



CAT.E612-Ⓐ

New



Electro-Pneumatic Regulator **Series ITV2000**

Straight Type

Right Angle Type

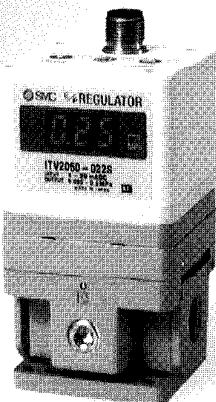


PAT.PEND

Output pressure is directly proportional to the input control signal.

Electro-Pneumatic Regulator **ITV2000 Series**

Air pressure is controlled and set automatically in proportion to electrical signals.



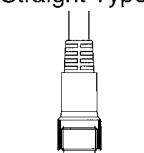
Air Consumption is near zero ℓ/min (ANR) at desired set pressure (balanced condition)

Two types of monitoring outputs
Select either analog or switch output

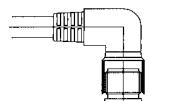
LED display is bright and easy to read

Two types of cable connections available

Straight Type



Right Angle Type



Same mounting dimensions as SMC's IT2000 series E/P Regulator (brackets are identical)

Clean room series available

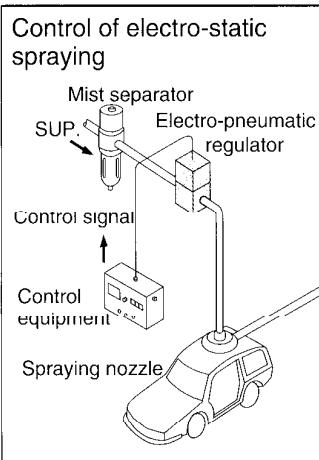
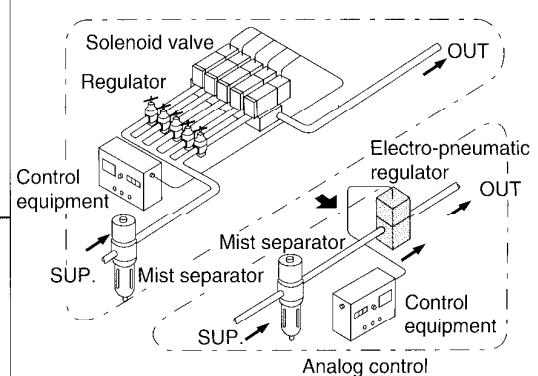
Lightweight design, 350g

Zero-span settings are adjustable without supply pressure

IP65 enclosure rating

Applications

Analog multi-stage control



Electro-Pneumatic Regulator Series ITV2000

Specifications

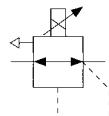


Straight Type
Connector



Right Angle Type
Connector

Symbol



Model	ITV201	ITV203	ITV205		
Max. Supply Pressure	0.2MPa{2.0kgf/cm ² }	1.0MPa{10.2kgf/cm ² }			
Setting Pressure Range	0.005 to 0.1MPa {0.05 to 1.0kgf/cm ² }	0.005 to 0.5MPa {0.05 to 5.1kgf/cm ² }	0.005 to 0.9MPa {0.05 to 9.2kgf/cm ² }		
Supply Voltage	DC24V±10%, DC12V±10%				
Current Consumption	Supply Voltage DC24V type: 0.1A or less Supply Voltage DC12V type: 0.15A or less				
Input Signal	(Note 1) Current type Voltage type	4~20mAADC, 0~20mAADC 0~5VDC, 0~10VDC			
Input Impedance	Current type	250Ω or less			
	Voltage type	Approximately 6.5kΩ			
(Note 2) Output signal	Analog Output Switch Output	1~5VDC (Load Impedance: 1kΩ or less) NPN Open corrector output: 30V,30mA PNP Open corrector output: 30V,30mA			
Linearity	± 1% or less (Full Span)				
Hysteresis	0.5% or less (Full Span)				
Repeatability	±0.5% or less (Full Span)				
Sensitivity	0.2% or less (Full Span)				
Temperature characteristics	±0.12% or less (Full Span) /°C				
Output Pressure display (3 digit)	Accuracy Minimum Unit	±0% (Full Span) MPa:0.01, kgf/cm ² :0.01, bar:0.01, PSI:0.1 (Note 3) kPa:1			
Ambient and fluid temperature	5 to 50°C (Without condensation)				

(Note 1) Two wire control, 4 to 20mAADC and 0 to 20mAADC are not available. Supply voltage of 12VDC or 24 VDC is required.

