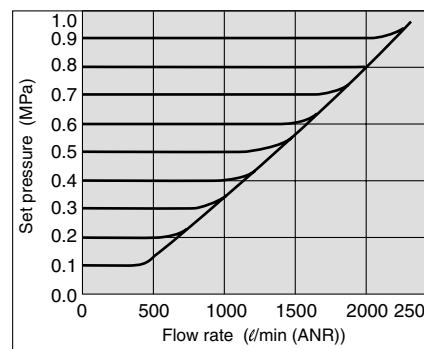
Flow Characteristics

Supply pressure: 1.0 MPa



Relief Flow Characteristics

Supply pressure: 1.0 MPa

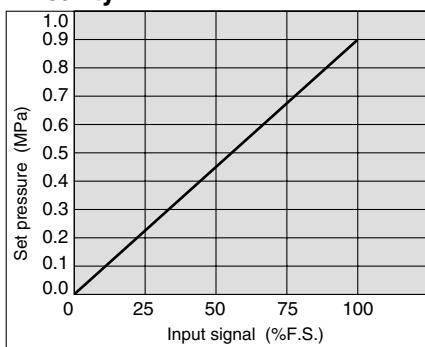


- F.R.L.
- AV
- AU
- AF
- AR
- IR
- VEX
- AMR
- ITV
- IC
- VBA
- VE
- VY1
- G
- PPA
- AL

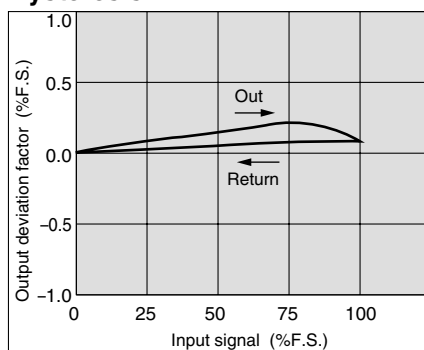
Series ITV1000/2000/3000

Series ITV305

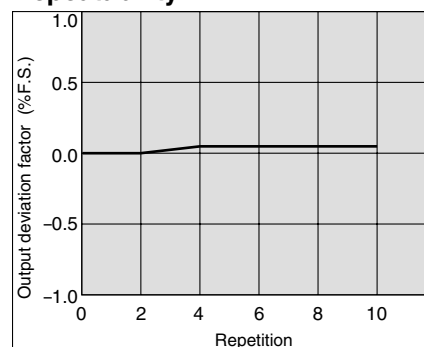
Linearity



Hysteresis

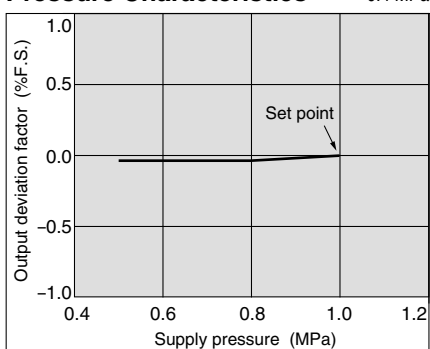


Repeatability



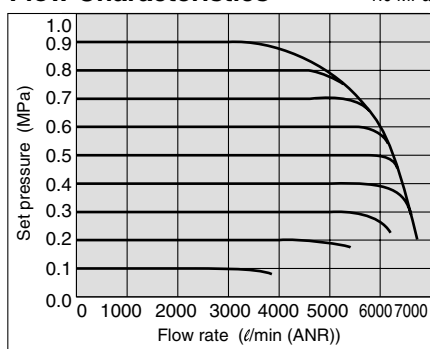
Pressure Characteristics

Set pressure:
0.4 MPa



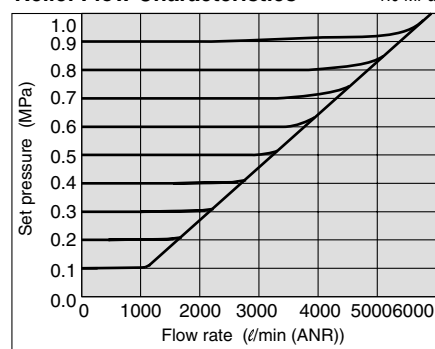
Flow Characteristics

