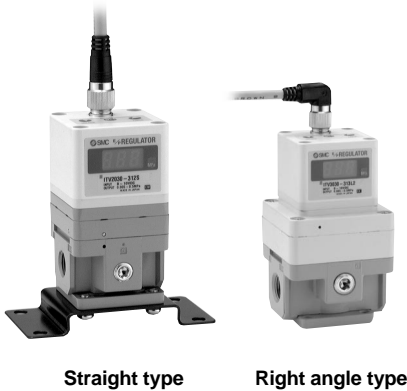


# Electro-Pneumatic Regulator Series *ITV2000/3000*

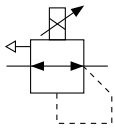
## Standard Specifications



Straight type

Right angle type

### Symbol



Model	ITV201□	ITV203□	ITV205□
	ITV301□	ITV303□	ITV305□
Minimum supply pressure	Set pressure +0.1MPa		
Maximum supply pressure	0.2MPa	1.0MPa	
Regulating pressure range	0.005 to 0.1MPa	0.005 to 0.5MPa	0.005 to 0.9MPa
Power supply	Voltage	24V DC ±10%, 12 to 15V DC	
	Current consumption	Power supply voltage 24V DC type: 0.12A or less Power supply voltage 12 to 15V DC type: 0.18A or less	
Input signal	Current type <sup>(1)</sup>	4 to 20mA, 0 to 20mA	
	Voltage type	0 to 5V DC, 0 to 10V DC	
	Preset input	4 points	
Input impedance	Current type	250Ω or less	
	Voltage type	Approx. 6.5kΩ	
	Preset input	Approx. 2.7kΩ	
Output signal <sup>(2)</sup> (monitor output)	Analog output	1 to 5V DC (load impedance: 1kΩ or more) 4 to 20mA (sink type) (load impedance: 250Ω or less)	
	Switch output	NPN open collector output: Max. 30V, 30mA PNP open collector output: Max. 30mA	
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 <sup>2</sup> : 0.01, bar: 0.01, PSI: 0.1 <sup>(3)</sup> , kPa: 1	
Ambient and fluid temperature	0 to 50°C (with no condensation)		
Enclosure	IP65 equivalent		
Weight	ITV20□□	350g	
	ITV30□□	645g	

Note 1) 2 wire type 4 to 20mA is not available. Power supply voltage (24V DC or 12 to 15V DC) is required.

Note 2) Select either analog output or switch output.

Further, when switch output is selected, select either NPN output or PNP output.

Note 3) The minimum unit for ITV205□ is 1PSI.

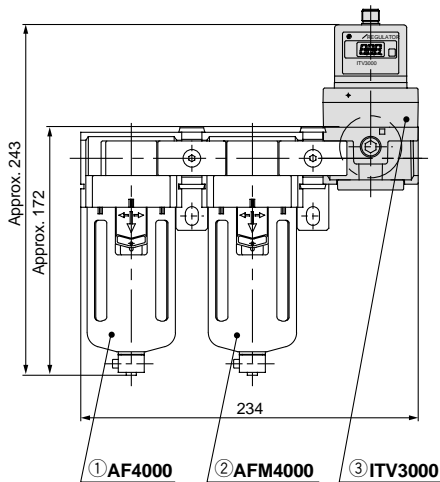
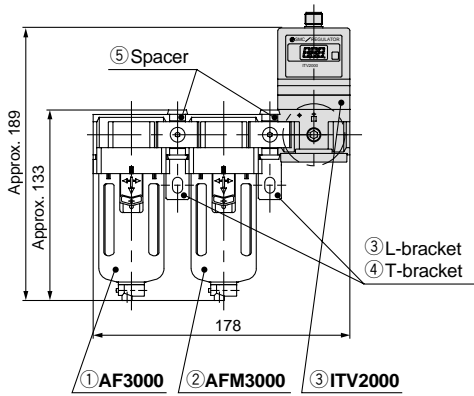
## How to Order

**ITV 3 0 1 0 - 0 1 2 S**

<b>Model</b>	2   2000	3   3000			
<b>Pressure range</b>	1   0.1MPa	3   0.5MPa	5   0.9MPa		
<b>Power supply voltage</b>	0   24V DC	1   12 to 15V DC			
<b>Input signal</b>	0   Current 4 to 20mA	1   Current 0 to 20mA	2   Voltage 0 to 5V DC	3   Voltage 0 to 10V DC	4 *   Preset input
<b>Monitor output</b>	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 20mA
<b>Thread type</b>	-   Rc(PT)	N *   NPT	T *   NPTF	F *   G(PF)	
<b>Port size</b>	2   1/4 (2000, 3000)	3   3/8 (2000, 3000)	4   1/2 (3000)		
<b>Pressure display unit</b>	-   MPa	2 *   kgf/cm <sup>2</sup>	3 *   bar	4 *   PSI	5 *   kPa
<b>Cable connector type</b>	S   Straight type 3m	L *   Right angle type 3m	N *   Without cable connector		
<b>Bracket</b>	-   Without bracket	B *   Flat bracket	C *   L-bracket		