(Note 2) Please make a selection of either Analog output or Switch output.

Also select either NPN output or PNP output when Switch output is selected.

(Note 3) 1PSI is the minimum unit on ITV205 □

Options, Part No.

Description	Part No.
Bracket	P3020114

How To Order

ITV20 1 0 H 0 1 2 S

Pressure range

1	0.005 to 0.1MPa {0.05 to 1.0kgf/cm ² }
3	0.005 to 0.5MPa {0.05 to 5.1kgf/cm ² }
5	0.005 to 0.9MPa {0.05 to 9.2kgf/cm ² }

Power voltage ●

0	DC24V
1	DC12V

Input signal

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

Monitor output ●

1	Analog output 1 to 5VDC
2	Switch output / NPN output
3	Switch output / PNP output

Type of connector nuts ●

Nil	Rc
N	NPT
T	NPTF
F	G

Port size

2	1/4
3	3/8

● Pressure gauge

Nil	MPa
2	kgf/cm ²
3	bar
4	PSI
5	kPa

● Cable connector type

S	Straight type 3m
L	Right Angle type 3m
N	No Cable connector

● Option(Bracket)

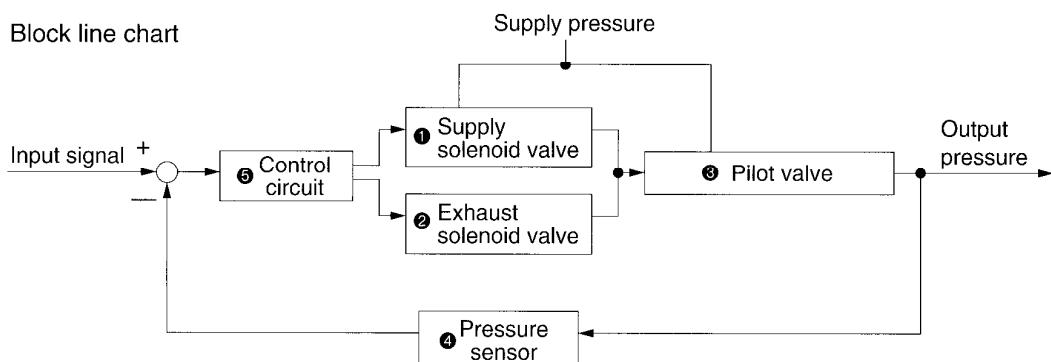
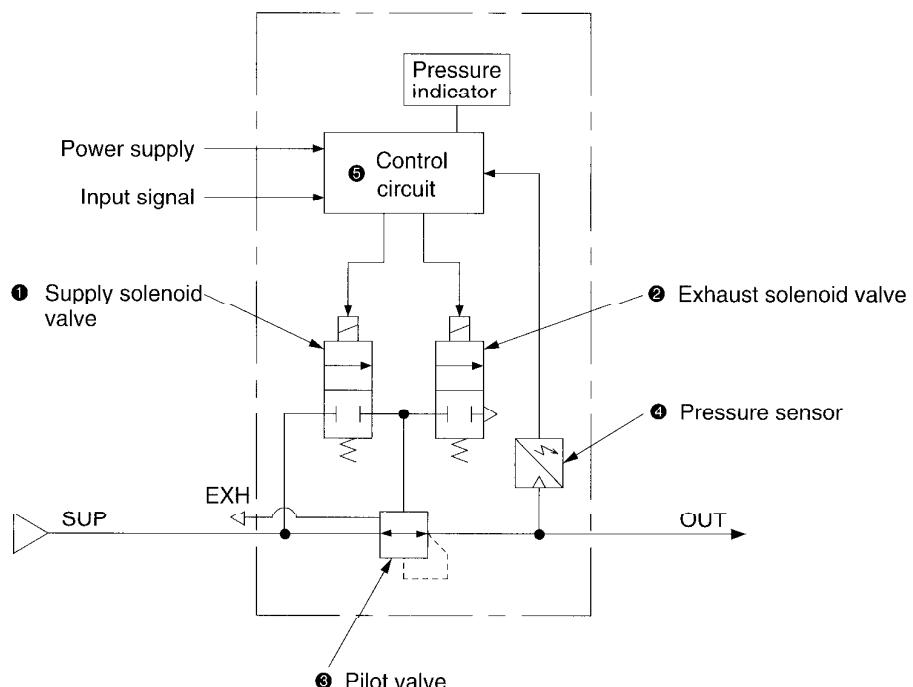
Nil	Without bracket
B	With bracket