Supply pressure:
1.0 MPa



Relief Flow Characteristics

Supply pressure:
1.0 MPa

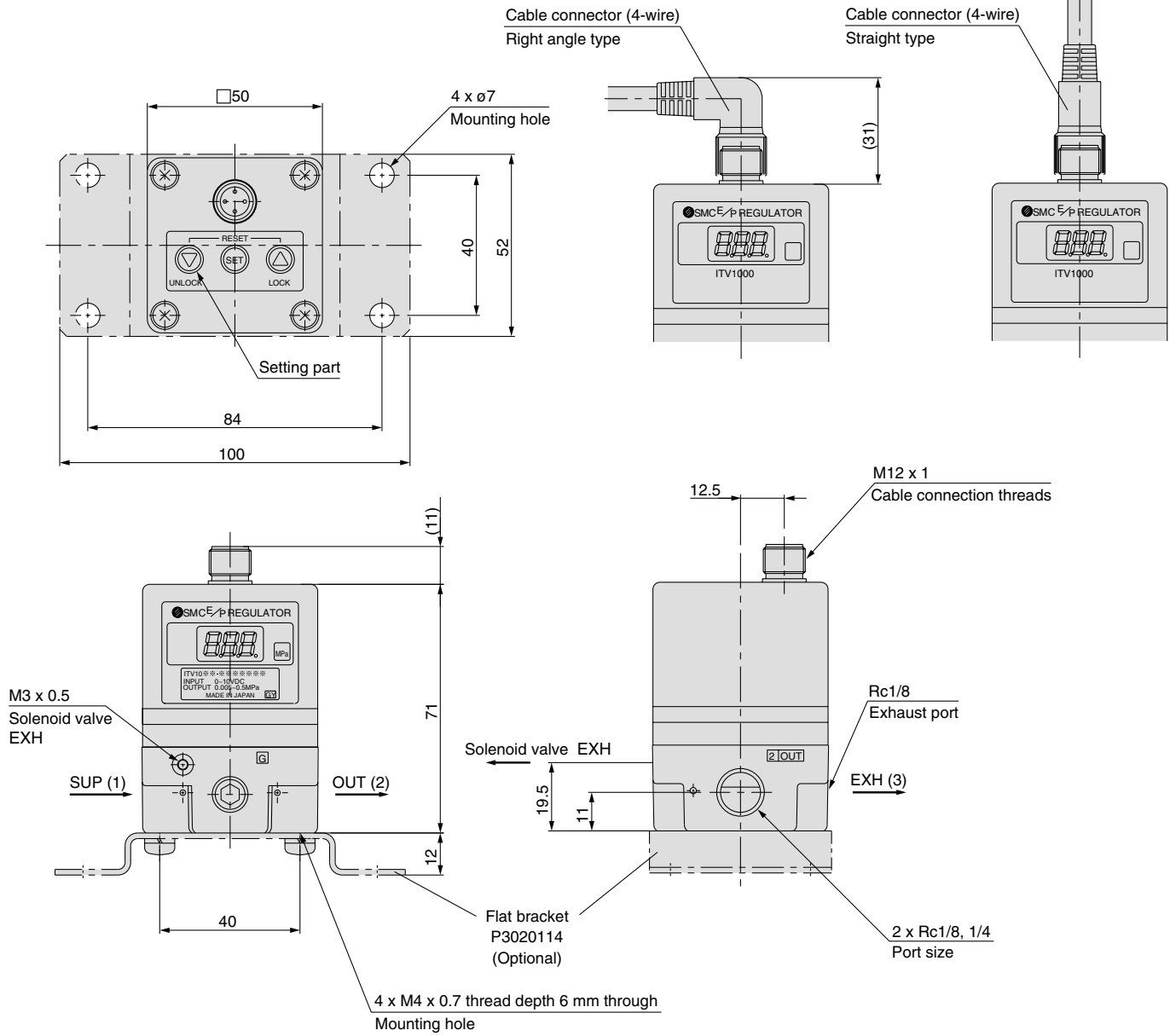


Electro-pneumatic Regulator Series *ITV1000/2000/3000*

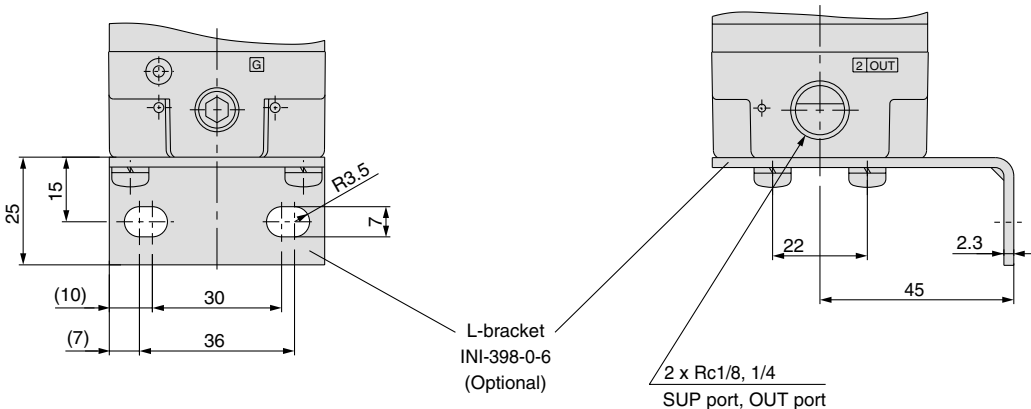
Dimensions

ITV10□□ Flat bracket

Note) Do not attempt to rotate, as the cable connector does not turn.



L-bracket



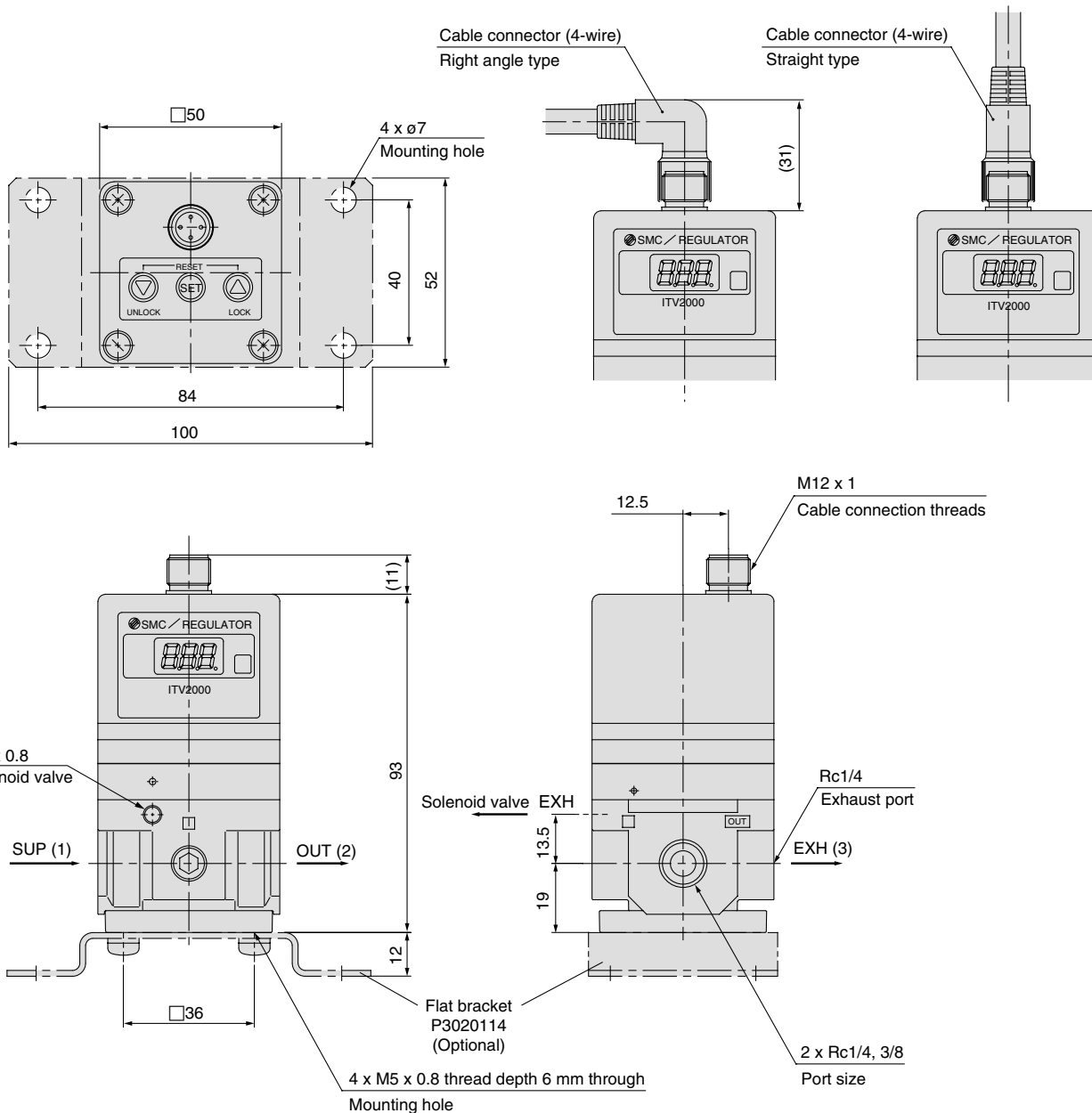
- F.R.L.
- AV
- AU
- AF
- AR
- IR
- VEX
- AMR
- ITV**
- IC
- VBA
- VE□
- VY1
- G
- PPA
- AL

Series ITV1000/2000/3000

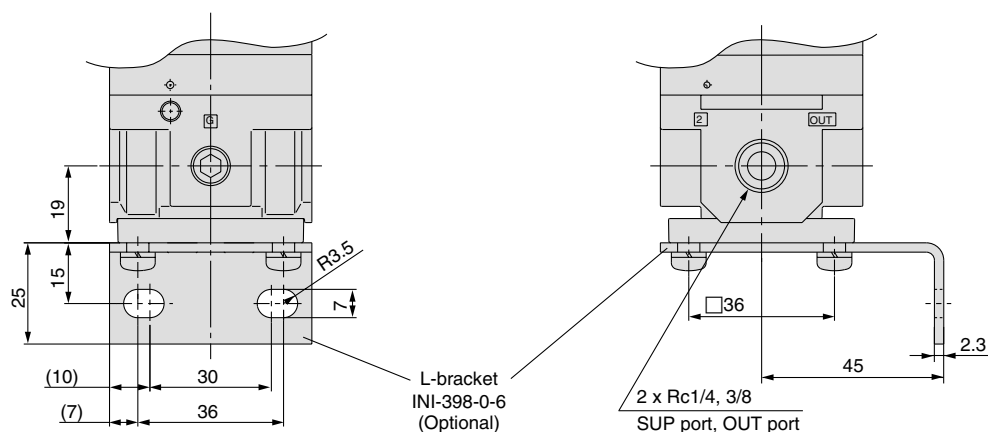
Dimensions

ITV20□□ Flat bracket

Note) Do not attempt to rotate, as the cable connector does not turn.