\* Option

# Series ITV2000/3000



## Specification Combinations

●: Standard specifications ○: Combination possible Blank: Combination not possible

Specifications	Symbol	Applicable model		
		ITV20□□	ITV30□□	
Standard specifications	Set pressure max. 0.1MPa	1	●	●
	Set pressure max. 0.5MPa	3	●	●
	Set pressure max. 0.9MPa	5	●	●
	Connection Rc(PT) 1/4	02	●	●
	Connection Rc(PT) 3/8	03	●	●
Connection Rc(PT) 1/2	04		●	
Accessories	Bracket	B	○	○
	Bracket	C	○	○
Optional specifications	Connection NPT1/4	N02	○	○
	Connection NPT3/8	N03	○	○
	Connection NPT1/2	N04		○
	Connection G(PF) 1/4	F02	○	○
	Connection G(PF) 3/8	F03	○	○
	Connection G(PF) 1/2	F04		○

## Modular Connection Part Numbers

Description	ITV20□□	ITV30□□	
Air filter	AF3000	AF4000	
Mist separator	AFM3000	AFM4000	
Attachments	L-bracket	B310L	B410L
	T-bracket	B310T	B410T
	Spacer	Y30	Y40
	Spacer with L-bracket	Y30L	Y40L
	Spacer with T-bracket	Y30T	Y40T

## Modular Products and Accessory Combinations

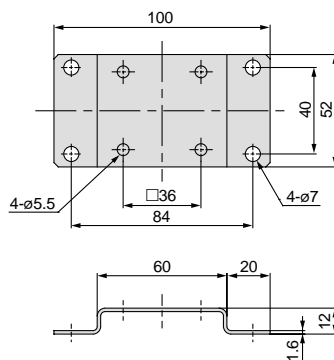
Applicable products and accessories	Applicable model	
	ITV20□□	ITV30□□
① Air filter	AF3000	AF4000
② Mist separator	AFM3000	AFM4000
③ L-bracket	B310L	B410L
④ T-bracket	B310T	B410T
⑤ Spacer	Y30	Y40
⑥ Spacer with L-bracket	Y30L	Y40L
⑦ Spacer with T-bracket	Y30T	Y40T

## Accessories (Optional)/Part Numbers

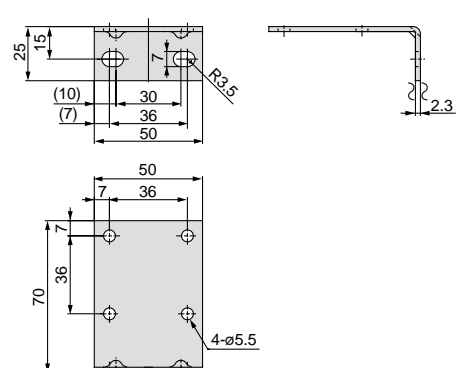
Description	Part No.	
	ITV20□□	ITV30□□
Flat bracket	P3020114	
L-bracket	INI-398-0-6	

### Dimensions

#### Flat bracket



#### L-bracket



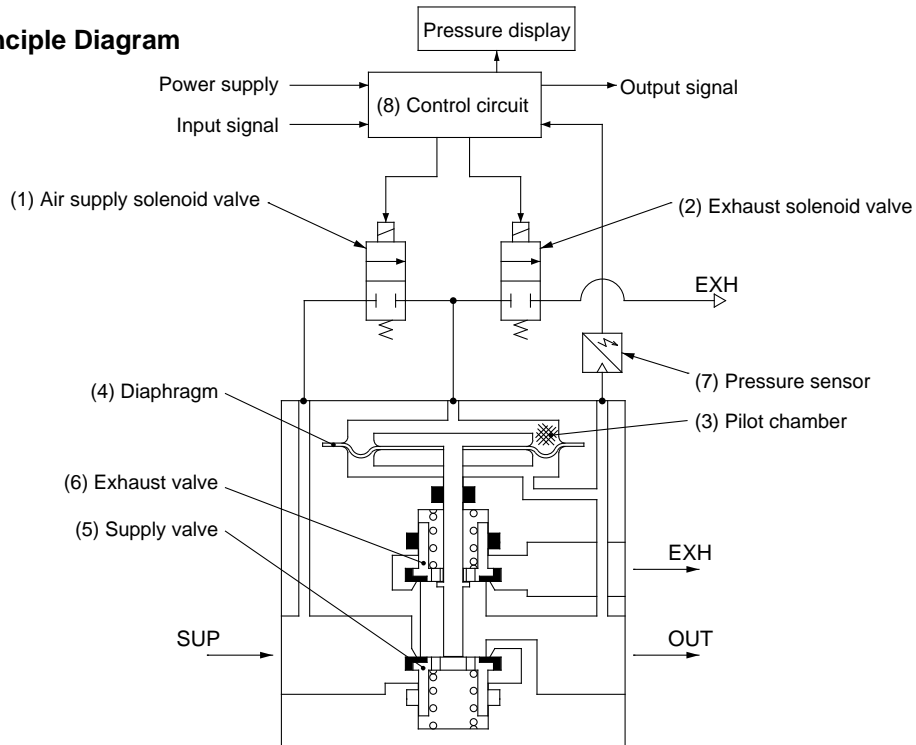
## Working Principles

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).