Series ITV2000

Operation Principal

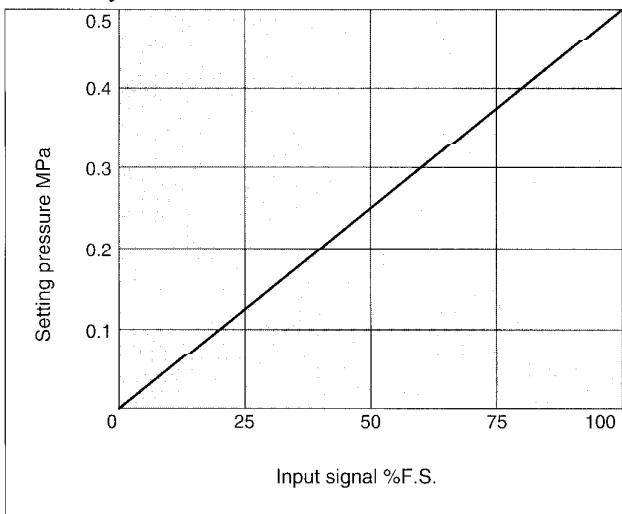
When the input signal increases, the supply solenoid valve ① turns on and the exhaust solenoid valve ② turns off. Supply pressure is passed to the pilot valve ③ through the supply solenoid valve. The pilot valve will open the main valve allowing partial supply pressure to pass to the out port.

The pressure sensor ④ will provide output pressure feedback to the control circuit ⑤. The control circuit will balance the input signal and output pressure to ensure that the output pressure remains proportional to the input signal.