L-bracket

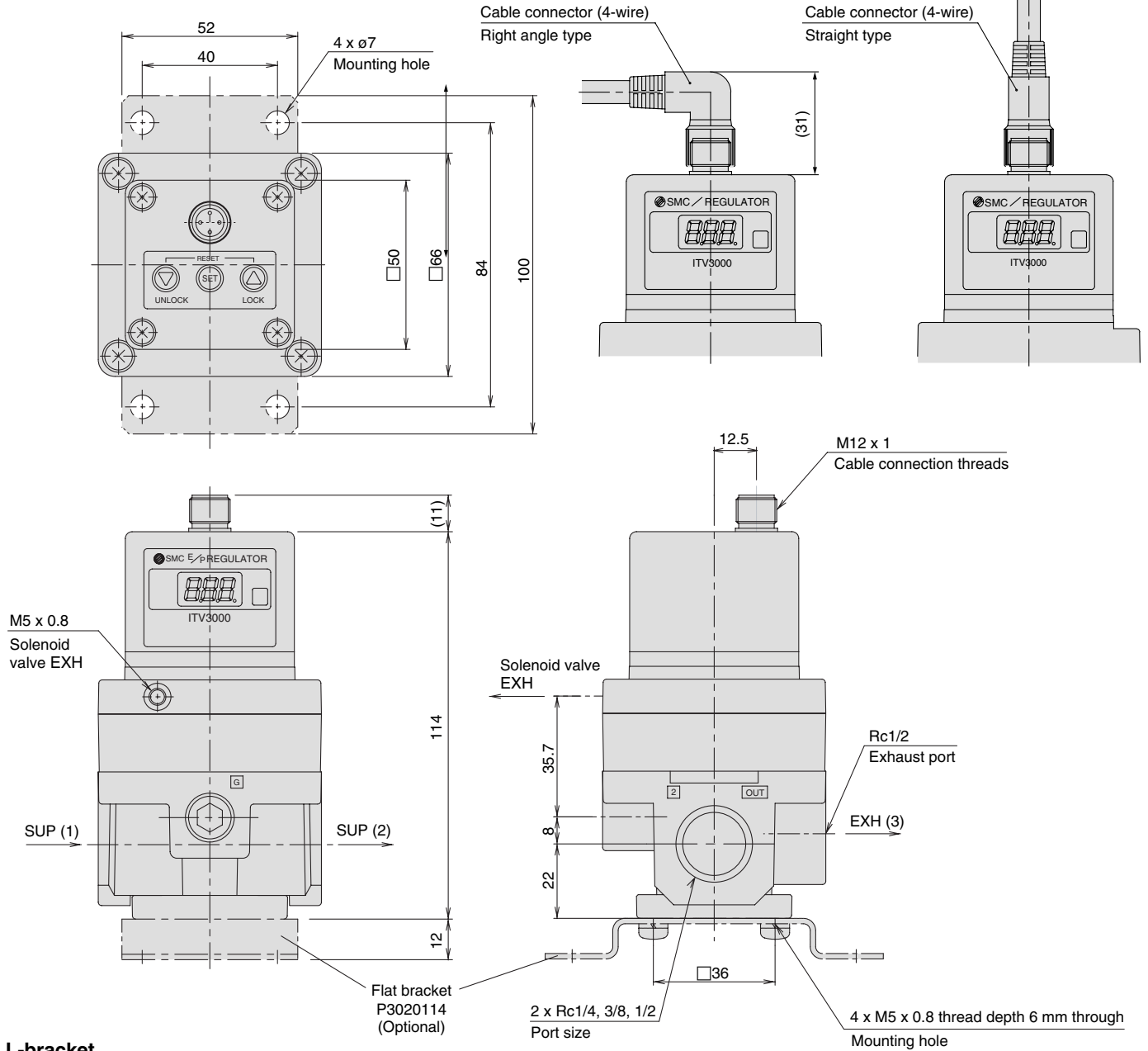


Electro-pneumatic Regulator Series ITV1000/2000/3000

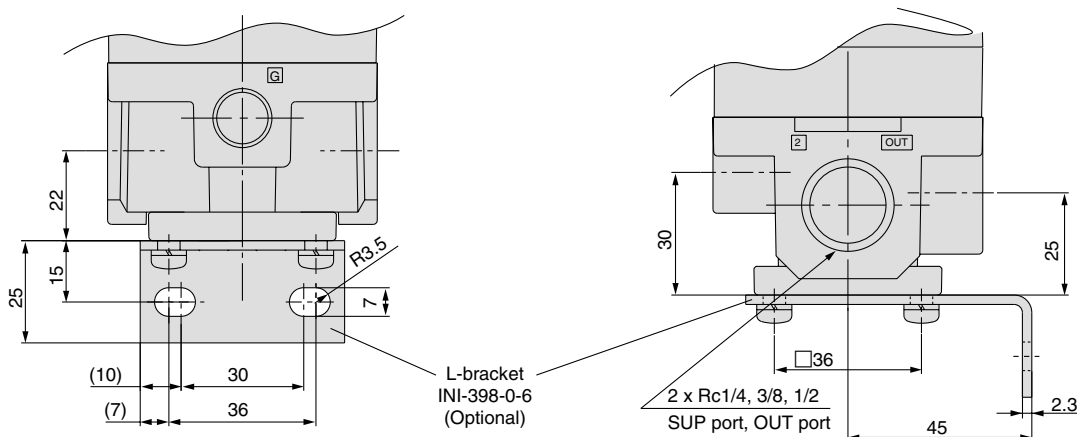
Dimensions

ITV30□□ Flat bracket

Note) Do not attempt to rotate, as the cable connector does not turn.



L-bracket



- F.R.L.
- AV
- AU
- AF
- AR
- IR
- VEX
- AMR
- ITV**
- IC
- VBA
- VE□
- VY1
- G
- PPA
- AL

Series ITV1000/2000/3000

Made to Order Specifications:

Please contact SMC regarding detailed dimensions, specifications and delivery times.

1 Ozone Resistant -X93

Fluoro rubber is used for the rubber parts of seals.

80 — Standard model number

● Ozone resistant

2 Reverse Type -X102

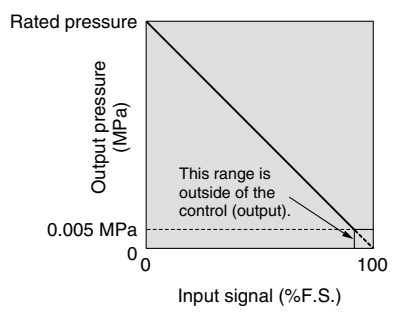
In compliance with input, inverse proportional pressure is displayed.

ITV10 □ □ — □ □ □ □ □ □ □ □ — X102

ITV20 □ □ — □ □ □ □ □ □ □ □ — X102

ITV30 □ □ — □ □ □ □ □ □ □ □ — X102

● Reverse type



Input/output characteristics chart

Note 1) □ in part number is the same model no. for the standard products.
 Note 2) Except for preset input type.

