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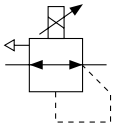
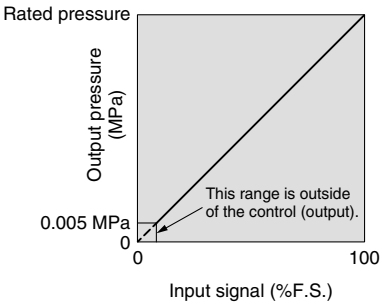
# Electro-pneumatic Regulator
# ITV1000/2000/3000

Straight type

Right angle type

**JIS Symbol**






**Graph (1) Input/output characteristics chart**

## Standard Specifications

| Model | | ITV101□ / ITV201□ / ITV301□ | ITV103□ / ITV203□ / ITV303□ | ITV105□ / ITV205□ / 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<br>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 (monitor output) Note 3) | Analog output | 1 to 5 VDC (Load impedance: 1 kΩ or more)<br>4 to 20 mA (Sink type) (Load impedance: 250 Ω or less) | | |
| | Switch output | NPN open collector output: Max. 30 V, 30 mA<br>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/cm²: 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) |

**Cable connector type**

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

* Option

**Pressure display unit** Note 1)

| | |
|---|---|
| – | MPa |
| 2 | kgf/cm² |
| 3 | bar |
| 4 | PSI |
| 5 | kPa |

* Option

**Bracket**

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

* Option

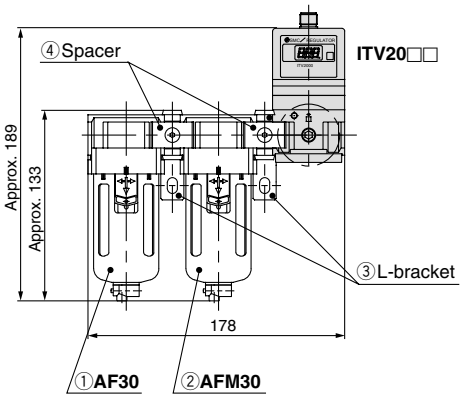
**CE compliance**

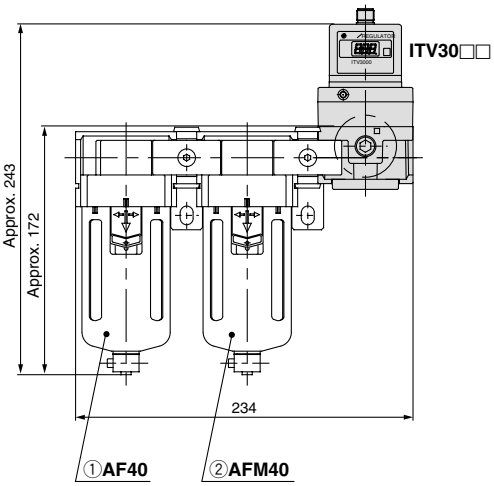
| | |
|---|---|
| – | – |
| Q | CE compliant |

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



SMC




## 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 | ◎ | ◎ |
| | Set pressure max. 0.5 MPa | 3 | ◎ | ◎ |
| | Set pressure max. 0.9 MPa | 5 | ◎ | ◎ |
| | Connection Rc 1/4 | 02 | ◎ | ◎ |
| | Connection Rc 3/8 | 03 | ◎ | ◎ |
| | Connection Rc 1/2 | 04 | | ◎ |
| Acces-sories | Bracket | B | ○ | ○ |
| | Bracket | C | ○ | ○ |
| Optional specifications | Connection NPT1/4 | N02 | ○ | ○ |
| | Connection NPT3/8 | N03 | ○ | ○ |
| | Connection NPT1/2 | N04 | | ○ |
| | Connection G 1/4 | F02 | ○ | ○ |
| | Connection G 3/8 | F03 | ○ | ○ |
| | Connection G 1/2 | F04 | | ○ |

## Modular Products and Accessory Combinations

∗ ITV10□□ models are not applicable.

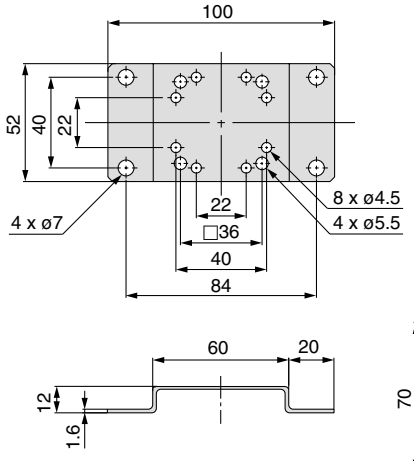
| Applicable products and accessories | Applicable model | |
|---|---|---|
| | ITV20□□ | ITV30□□ |
| ① Air filter | AF30 | AF40 |
| ② Mist separator | AFM30 | AFM40 |
| ③ L-bracket | B310L | B410L |
| ④ Spacer | Y30 | Y40 |
| ⑤ Spacer with L-bracket (③ + ④) | Y30L | Y40L |

## Accessory (Option)/Part No.

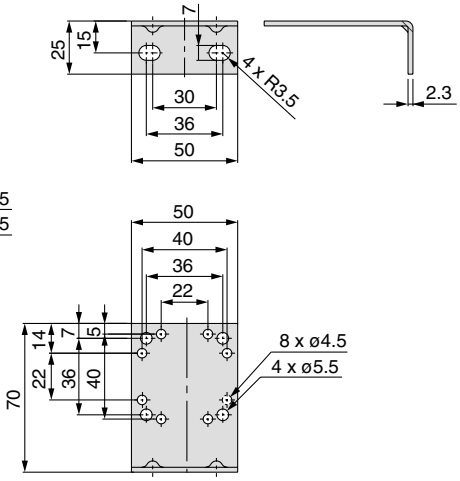
| Description | | Part no. | | |
|---|---|---|---|---|
| | | ITV10□□ | ITV20□□ | ITV30□□ |
| Flat bracket | | P3020114 (Mounting thread is not included.) | | |
| L-bracket | | INI-398-0-6 (Mounting thread is not included.) | | |
| Cable connector | Straight type 3 m | TM-4DSX3HG4 | | |
| | Right angle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