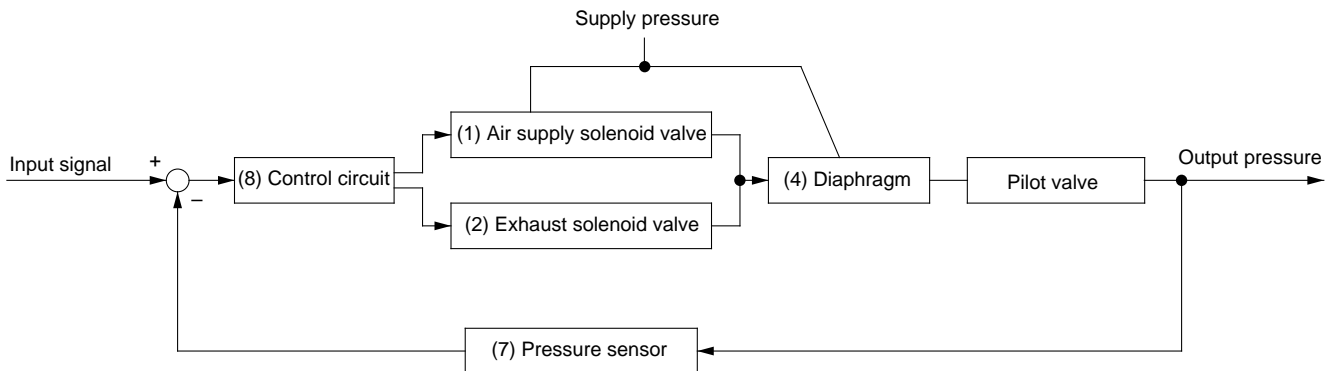
As a result, the air supply valve (5) linked to the diaphragm (4) opens, and a portion of the supply pressure becomes output pressure.

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**

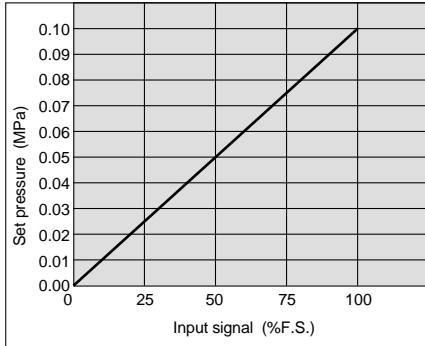


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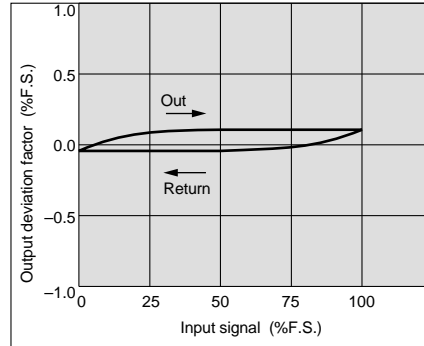
# Series ITV2000/3000