3 16 Points Preset Input Type -X81

Able to control 16-point-pressure by 4 bit switching input

ITV10 □ 0 — 4 □ □ □ □ □ □ □ □ — X81

ITV20 □ 0 — 4 □ □ □ □ □ □ □ □ — X81

ITV30 □ 0 — 4 □ □ □ □ □ □ □ □ — X81

● 16 points preset type

Note 1) □ in part number is the same model no. for the standard products.
 Note 2) Monitor output is switch output type only.

4 Digital Input Type -X93

Parallel input type with digital 10 bit.

ITV10 □ 0 — 4 0 □ □ □ □ □ □ □ □ — X93

ITV20 □ 0 — 4 0 □ □ □ □ □ □ □ □ — X93

ITV30 □ 0 — 4 0 □ □ □ □ □ □ □ □ — X93

● Digital input type

Note 1) □ in part number is the same model no. for the standard products.

5 DeviceNet Compliant -X80

It is conforming to DeviceNet.

ITV10 □ 0 — 4 0 □ □ □ □ □ □ □ □ — X80

ITV20 □ 0 — 4 0 □ □ □ □ □ □ □ □ — X80

ITV30 □ 0 — 4 0 □ □ □ □ □ □ □ □ — X80

● DeviceNet compliant

Note 1) □ in part number is the same model no. for the standard products.
 Note 2) The pressure is not indicated.

Series ITV1000/2000/3000

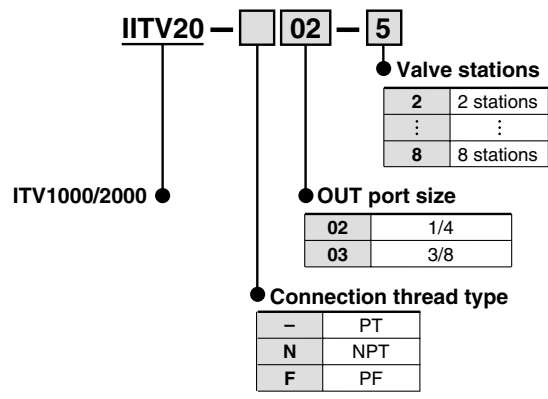
Made to Order Specifications:

Please contact SMC regarding detailed dimensions, specifications and delivery times.

6 Manifold Specifications (Except Series ITV3000)

2 through 8 station manifold.

How to Order Manifold



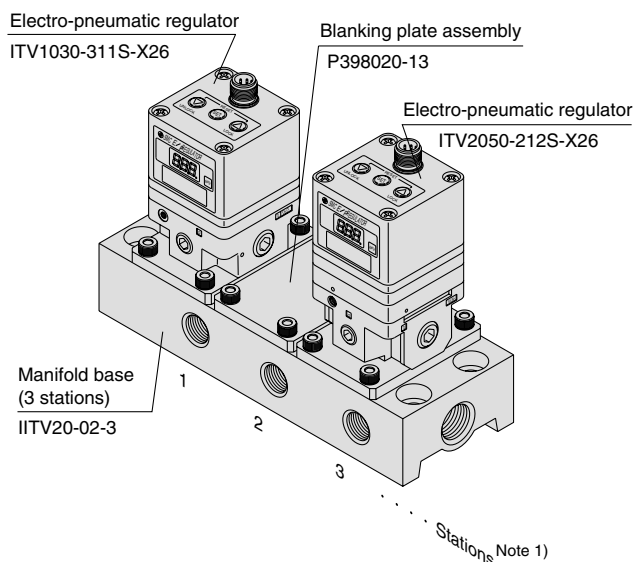
IITV20-02-3 1 set (3 station manifold base part no.)
 *ITV2030-311S-X26 1 set (Electro-pneumatic regulator part no.) Note 2)
 *P398020-13 1 set (Blanking plate assembly part no.)
 *ITV2050-212S-X26 1 set (Electro-pneumatic regulator part no.) Note 2)
 The * is the symbol for mounting. Add the * symbol at the beginning of part numbers for electro-pneumatic regulators, etc. to be mounted on the base.

Note) Refer to the table below for possible mixed combination.

Model	ITV101	ITV103	ITV105	ITV201	ITV203	ITV205
ITV101	●	—	—	●	—	—
ITV103	—	●	●	—	●	●
ITV105	—	●	●	—	●	●
ITV201	●	—	—	●	—	—
ITV203	—	●	●	—	●	●
ITV205	—	●	●	—	●	●

How to Order Manifold Assembly

Example

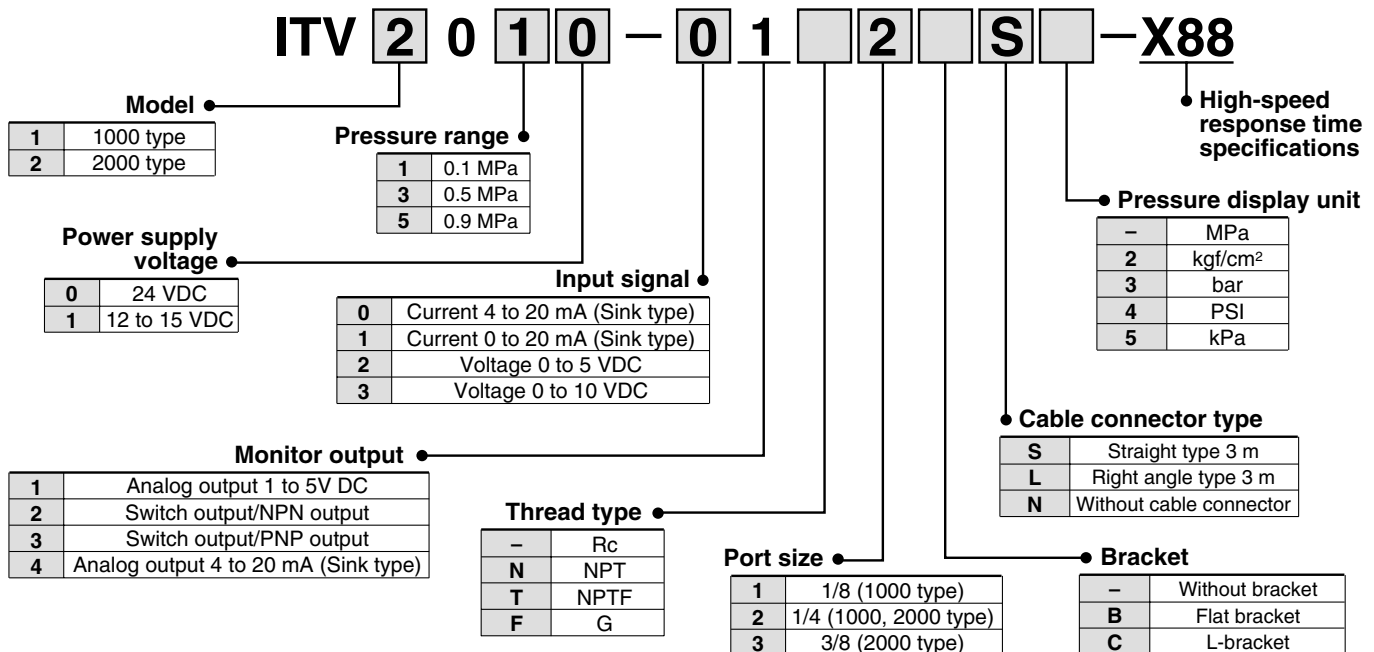


- Note 1) Electro-pneumatic regulators are counted starting from station 1 on the left side with the OUT ports in front.
- Note 2) The port size for mounted electro-pneumatic regulators is Rc1/8 (ITV1000), Rc1/4 (ITV2000) only.
- Note 3) When there is a large number of stations, use piping with the largest possible inside diameter for the supply side, such as steel piping.
- Note 4) The use of the straight type cable connector is recommended. To mount right angle type, be certain to check that no possible interference occurs.
- Note 5) When mounting a blanking plate and the regulator with different pressure set, please inform SMC of the order of a manifold station beside a purchase order.