### Dimensions

**Flat bracket**



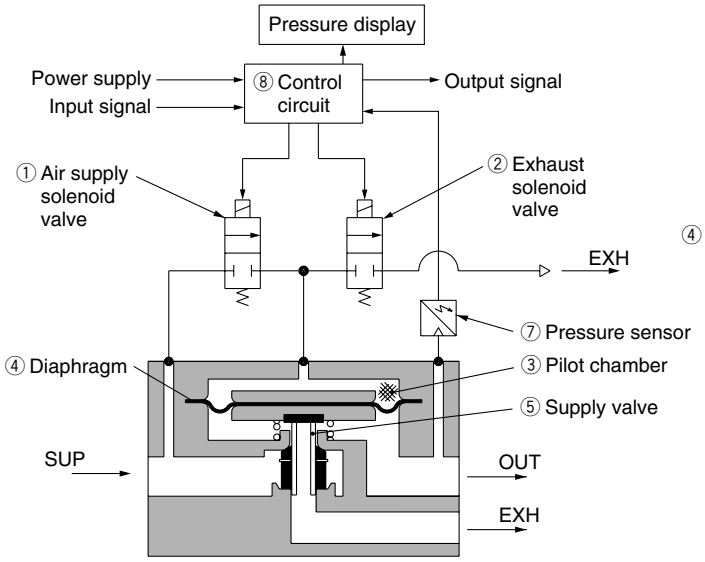

**L-bracket**



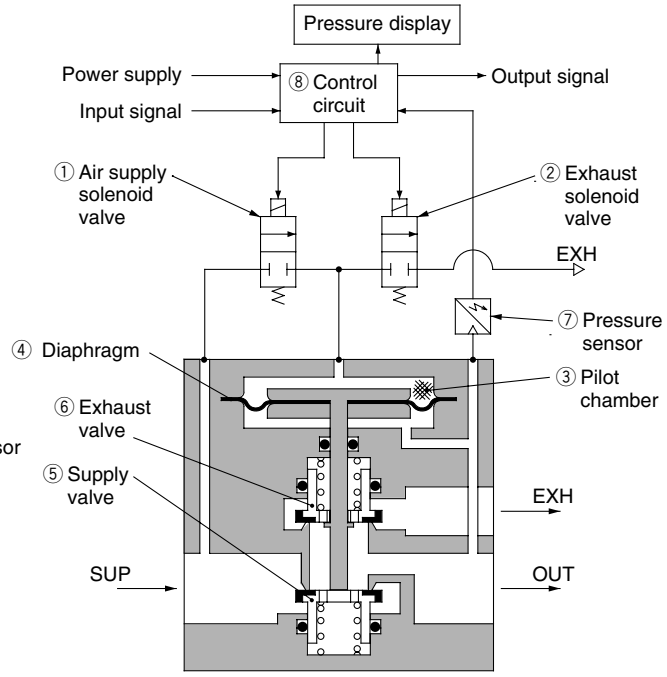
## Working Principle

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

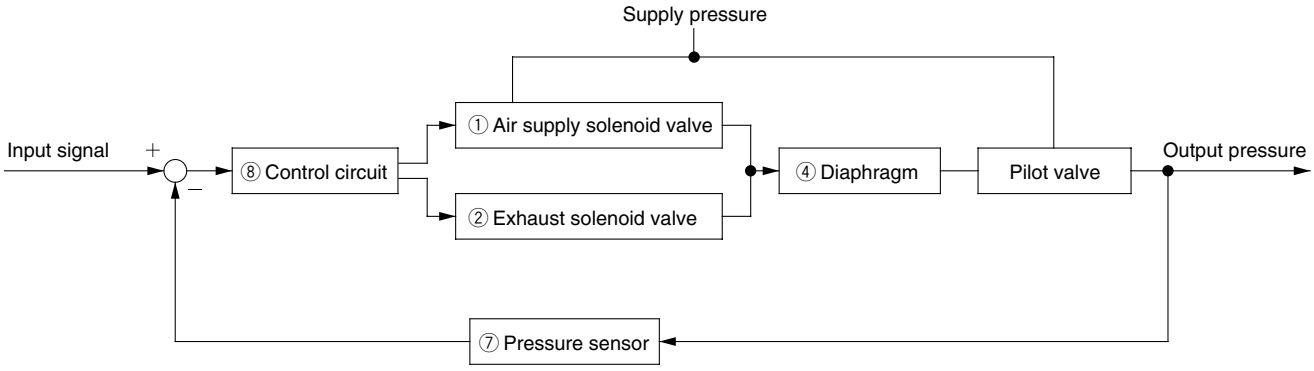



ITV1000



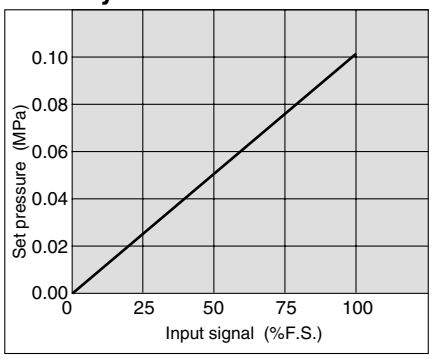

ITV2000, 3000

### Block diagram

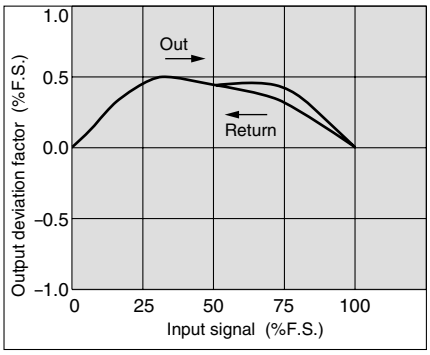


## Series ITV101□

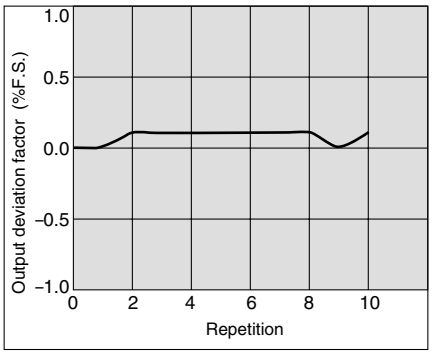
### Linearity




### Hysteresis

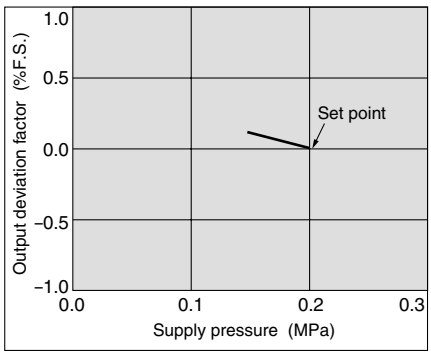



### Repeatability



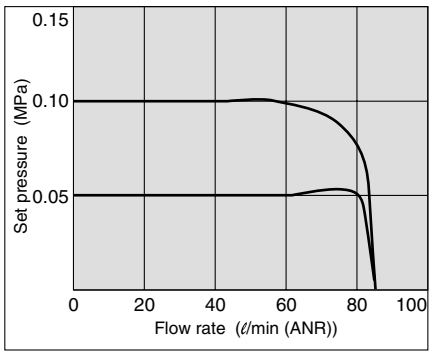

### Pressure Characteristics

Set pressure: 0.05 MPa



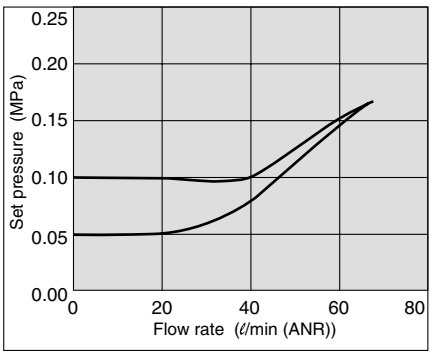

### Flow Characteristics

Supply pressure: 0.2 MPa



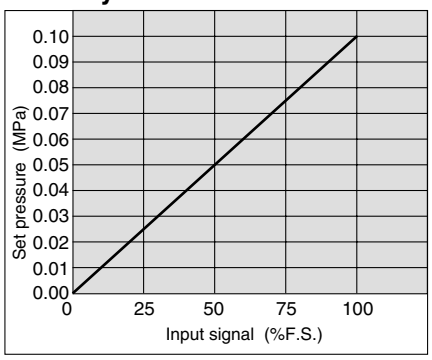

### Relief Flow Characteristics

Supply pressure: 0.2 MPa

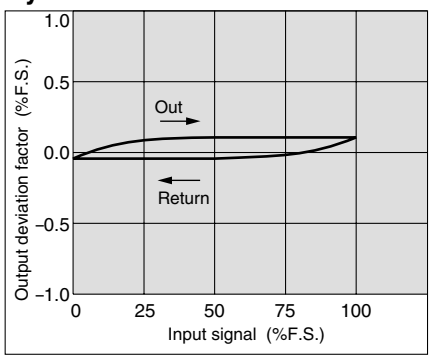



## Series ITV201□

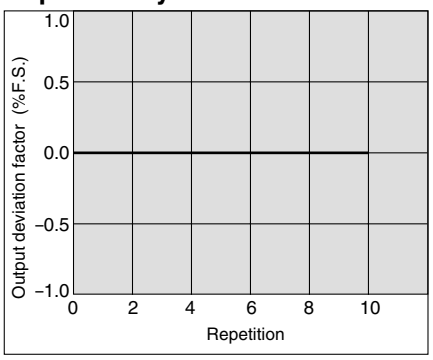
### Linearity




### Hysteresis

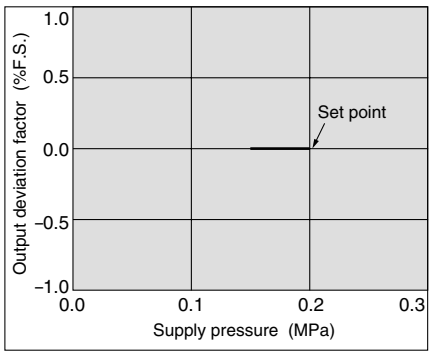



### Repeatability



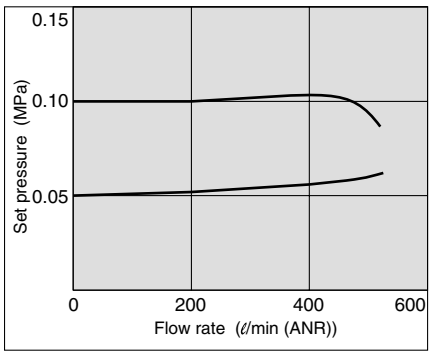

### Pressure Characteristics

Set pressure: 0.05 MPa



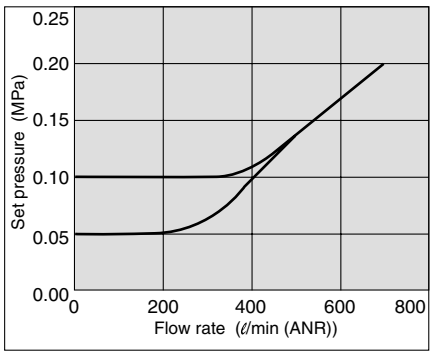