## Series ITV201

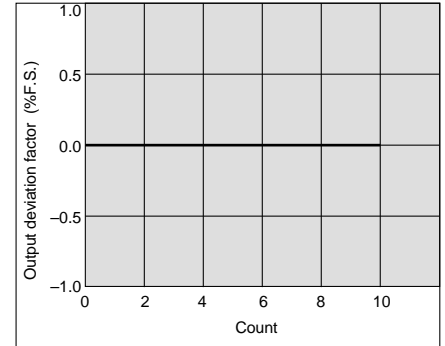
### Linearity



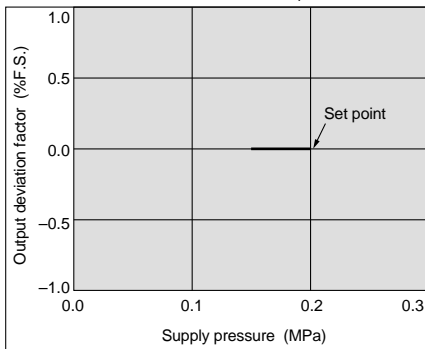
### Hysteresis



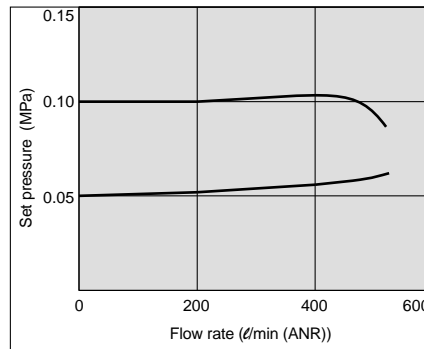
### Repeatability



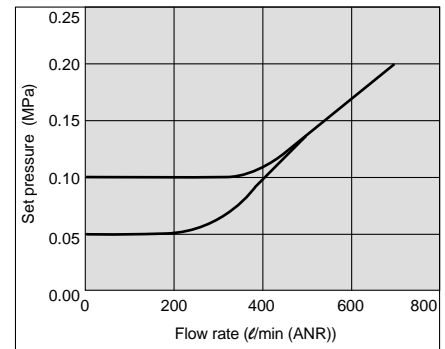
### Pressure characteristics Set pressure: 0.05MPa



### Flow characteristics Supply pressure: 0.2MPa

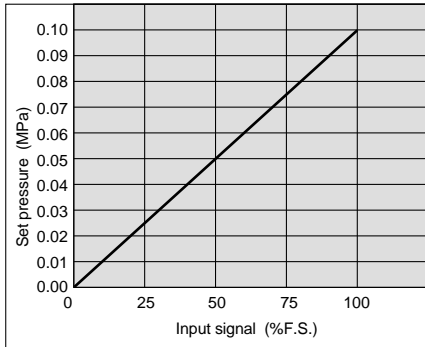


### Relief flow characteristics Supply pressure: 0.2MPa

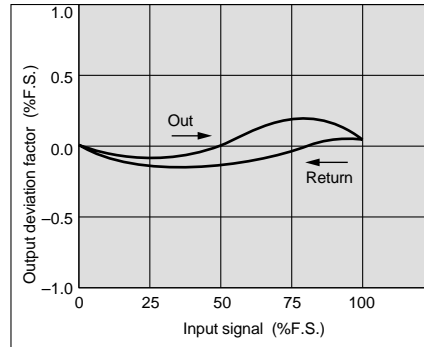


## Series ITV301

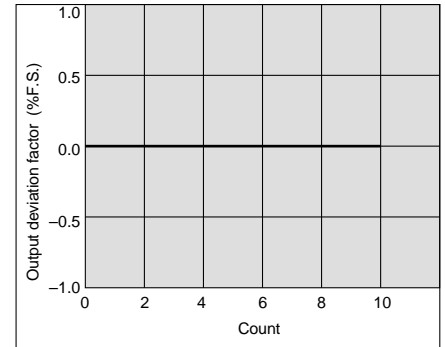
### Linearity



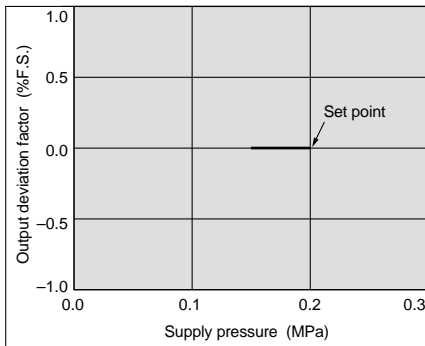
### Hysteresis



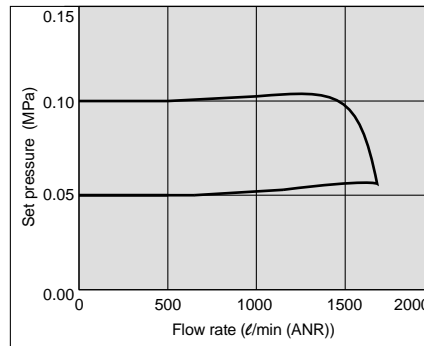
### Repeatability



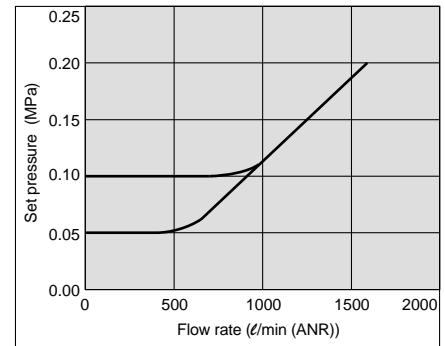
### Pressure characteristics Set pressure: 0.05MPa