7 High-Speed Response Time Specifications

-X88

Pressure response with no load is approx. 0.1 sec.



- F.R.L.
- AV
- AU
- AF
- AR
- IR
- VEX
- AMR
- ITV
- IC
- VBA
- VE
- VY1
- G
- PPA
- AL



Specific Product Precautions 1

Be sure to read before handling.

Operating Environment

⚠ Warning

1. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.
2. Consult SMC when used in power plants, or if instrumentation related.

Air Supply

⚠ Caution

1. Install an air filter near this product on the supply side. Select a filtration degree of 5 μm or less.
2. Compressed air containing large amounts of drainage can cause malfunction of this product and other pneumatic equipment. As a countermeasure, install an aftercooler, air dryer or Drain Catch, etc.
3. If large amounts of carbon dust are generated by the compressor, it can accumulate inside this product and cause malfunction.

For details on the above compressed air quality, refer to Best Pneumatics Vol. 16.

Handling

⚠ Caution

1. Do not use a lubricator on the supply side of this product, as this can cause malfunction. When lubrication of terminal equipment is necessary, connect a lubricator on the output side of this equipment.
2. If electric power is shut off while pressure is being applied, pressure will be retained on the output side.
However, this output pressure is held only temporarily and is not guaranteed. If exhausting of this pressure is desired, shut off the power after reducing the set pressure, and discharge the air using a residual pressure exhaust valve, etc.
3. If power to this product is cut off due to a power failure, etc. when it is in a controlled state, output pressure will be retained temporarily. Handle carefully when operating with output pressure released to the atmosphere, as air will continue to flow out.

Handling

⚠ Caution

4. If supply pressure to this product is interrupted while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the product may be shortened, shut off the power supply also when supply pressure is shut off.
5. In this product, the output side pressure cannot be completely relieved within the range of 0.005 MPa or less. If it is desired to reduce the pressure completely to 0 MPa, install a 3 way valve or other device on the output side to exhaust the pressure.
6. This product is adjusted for each specification at the time of shipment from the factory. Avoid careless disassembly or removal of parts, as this can lead to malfunction.
7. The optional cable connector is a 4 wire type. When the monitor output (analog output or switch output) is not being used, keep it from touching the other wires as this can cause malfunction.
8. Please note that the right angle cable does not rotate and is limited to only one entry direction.
9. Take the following steps to avoid malfunction due to noise.
 - 1) Remove power supply noise during operation by installing a line filter, etc. in the AC power line.
 - 2) For avoiding the influence of noise install this product and its wiring as far as possible from strong electric fields such as those of motors and power lines, etc.
 - 3) Be sure to implement protective measures against load surge for induction loads (solenoid valves, relays, etc.).
 - 4) Install or remove the connector after shutting off the power supply to avoid the influence of chattering of the power supply.
10. Due to the large volume of the output side, a loud exhaust noise will be produced when being used for the purpose of a relief function. Therefore, install a silencer (SMC Series AN200 or AN400) on the exhaust port (EXH port). The port sizes are Rc1/8, Rc1/4 and Rc1/2.
11. Specifications on page 1 is in case of static environment. Pressure may fluctuate when air is consumed at the output side.
12. For details on the handling of this product, refer to the instruction manual which is included with the product.



Series ITV1000/2000/3000

Specific Product Precautions 2

Be sure to read before handling.

Wiring

⚠ Caution

Connect the cable to the connector on the body with the wiring arranged as shown below. Proceed carefully, as incorrect wiring can cause damage.

Further, use DC power with sufficient capacity and a low ripple.



Current signal type

Voltage signal type

1	Brown	Power supply
2	White	Input signal
3	Blue	GND (COMMON)
4	Black	Monitor output

Preset input type

1	Brown	Power supply
2	White	Input signal
3	Blue	GND (COMMON)
4	Black	Monitor output

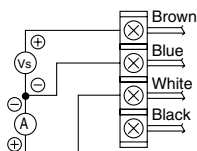
Note) A right angle type cable is also available.

The entry direction for the right angle type connector is to the left (SUP port side).

Never turn the connector as it is not designed to turn.

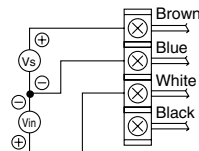
Wiring diagram

Current signal type



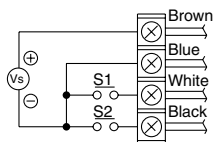
Vs: Power supply 24 VDC
12 to 15 VDC
A : Input signal 4 to 20 mADC
0 to 20 mADC

Voltage signal type



Vs : Power supply 24 VDC
12 to 15 VDC
Vin: Input signal 0 to 5 VDC
0 to 10 VDC

Preset input type



Vs: Power supply 24 VDC
12 to 15 VDC

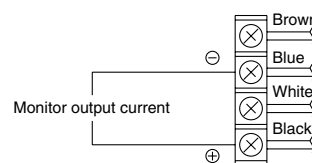
One of the preset pressures P1 through P4 is selected by the ON/OFF combination of S1 and S2.

S1	OFF	ON	OFF	ON
S2	OFF	OFF	ON	ON
Preset pressure	P1	P2	P3	P4

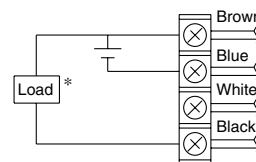
* For safety reasons, it is recommended that one of the preset pressures be set to 0 MPa.

Monitor output wiring diagram

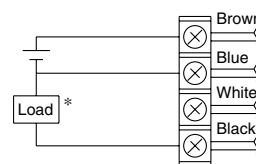
Analog output, voltage type



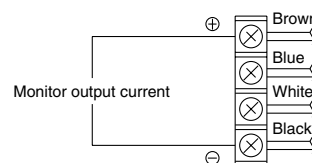
Switch output, NPN type



Switch output, PNP type



Analog output, current type (sink type)



* When 30 mA DC or more is applied, detecting device for overcurrent starts activating and then emits an error signal. (Error number "5")

Set Pressure Range

The regulating pressure range, by unit of standard measured pressure, is shown in the table below.

Regulating pressure range, by unit of standard measured pressure

Unit	Regulating pressure range		
	ITV□01□	ITV□03□	ITV□05□
MPa	0.005 to 0.1	0.005 to 0.5	0.005 to 0.9
kgf/cm ²	0.05 to 1	0.05 to 5	0.05 to 9
bar	0.05 to 1	0.05 to 5	0.05 to 9
PSI	0.7 to 15	0.7 to 70	0.7 to 130
kPa	5 to 100	5 to 500	5 to 900

F.R.L.