### Flow Characteristics

Supply pressure: 0.2 MPa



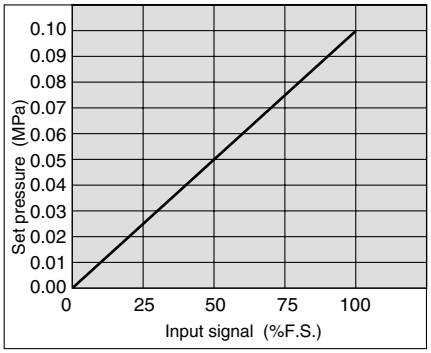

### Relief Flow Characteristics

Supply pressure: 0.2 MPa

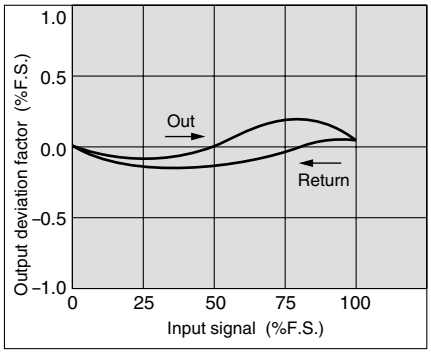


## Series ITV301□

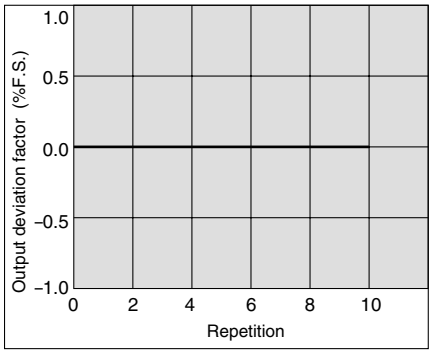
### Linearity




### Hysteresis

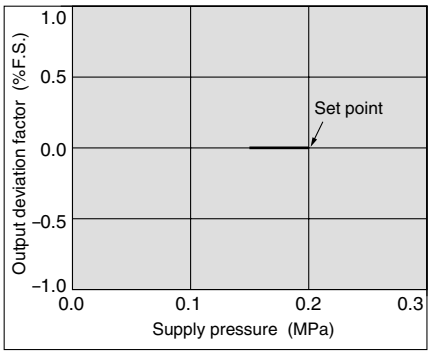



### Repeatability



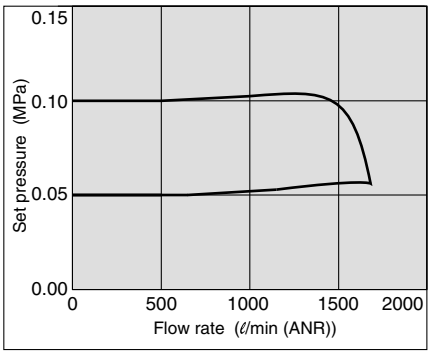

### Pressure Characteristics

Set pressure: 0.05 MPa



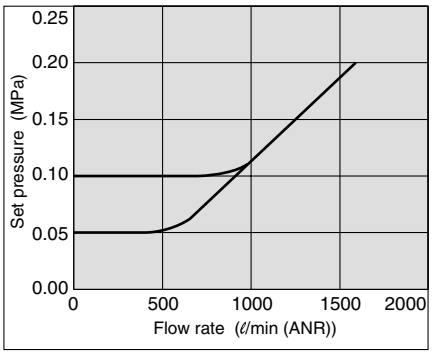

### Flow Characteristics

Supply pressure: 0.2 MPa



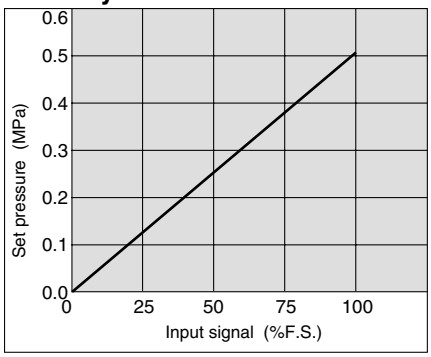

### Relief Flow Characteristics

Supply pressure: 0.2 MPa

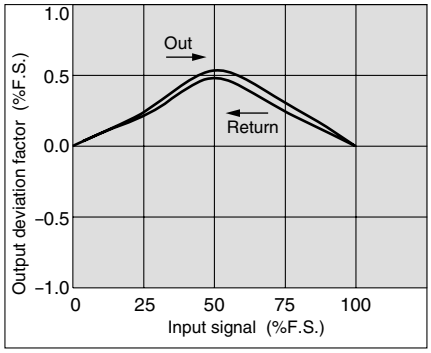


## Series ITV103□

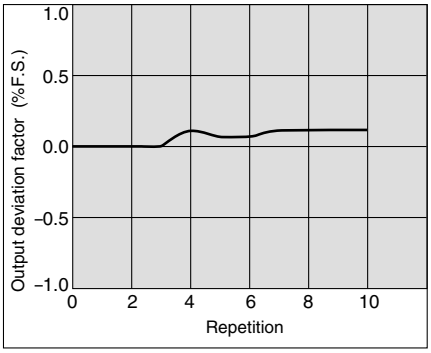
### Linearity




### Hysteresis

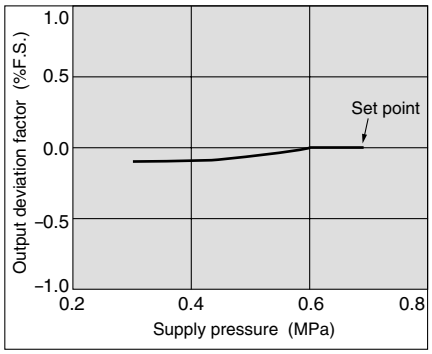



### Repeatability



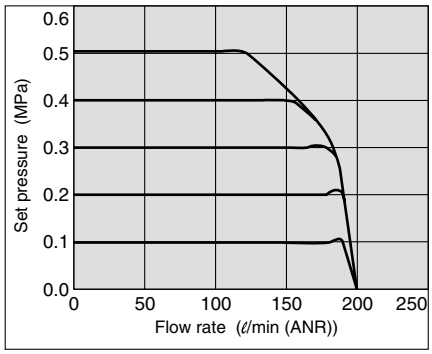

### Pressure Characteristics

Set pressure: 0.2 MPa



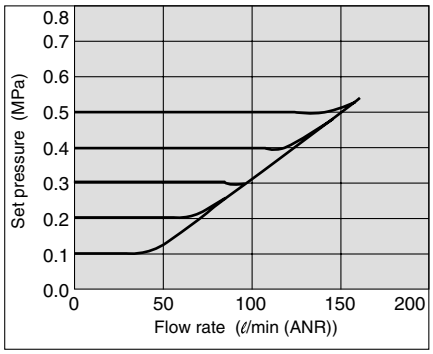

### Flow Characteristics

Supply pressure: 0.7 MPa



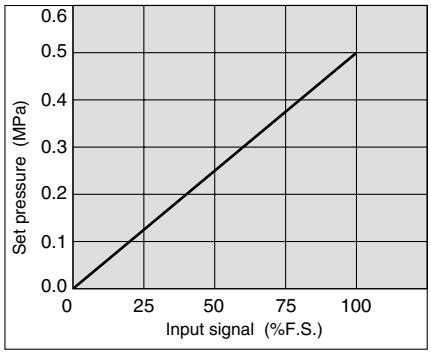

### Relief Flow Characteristics

Supply pressure: 0.7 MPa

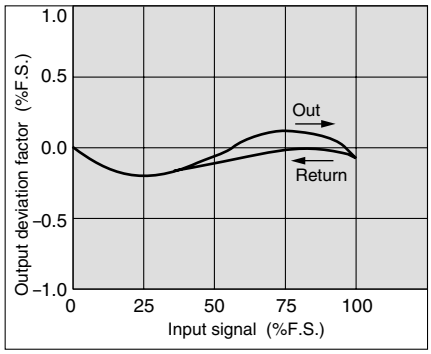



## Series ITV203□

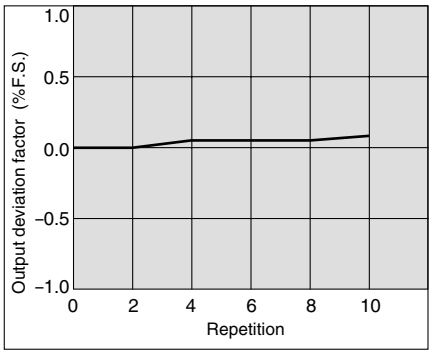