### Flow characteristics Supply pressure: 0.2MPa

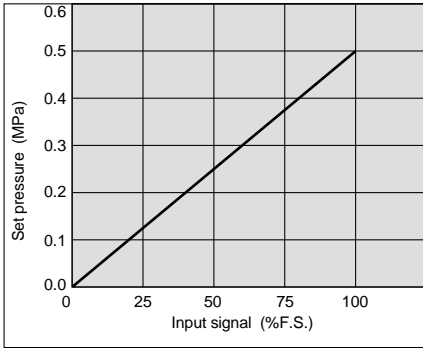


### Relief flow characteristics Supply pressure: 0.2MPa

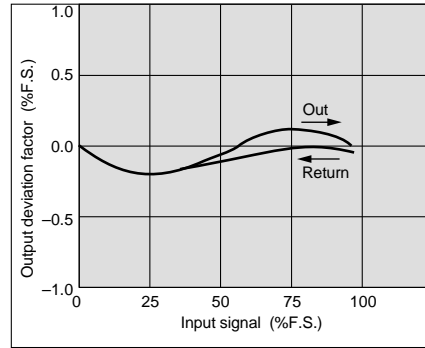


## Series ITV203

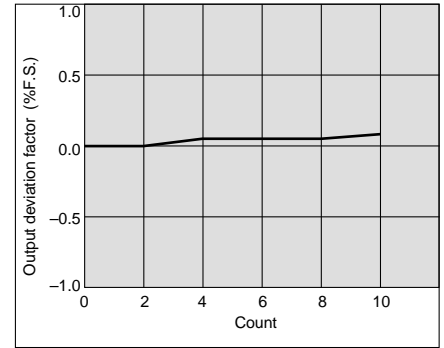
**Linearity**



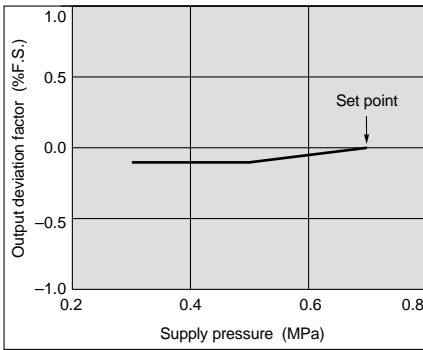
**Hysteresis**



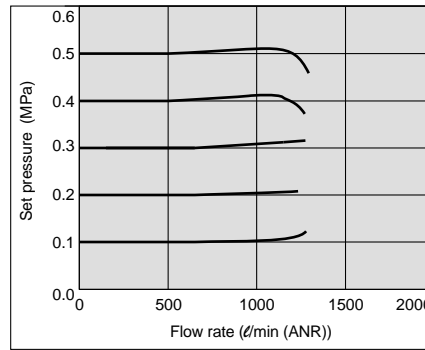
**Repeatability**



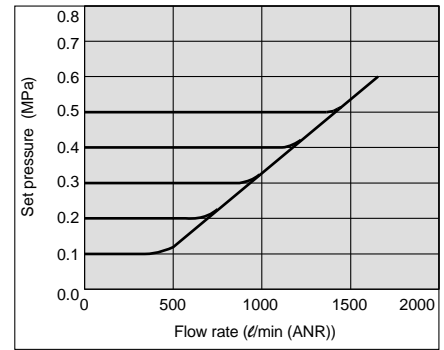
**Pressure characteristics** Set pressure: 0.2MPa