AV

AU

AF

AR

IR

VEX

AMR

ITV

IC

VBA

VE□

VY1

G

PPA

AL

Electronic Vacuum Regulator

Series *ITV2090/2091*

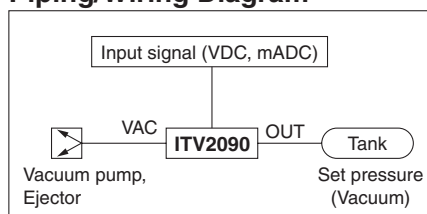
■ Stepless control of vacuum pressure in proportion to an electric signal



Straight type

Right angle type

Piping/Wiring Diagram



Standard Specifications

Model		ITV2090	ITV2091
Power supply	Voltage	24 VDC \pm 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	
Minimum supply vacuum pressure ⁽¹⁾		Set pressure -13.3 kPa	
Maximum supply vacuum pressure		-101 kPa	
Regulating pressure range		-1.3 to -80 kPa	
Input signal	Current type ⁽²⁾	4 to 20 mA, 0 to 20 mA	
	Voltage type	0 to 5 VDC, 0 to 10 VDC	
	Preset input	4 points	
Input impedance	Current type	250 Ω or less	
	Voltage type	Approximately 6.5 k Ω	
	Preset input	Approximately 2.7 k Ω	
Output signal ⁽³⁾ (Monitor output)	Analog output	1 to 5 VDC (Load impedance: 1 k Ω or more) 4 to 20 mA (Sink type) (Load impedance: 250 Ω or less)	
	Switch output	NPN open collector output: Max. 30 V, 30 mA PNP open collector output: Max. 30 mA	
Linearity		Within \pm 1% (Full span)	
Hysteresis		Within 0.5% (Full span)	
Repeatability		Within \pm 0.5% (Full span)	
Sensitivity		Within 0.2% (Full span)	
Temperature characteristics		Within \pm 0.12% (Full span)/ $^{\circ}$ C	
Output pressure display	Accuracy	\pm 3% (Full span)	
	Units	kPa ⁽⁴⁾ Minimum display: 1	
Ambient and fluid temperature		0 to 50 $^{\circ}$ C (With no condensation)	
Enclosure		IP65 equivalent	
Weight		350 g	

Note 1) The minimum supply vacuum pressure should be 13.3 kPa less than the maximum vacuum pressure setting value.

Note 2) 4 to 20 mA is not possible with the 2-wire type. Power supply voltage (24 VDC or 12 to 15 VDC) is required.

Note 3) Either analog output or switch output must be selected. Furthermore, when switch output is selected, either NPN output or PNP output must also be selected. Use caution that the preset input type is not equipped with an output signal function.

Note 4) Please contact SMC regarding indication with other units of pressure.

How to Order

ITV 209 0 0 1 2 S 5

Pressure range

9	-1.3 to -80 kPa
---	---------------------

Power supply voltage

0	24 VDC
1	12 to 15 VDC

Input signal

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

* Option

Monitor output

0*	None (For preset input)
1	Analog output 1 to 5 VDC
2*	Switch output/NPN output
3*	Switch output/PNP output
4*	Analog output 4 to 20 mADC

* Option

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Port size

2	1/4
---	-----

Pressure display unit

5	kPa
---	-----

Cable connector type

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

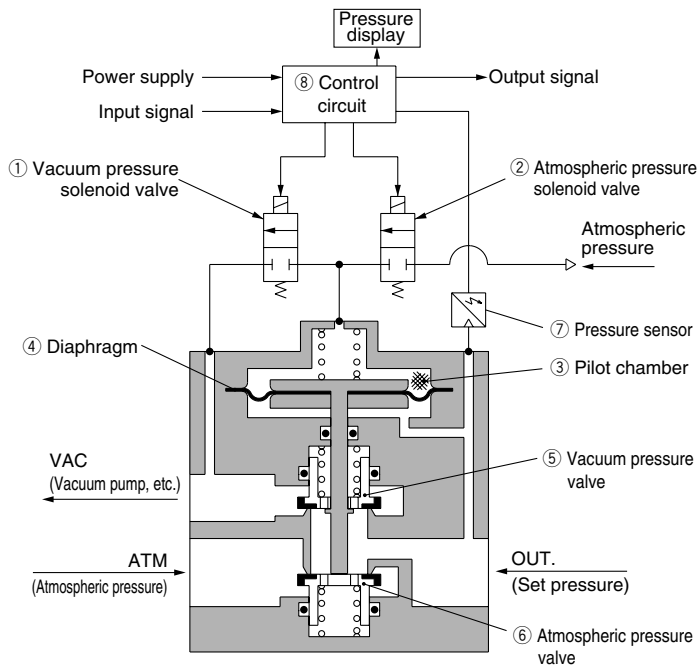
* Option

Option (Bracket)

Nil	Without bracket
B*	Flat bracket
C*	L-bracket

* Option

Working Principle



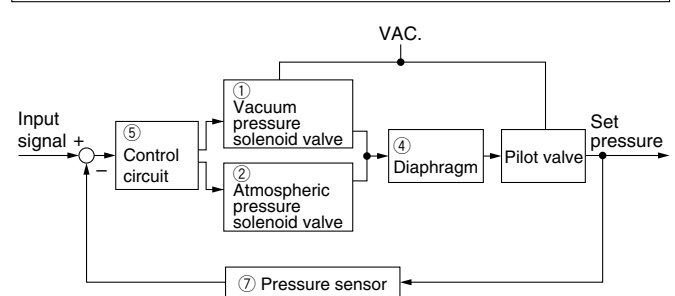
Working Principle

When the input signal increases, the vacuum pressure solenoid valve ① turns ON, and the atmospheric pressure solenoid valve ② turns OFF. Because of this, VAC and the pilot chamber ③ are connected, the pressure in the pilot chamber ③ becomes negative and acts on the top of the diaphragm.

As a result, the vacuum pressure valve ⑤ which is linked to the diaphragm ④ opens, VAC and OUT are connected, and the set pressure becomes negative.

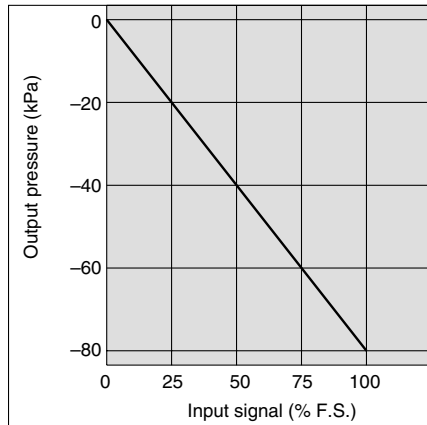
This negative pressure feeds back to the control circuit ⑧ via the pressure sensor ⑦. Then, a correct operation works until a vacuum pressure proportional to the input signal is reached, and a vacuum pressure is obtained which is always proportional to the input signal.