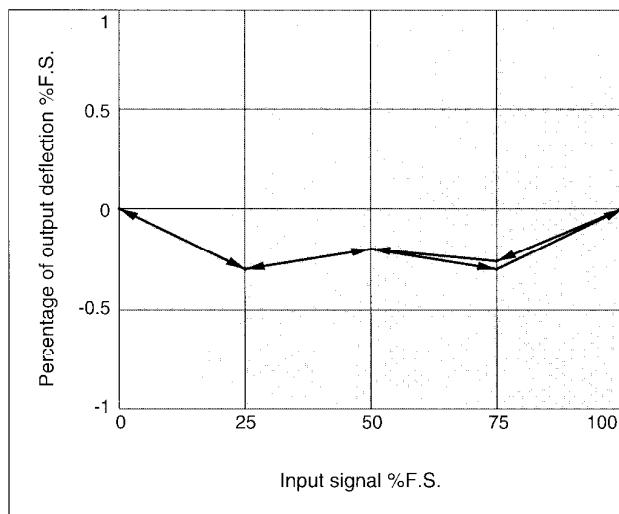


Series ITV203 □

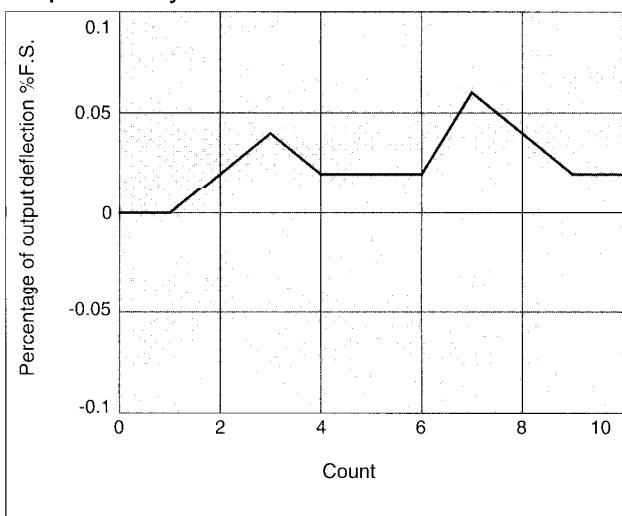
Linearity



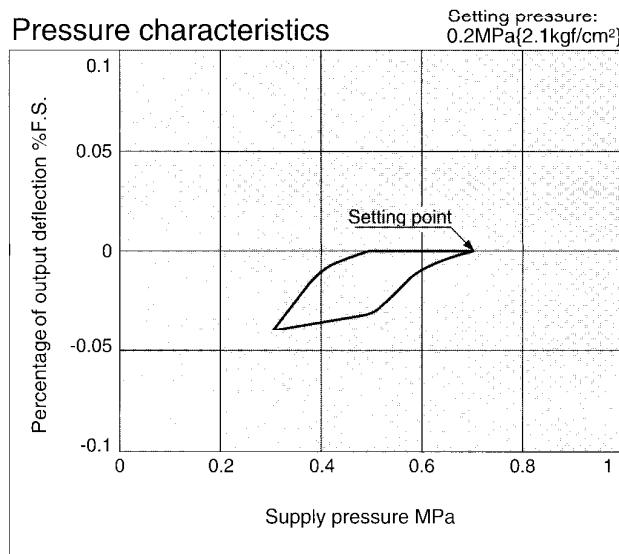
Hysteresis



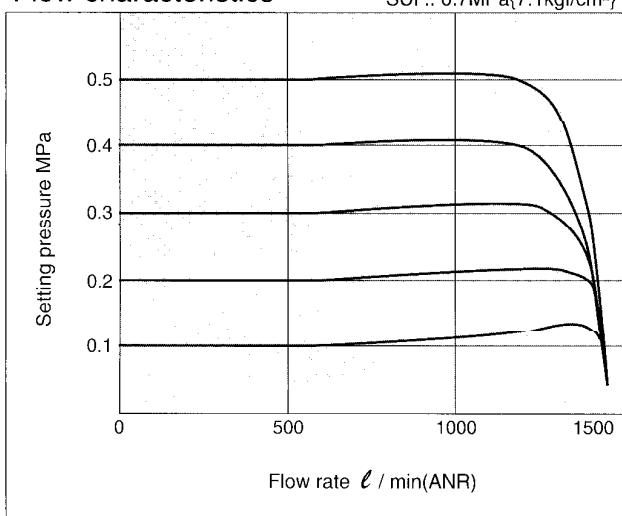