### Linearity




### Hysteresis

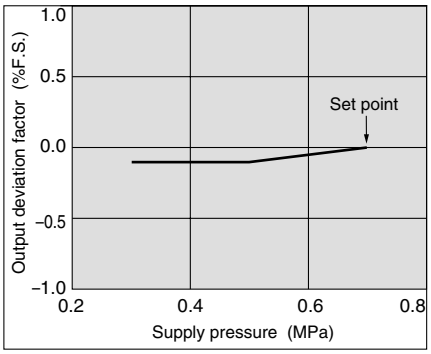



### Repeatability



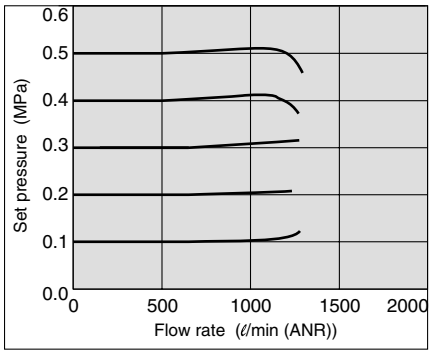

### Pressure Characteristics

Set pressure: 0.2 MPa



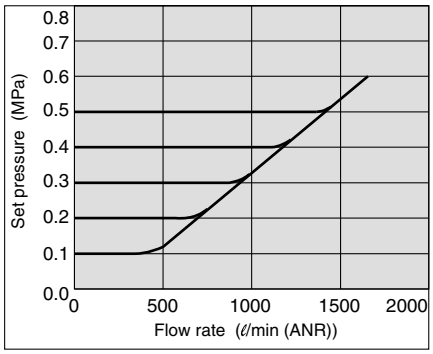

### Flow Characteristics

Supply pressure: 0.7 MPa



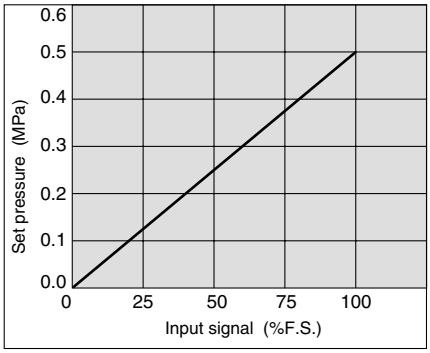

### Relief Flow Characteristics

Supply pressure: 0.7 MPa

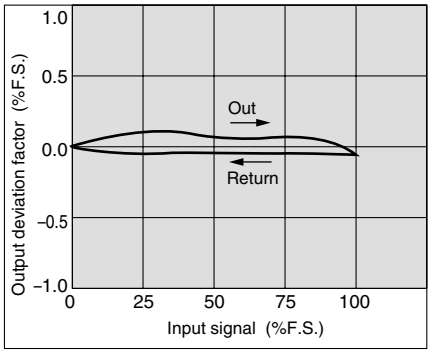


## Series ITV303□

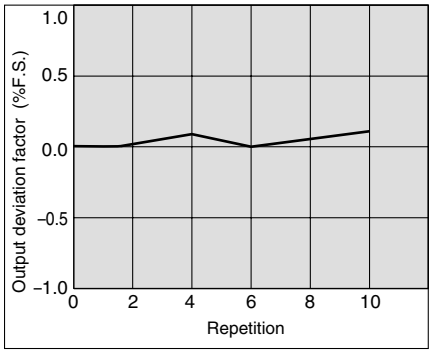
### Linearity




### Hysteresis

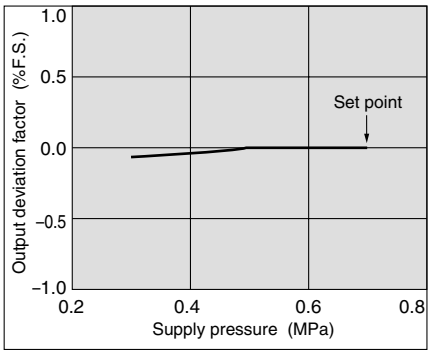



### Repeatability



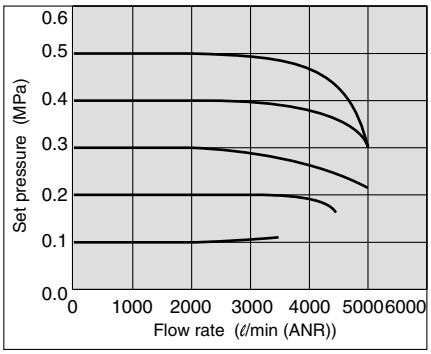

### Pressure Characteristics

Set pressure: 0.2 MPa



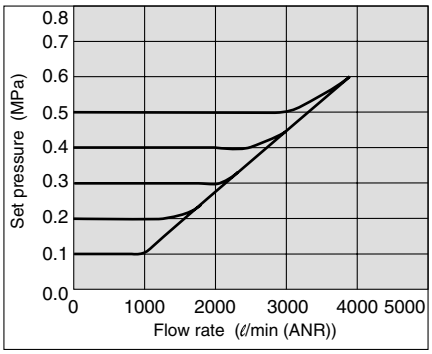

### Flow Characteristics

Supply pressure: 0.7 MPa



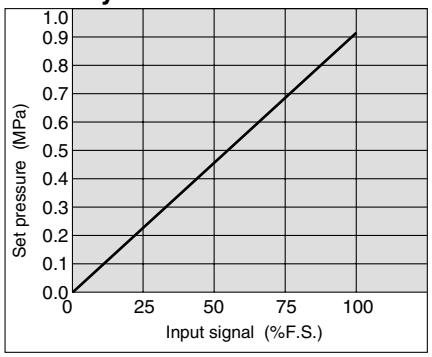

### Relief Flow Characteristics

Supply pressure: 0.7 MPa

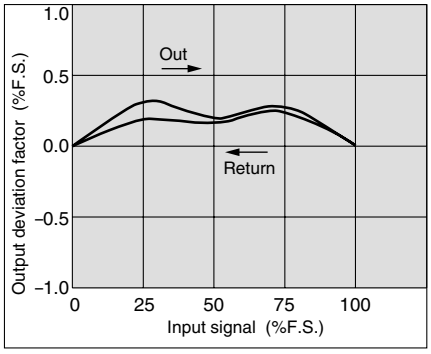


## Series ITV105□

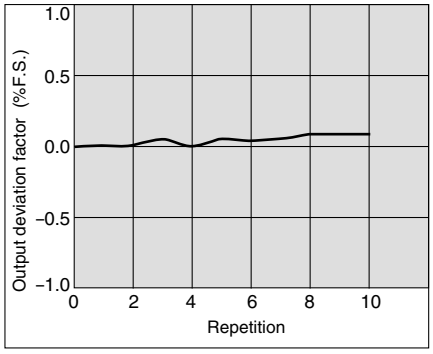
### Linearity




### Hysteresis

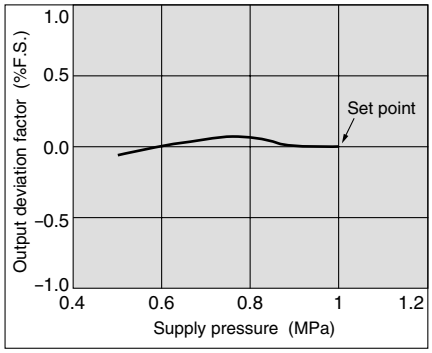



### Repeatability



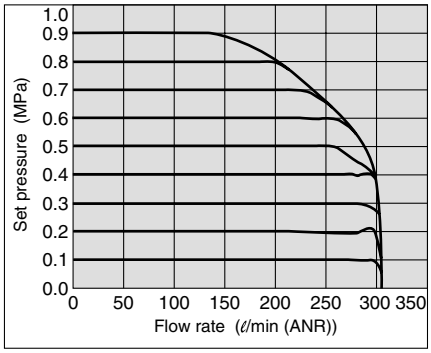

### Pressure Characteristics

Set pressure: 0.4 MPa