**Flow characteristics** Supply pressure: 0.7MPa

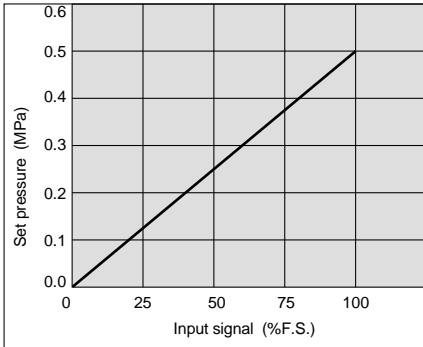


**Relief flow characteristics** Supply pressure: 0.7MPa

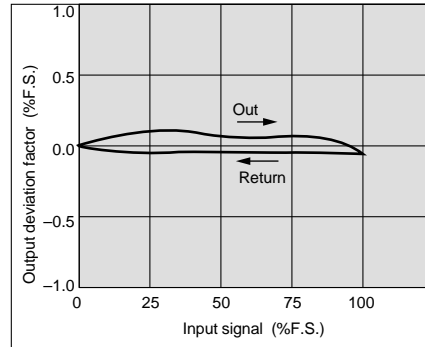


## Series ITV303

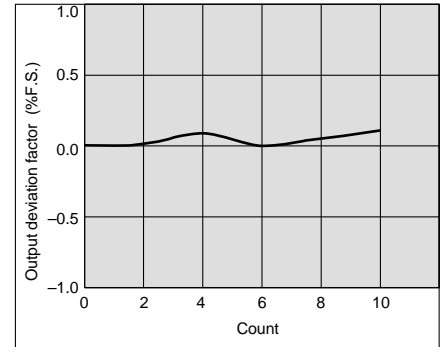
**Linearity**



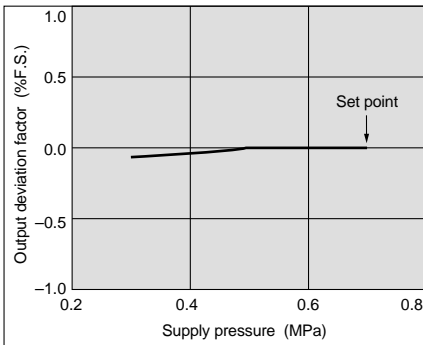
**Hysteresis**



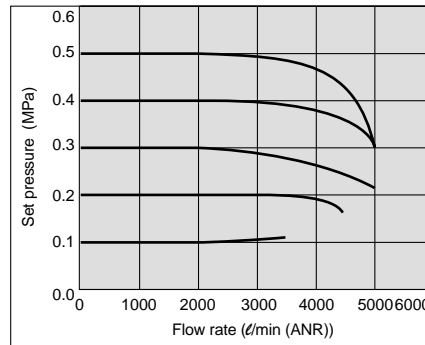
**Repeatability**



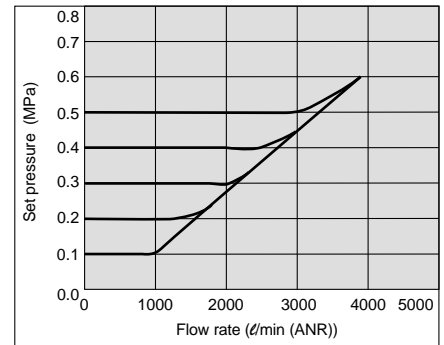
**Pressure characteristics** Set pressure: 0.2MPa



**Flow characteristics** Supply pressure: 0.7MPa



**Relief flow characteristics** Supply pressure: 0.7MPa



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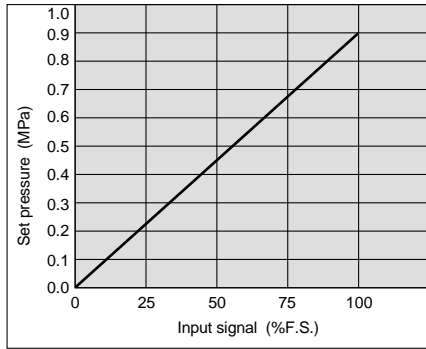
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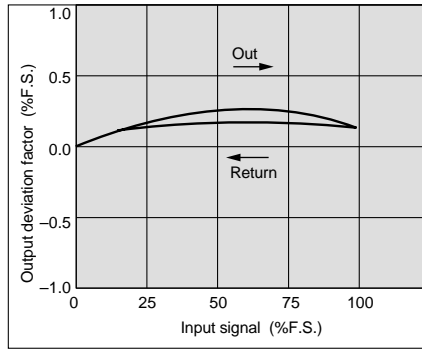
# Series ITV2000/3000

## Series ITV205

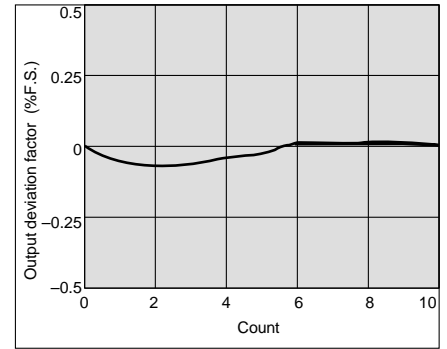
### Linearity



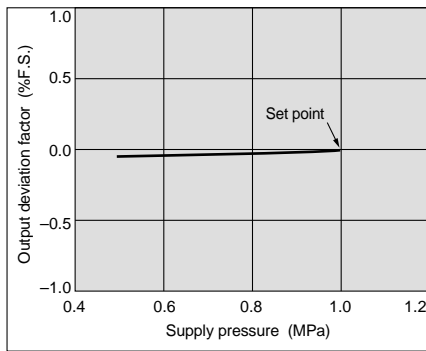
### Hysteresis



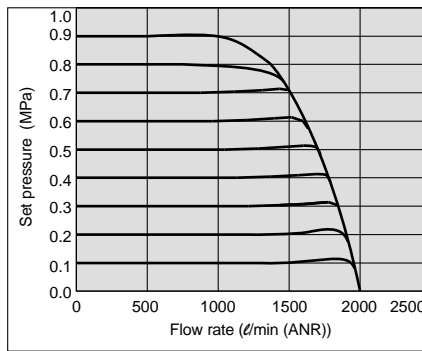
### Repeatability



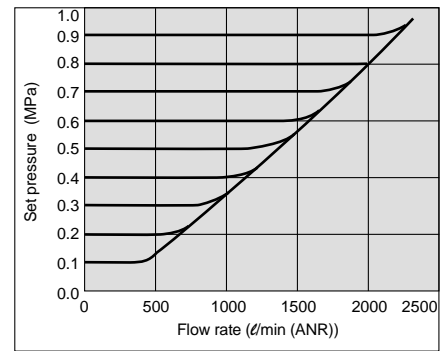
### Pressure characteristics Set pressure: 0.4MPa