Repeatability



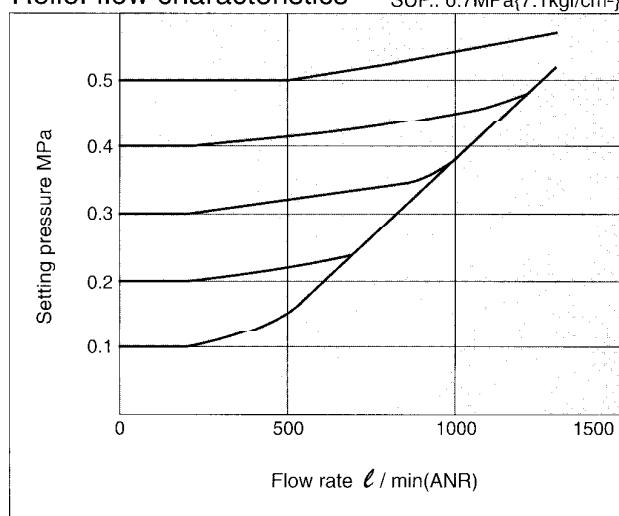
Pressure characteristics



Flow characteristics



Relief flow characteristics

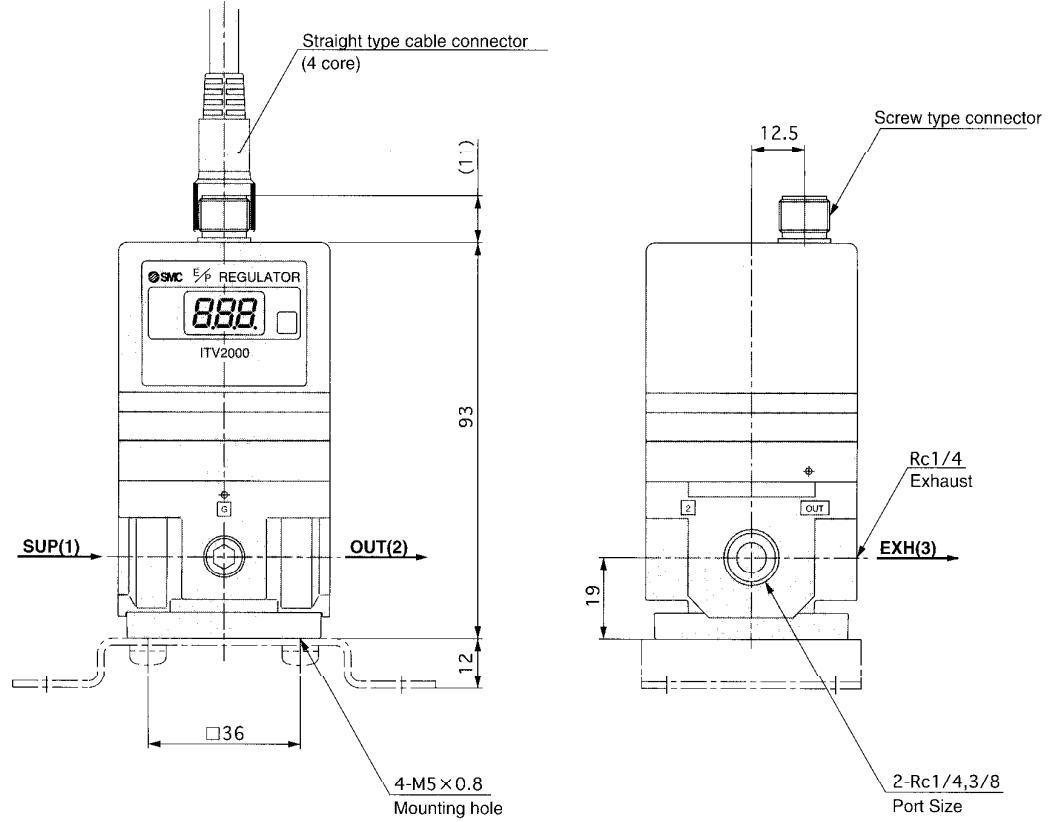
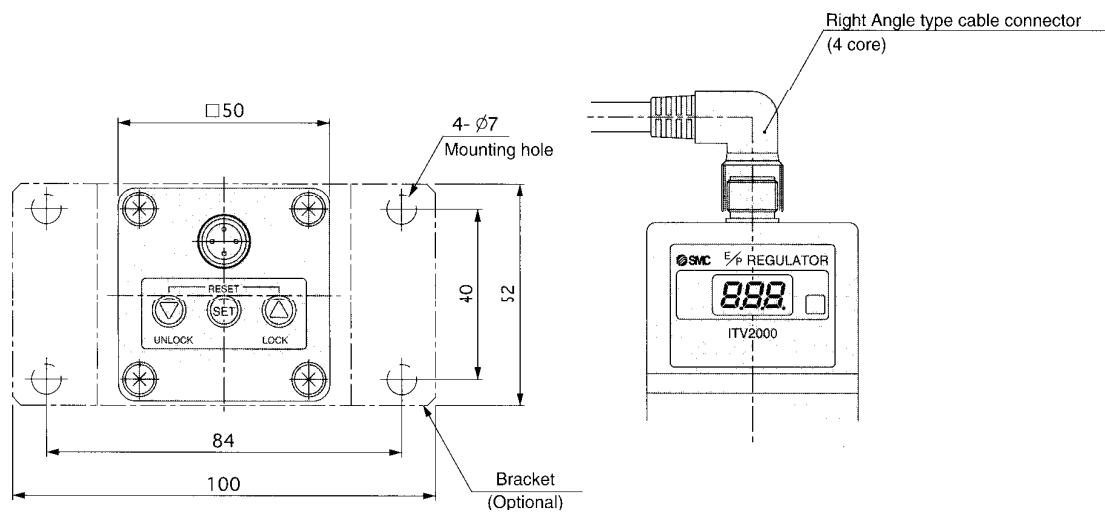