Block Diagram

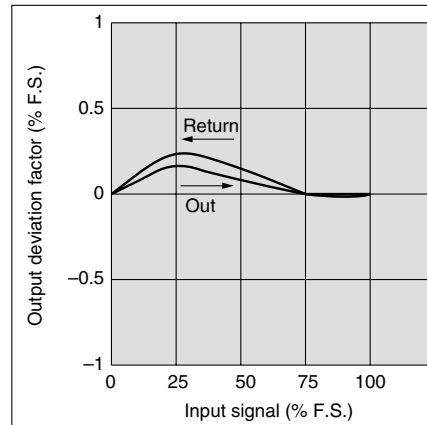


Series ITV209

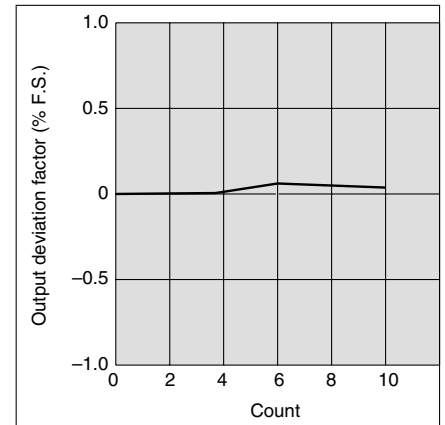
Linearity



Hysteresis

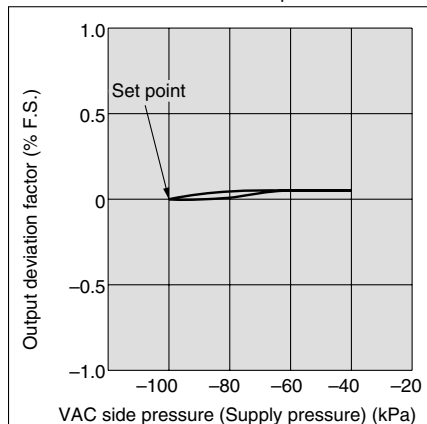


Repeatability



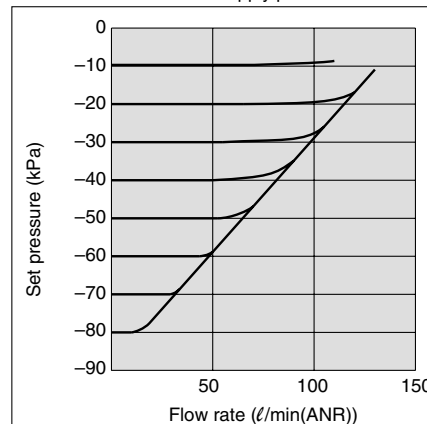
Pressure Characteristics

Set pressure: -20 kPa



Flow Characteristics

Supply pressure: -100 kPa



Flow characteristics measurement conditions

- Exhaust flow rate of the vacuum pump used for measurement: 500 l/min (ANR)
- Inlet vacuum pressure: -100 kPa (When outlet flow rate is 0 l/min (ANR))
- Maximum flow rate: 132 l/min (ANR) (With inlet vacuum pressure at -39 kPa)

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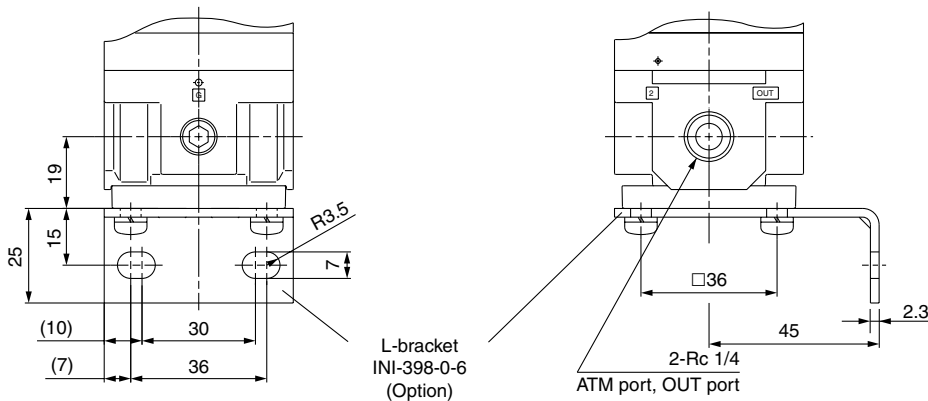
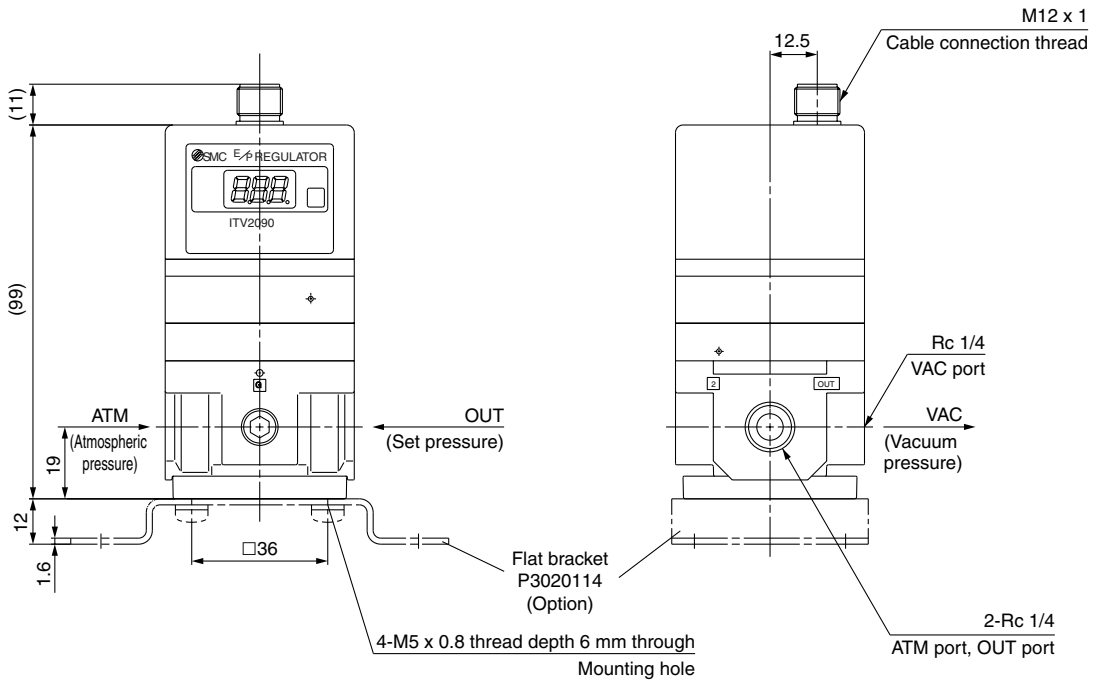
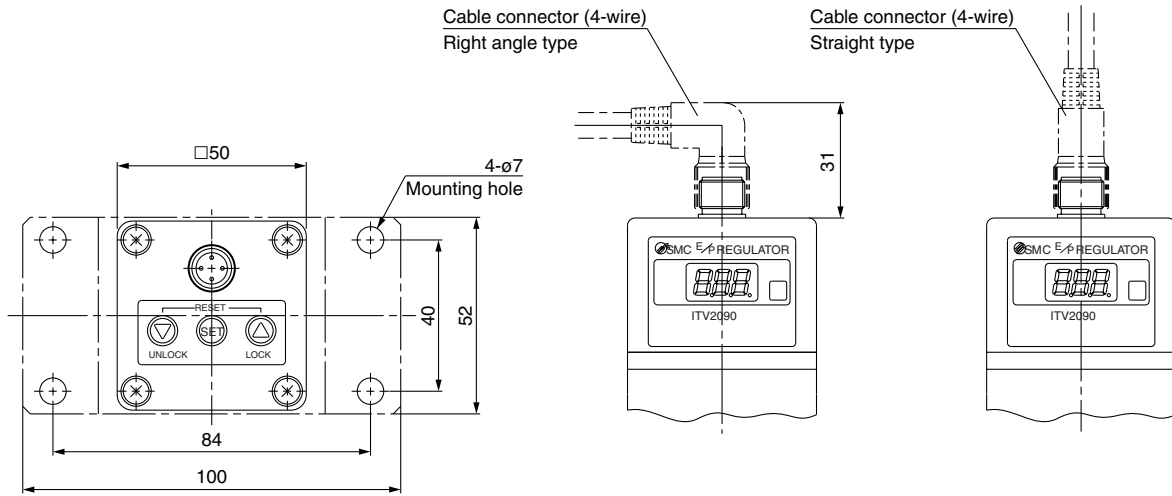
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Dimensions

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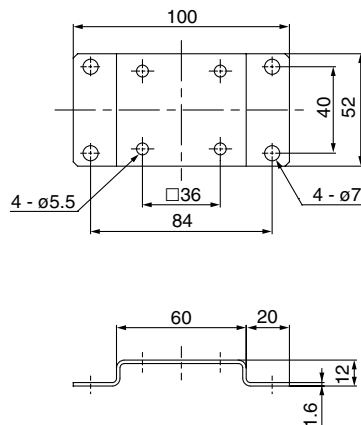
Note) Do not attempt to rotate the cable connector, as it does not turn.