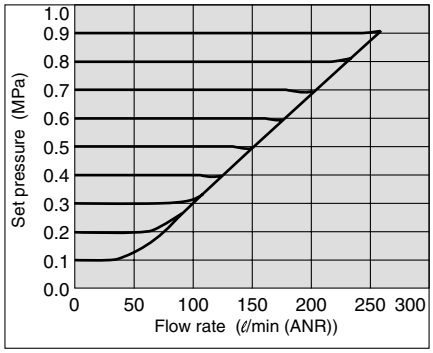

### Flow Characteristics

Supply pressure: 1.0 MPa



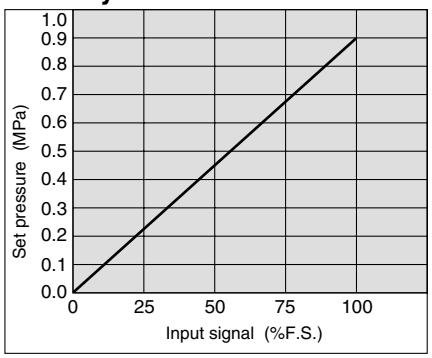

### Relief Flow Characteristics

Supply pressure: 1.0 MPa

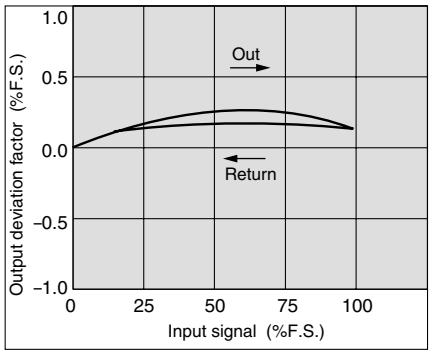



## Series ITV205□

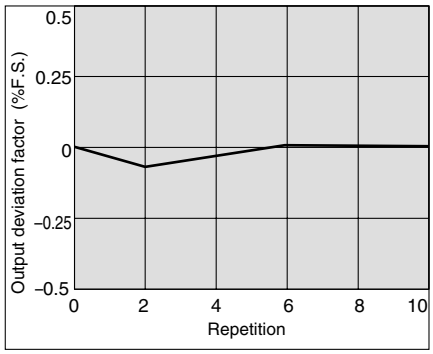
### Linearity




### Hysteresis

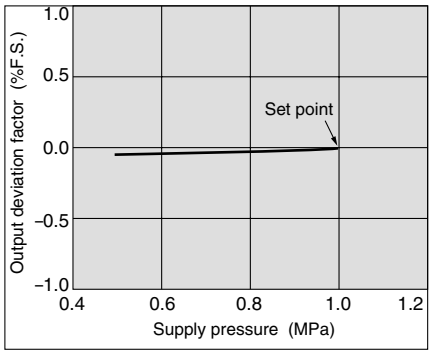



### Repeatability



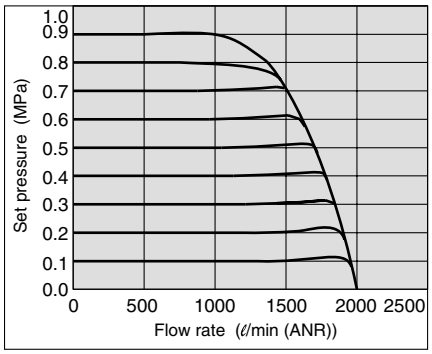

### Pressure Characteristics

Set pressure: 0.4 MPa



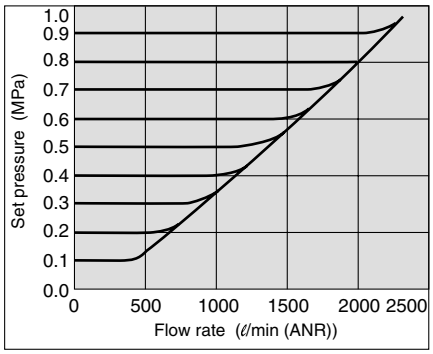

### Flow Characteristics

Supply pressure: 1.0 MPa



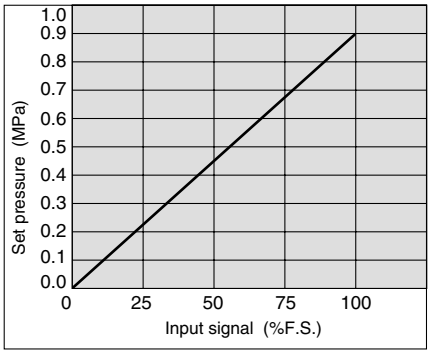

### Relief Flow Characteristics

Supply pressure: 1.0 MPa

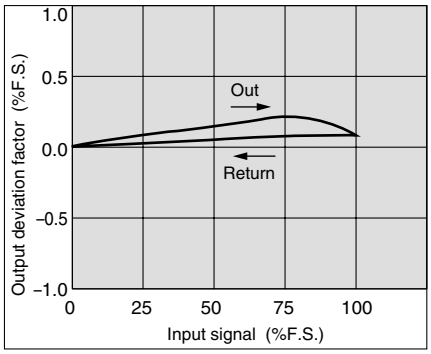


## Series ITV305□

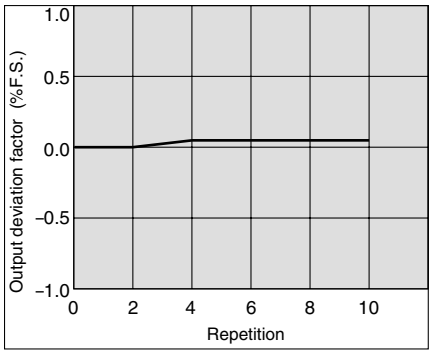
### Linearity




### Hysteresis

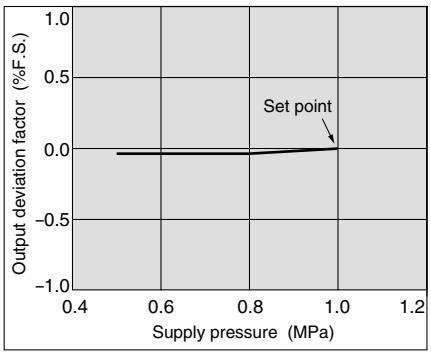



### Repeatability



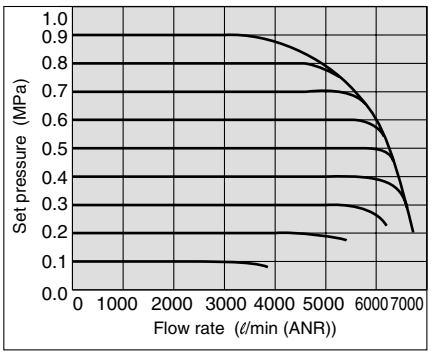

### Pressure Characteristics

Set pressure: 0.4 MPa



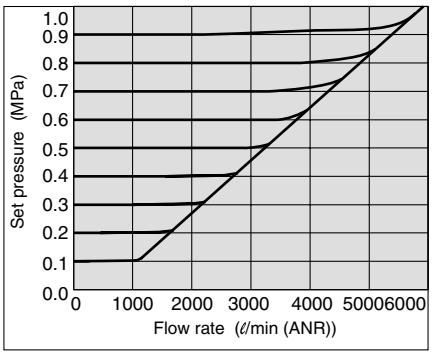

### Flow Characteristics

Supply pressure: 1.0 MPa




### Relief Flow Characteristics

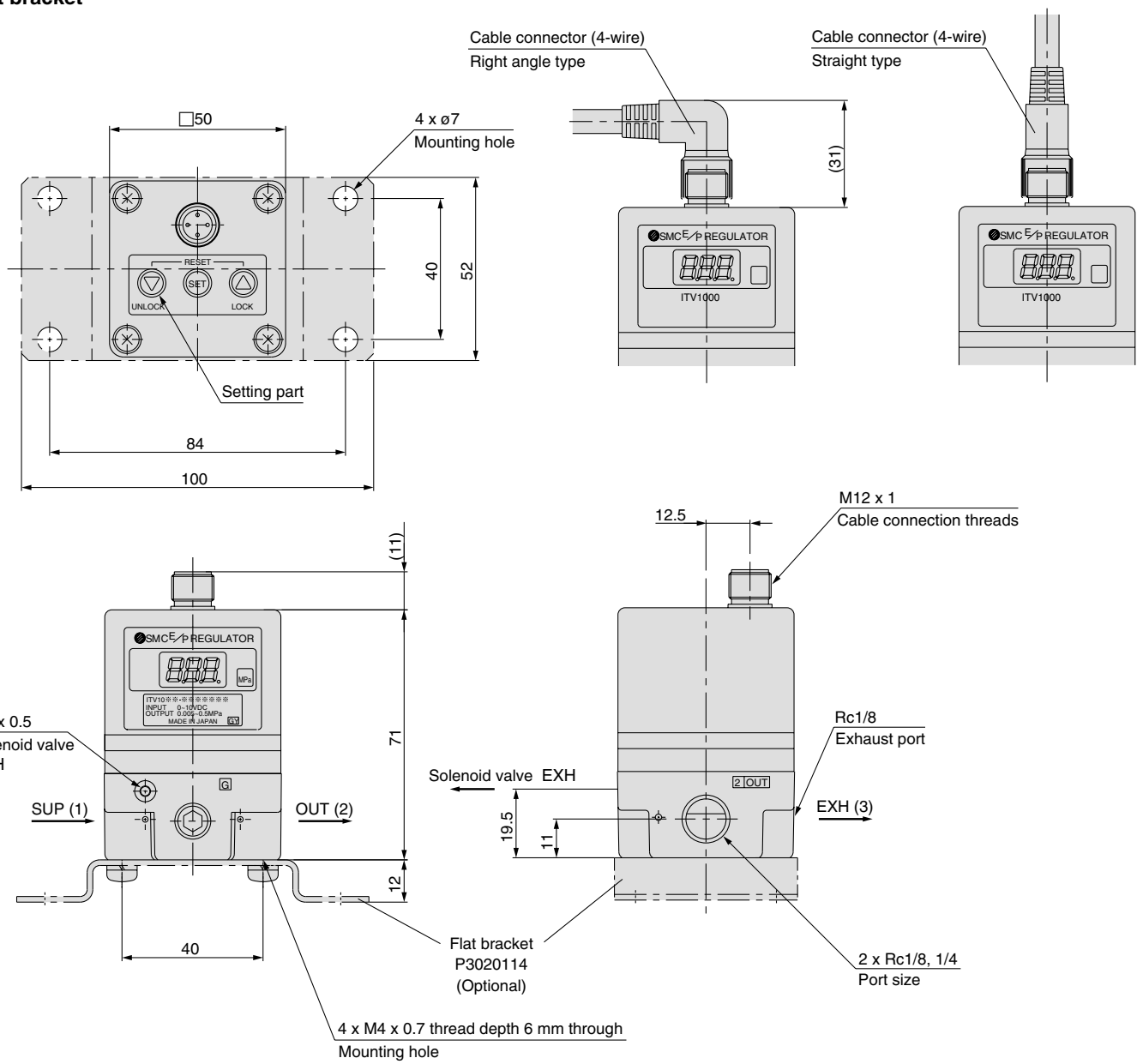
Supply pressure: 1.0 MPa



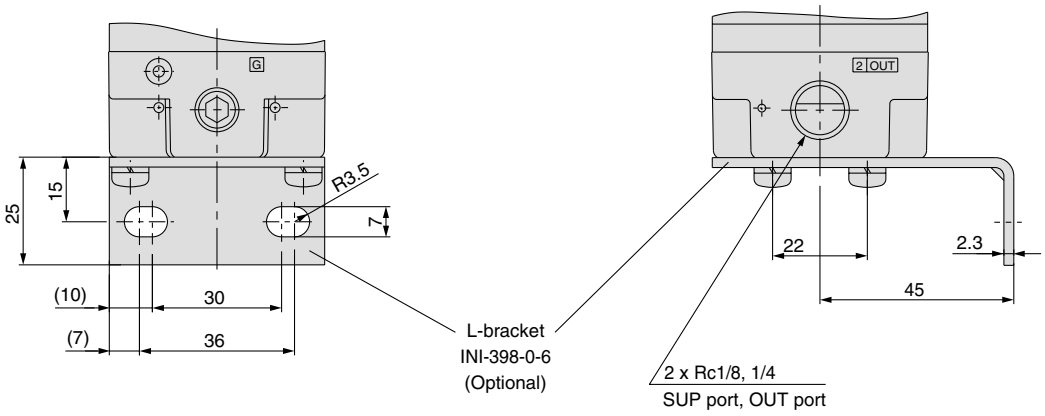