### Flow characteristics Supply pressure: 1.0MPa

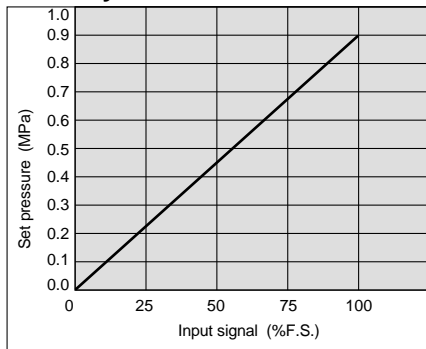


### Relief flow characteristics Supply pressure: 1.0MPa

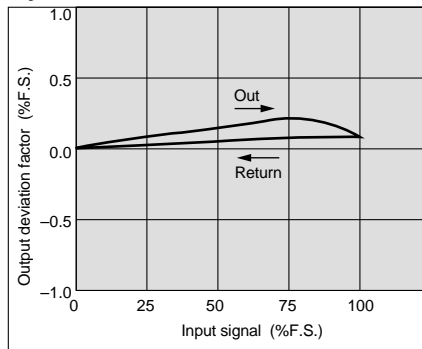


## Series ITV305

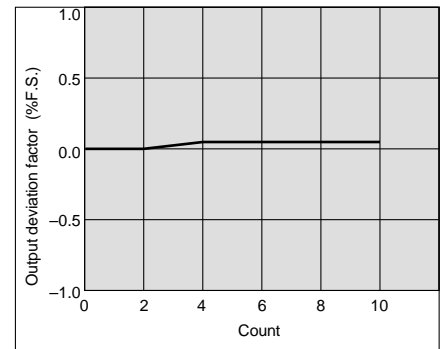
### Linearity



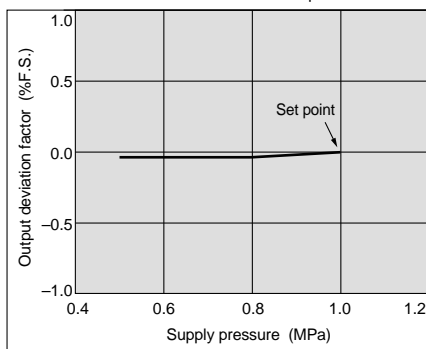
### Hysteresis



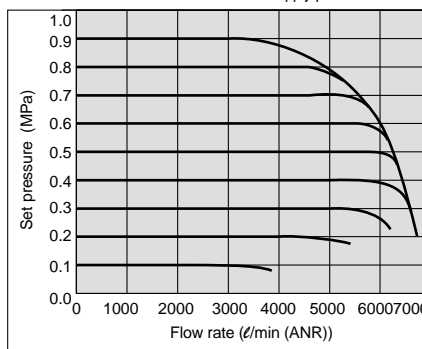
### Repeatability



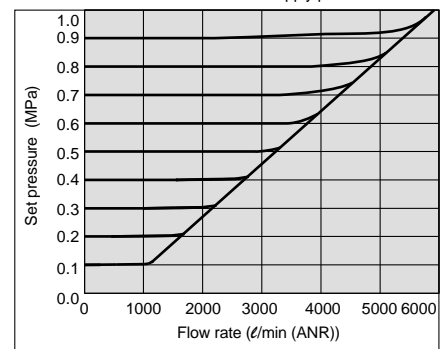
### Pressure characteristics Set pressure: 0.4MPa