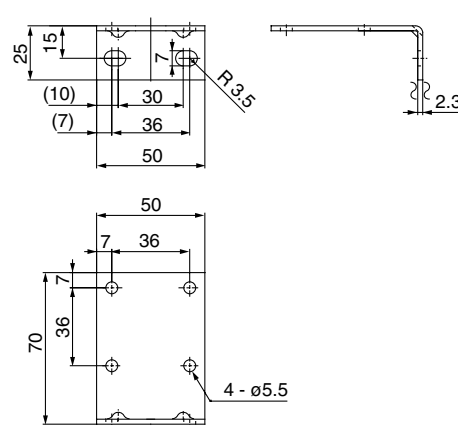
Accessory (Option)/Part No.

Description		Part no.
Flat bracket		P3020114
L-bracket		INI-398-0-6
Cable connector	Straight type	TM-4DSX3HG4
	Right angle type	TM-4DLX3HG4

Dimensions Flat bracket



L-bracket



⚠ Precautions

Be sure to read before handling. Refer to pages 14-21-3 to 14-21-4 for Safety Instructions and Common Precautions.

Handling

⚠ Caution

- Connect the vacuum pump to the port, which is labeled "VAC".
- Pressure adjustment changes from "atmospheric pressure to vacuum pressure" when the input signal is increased, and from "vacuum pressure to atmospheric pressure" when the input signal is decreased.
- When adjusting the vacuum pressure, be careful not to block the atmospheric pressure inlet port labeled "ATM".
- Since this product is designed exclusively for use with negative pressure, be careful not to apply positive pressure in error.
- In cases where the vacuum pump being used has a relatively small capacity, or the piping has a small inside diameter, etc., large variations in the set pressure (the range of pressure variation when changing from no flow to flow state) may appear. In this situation, the vacuum pump or the piping, etc. should be changed. In cases where it is not practical to change the vacuum pump, install a capacity tank (volume depending on the operating conditions) on the VAC side.
- The vacuum pressure response time after a change in the input signal is influenced by the internal volume on the setting side (including piping). Since the capacity of the vacuum pump also influences the response time, give careful consideration to these points before operation.
- If the electric power is shut off when in a control state, the pressure on the setting side will go into a holding condition. However, this setting side pressure will be held only temporarily and is not guaranteed. In addition, when atmospheric pressure is desired, shut off the power after reducing the set pressure, and then introduce atmospheric pressure by using a vacuum release valve, etc.
- If the power for this product is cut off by a power failure, etc. when it is in a controlled state, the setting side pressure will be held temporarily. Further, if operated without sealing the setting side so that atmospheric air is sucked in, handle with care as air will continue to be sucked in.
- If the VAC side pressure to this product is interrupted while the power is still on, the internal solenoid valve will continue to operate and may cause a humming noise. Since this may shorten the life of the product, be sure to shut off the power when the VAC side pressure is shut off.
- The setting side pressure cannot be completely released from this product in the range below -1.3 kPa. In cases where the pressure needs to be reduced completely to 0 kPa, install a 3 port valve, etc. on the setting side to discharge the residual pressure.
- This product is adjusted for each specification at the factory before shipment. Avoid careless disassembly or removal of parts, as this can cause failure.
- The optional cable connector is a 4-wire type. When the monitor output (analog output, switch output) is not being used, keep it from touching the other wires, as this can cause malfunction.
- Use caution that the right angle cable does not rotate and is limited to only one entry direction.
- Take the following steps to avoid malfunction due to noise.
 - Eliminate power supply noise during operation by installing a line filter, etc. in the AC power line.
 - Install this product so that it will not be effected by noise, keeping the product and its wiring away from strong electric field sources such as motors and power lines.
 - Make sure to take protective measures against load surge for an induction load (solenoid valves, relays, etc.).
- Refer to the instruction manual included with the product for details on its handling.

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⚠ Precautions

Be sure to read before handling. Refer to pages 14-21-3 to 14-21-4 for Safety Instructions and Common Precautions.

Wiring

⚠ Caution

Connect the cable to the connector on the body with the wiring arranged as shown below. Proceed carefully, as incorrect wiring can cause damage. Further, use DC power with sufficient capacity and a low ripple.



Current Signal Type Voltage Signal Type

1	Brown	Power supply
2	White	Input signal
3	Blue	GND (COMMON)
4	Black	Monitor output

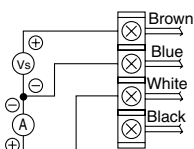
Preset Input Type

1	Brown	Power supply
2	White	Input signal 1
3	Blue	GND (COMMON)
4	Black	Input signal 2

Note) A right angle type cable is also available. The entry direction for the right angle type connector is to the left (SUP port side). Never rotate it, since it's not designed to turn.

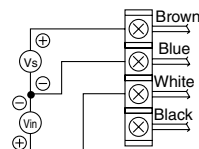
Wiring diagram

Current signal type



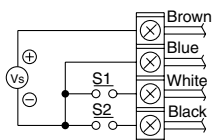
Vs : Power supply 24 VDC
12 to 15 VDC
A : Input signal 4 to 20 mADC
0 to 20 mADC

Voltage signal type



Vs : Power supply 24 VDC
12 to 15 VDC
Vin : Input signal 0 to 5 VDC
0 to 10 VDC

Preset input type



Vs : Power supply 24 VDC
12 to 15 VDC

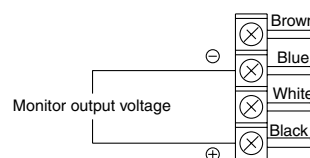
One of the preset pressures P1 through P4 is selected by the ON/OFF combination of S1 and S2.

S1	OFF	ON	OFF	ON
S2	OFF	OFF	ON	ON
Preset pressure	P1	P2	P3	P4

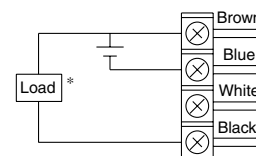
* For safety reasons, it is recommended that one of the preset pressures be set to 0 MPa.

Monitor output wiring diagram

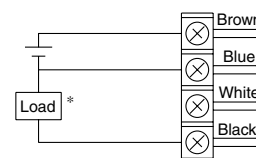
Analog output: Voltage type



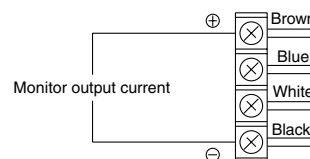
Switch output: NPN type



Switch output: PNP type



Analog output: Current type



* When 30 mADC or more is applied, detecting device for overcurrent starts activating and then emits an error signal. (Error number "5")