## Dimensions

### ITV10□□
**Flat bracket**

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



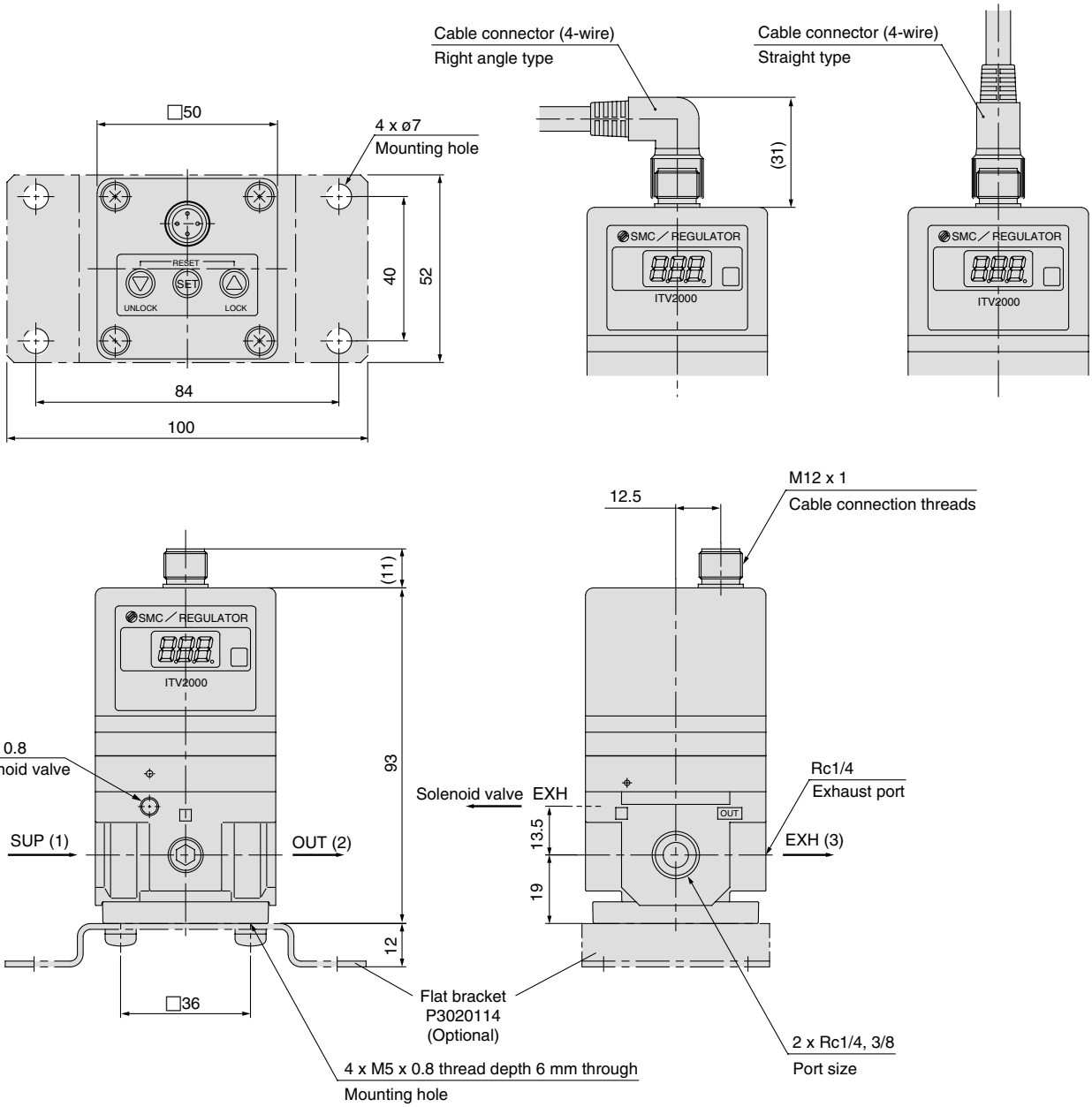

**L-bracket**



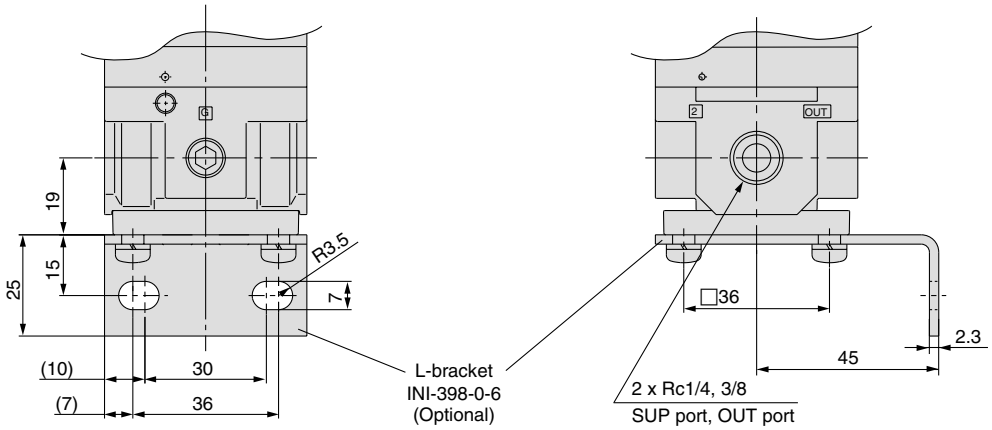
## Dimensions

### ITV20□□
**Flat bracket**

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



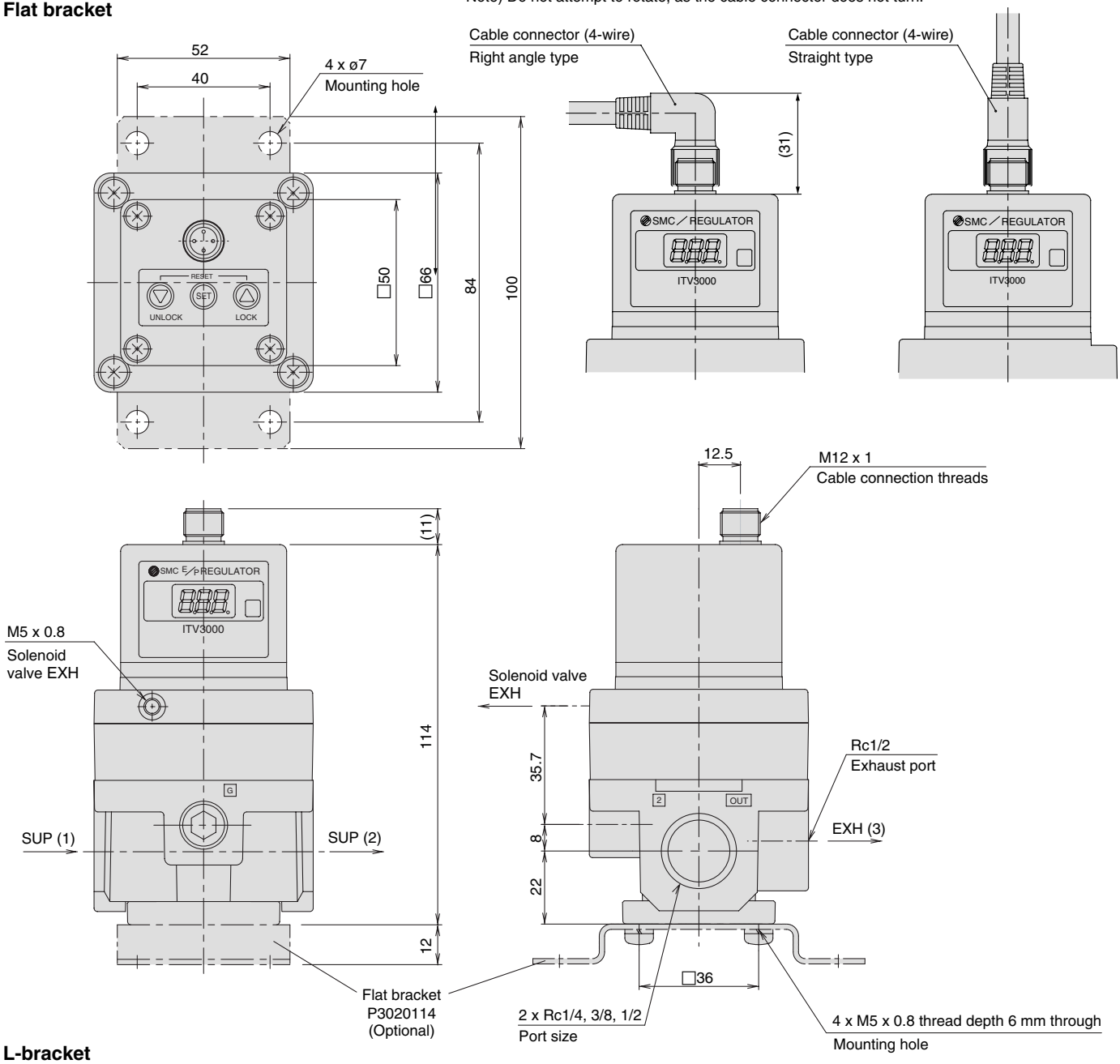

**L-bracket**



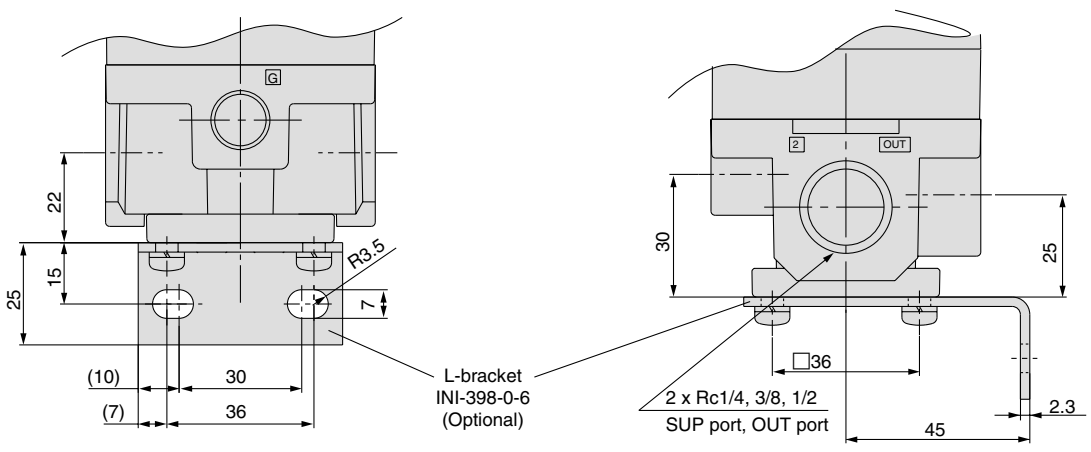
## Dimensions

### ITV30□□
**Flat bracket**

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




**L-bracket**



Made to Order

# Series ITV1000/2000/3000
# Made to Order Specifications:

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

## 1 Ozone Resistant

Fluoro rubber is used for the rubber parts of seals.

**80** – Standard model number

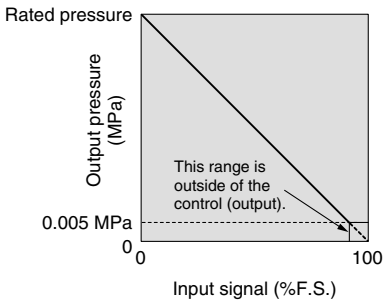
● **Ozone resistant**

## 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.

Made to Order

# 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 — 5**

**Valve stations**

| | |
|---|---|
| 2 | 2 stations |
| ⋮ | ⋮ |
| 8 | 8 stations |

**ITV1000/2000**

**OUT port size**

| | |
|---|---|
| 02 | 1/4 |
| 03 | 3/8 |

**Connection thread type**

| | |
|---|---|
| – | PT |
| N | NPT |