### Flow characteristics Supply pressure: 1.0MPa



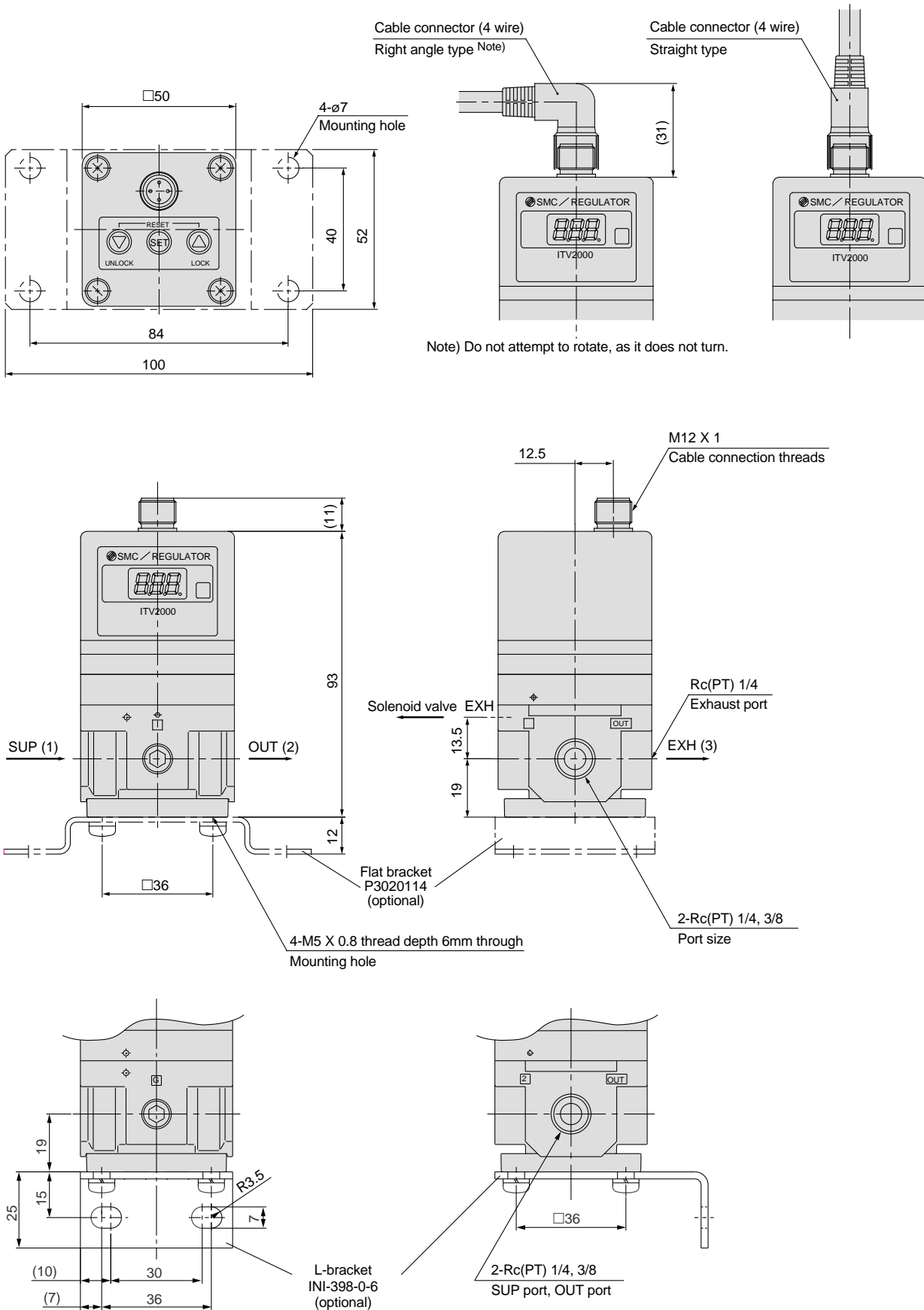
### Relief flow characteristics Supply pressure: 1.0MPa



# Electro-Pneumatic Regulator *Series ITV2000/3000*

## Dimensions

### ITV20□□

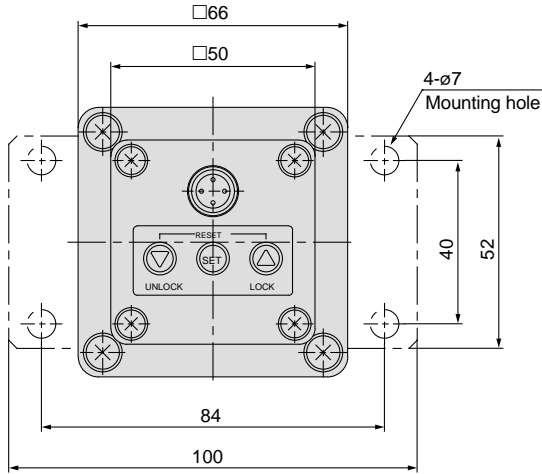


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# Series ITV2000/3000

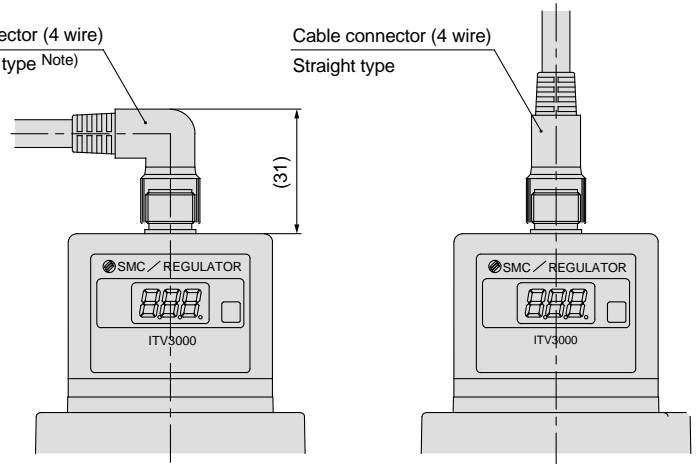
## Dimensions

### ITV30□□



Cable connector (4 wire)  
Right angle type Note)

Cable connector (4 wire)  
Straight type



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