| F | PF |

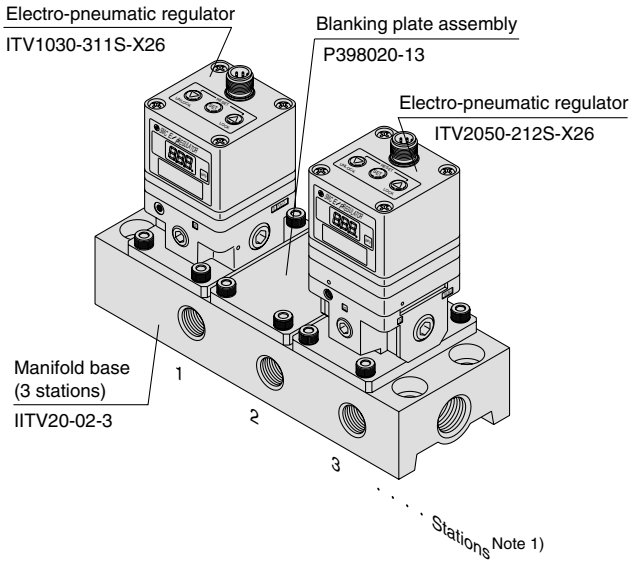
IITV20-02-3 .....1 set (3 station manifold base part no.)
*ITV2030-311S-X26 .....1 set (Electro-pneumatic regulator part no.) Note 2)
*P398020-13 .....1 set (Blanking plate assembly part no.)
*ITV2050-212S-X26 .....1 set (Electro-pneumatic regulator part no.) Note 2)
The * is the symbol for mounting. 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.

**ITV 2 0 1 0 — 0 1 □ 2 □ S □ —X88**

**Model**

| | |
|---|---|
| 1 | 1000 type |
| 2 | 2000 type |

**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 |

**Monitor output**

| | |
|---|---|
| 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) |

**Thread type**

| | |
|---|---|
| – | Rc |
| N | NPT |
| T | NPTF |
| F | G |

**Port size**

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

**Cable connector type**

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

**Bracket**

| | |
|---|---|
| – | Without bracket |
| B | Flat bracket |
| C | L-bracket |

**Pressure display unit**

| | |
|---|---|
| – | MPa |
| 2 | kgf/cm² |
| 3 | bar |
| 4 | PSI |
| 5 | kPa |

**High-speed response time specifications**

# Series ITV1000/2000/3000
# 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.**

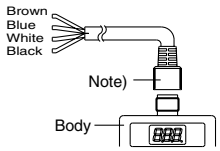
# Specific Product Precautions 2

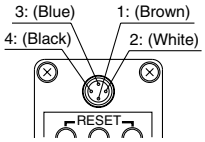
**Be sure to read before handling.**

## 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 |

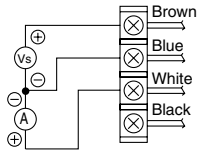
**Preset input type**

| | | |
|---|---|---|
| 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.

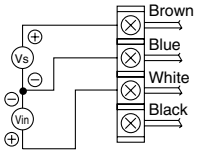
### Wiring diagram

**Current signal type**



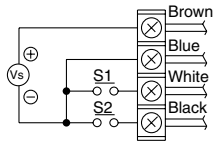

Vs: Power supply 24 VDC
12 to 15 VDC
A : Input signal 4 to 20 mADC
0 to 20 mADC

**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

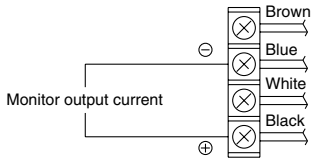
One of the preset pressures P1 through P4 is selected by the ON/OFF combination of S1 and S2.

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

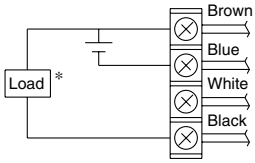
∗ For safety reasons, it is recommended that one of the preset pressures be set to 0 MPa.

### Monitor output wiring diagram

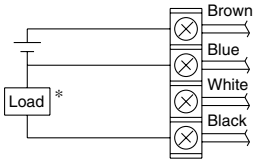
**Analog output, voltage type**



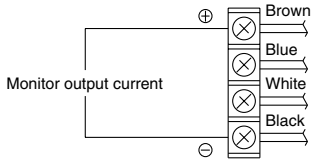

**Switch output, NPN type**




**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 |