Series ITV2000

Dimensions

ITV20□□

Scale:60%





Series ITV2000 Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by a label of "Caution", "Warning", or "Danger". To ensure safety, be sure to observe ISO 4414^{Note 1)}, JIS B 8370^{Note 2)} and other safety practices.

⚠ Caution: Operator error could result in injury or equipment damage.

⚠ Warning: Operator error could result in serious injury or loss of life.

⚠ Danger: In extreme conditions, there is a possible result of injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power—Recommendations for the application of equipment to transmission and control systems.

Note 2) JIS B 8370: Pneumatic System axiom.

⚠ Specific caution on each product

Please make sure to read before use. Contact SMC for special specifications.

⚠ Caution

Piping

- At piping, air blow or clean thoroughly to remove cutting dust, machining oil, refuse from inside pipe.
- When screwing in a pipe or a fitting, make sure no cutting dust of threading or sealing material will go inside. When seal tape is used, leave 1.5 to 2 screw thread of the thread part.

⚠ Caution

Air source

- Mount an air filter on the supply side near this product. Use a filtration degree of 5μm or less.
- Compressed air containing large amounts of drain will cause malfunction of this product or other pneumatic equipment. To solve this problem install an after cooler, an air dryer or drain catch.
- Large amounts of carbon powder deposit inside this product will cause malfunction. Refer to "Compressed Air Clarify System" for quality of above compressed air.

⚠ Caution

Handling

- Do not use a lubricator on the supply side of this product. Doing so will cause a malfunction. When lubrication is necessary to terminal equipment, connect a lubricator on the output side of this product.
- When power is turned off while pressure is applied, output pressure is retained. This pressure is only temporarily retained and is not guaranteed. If the air needs to be exhausted, power should be turned off after the output pressure is lowered and exhausted through the regulator or another valve.

- When the power supply is removed because of a power outage or some other reason, pressure on the output side will be retained temporarily. Take special precautions if the product is used for output to open air because the air will keep flowing out.

- If supply pressure is removed while the power is on, the product may produce a beating noise keeping the embedded solenoid operating. Turn off the power supply when the supply pressure is removed.

- The minimum pressure on the output side of this product will remain at 0.005MPa(0.05kgf/cm²) or less. When the output pressure needs to be completely exhausted 0MPa(0kgf/cm²), exhaust remaining pressure with a cross valve on the output side or by some other means.

- This product is adjusted according to the specifications when shipped from the factory. Avoid careless disassembly of product. It may cause unnecessary damage.

- Optional cable connector is 4 conductor wire. If the monitor output is not used, take extra precautions to avoid shorting the output.

- To avoid malfunction due to noise, take the following steps;

- 1) Eliminate noise by using a line filter on AC power supply line.
- 2) Install this product and wiring to this product as far away as possible from strong electric fields like motors or power lines to avoid the influence of noise.

- 3) Make sure to apply load surge protection for an inductive load (solenoid, relay etc.).

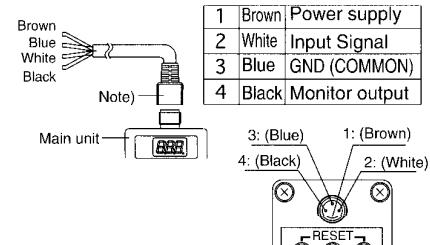
- 4) When output side volume is large and it is being used for relief, exhaust sound will be loud at relief. Use a silencer (SMC "AN200-02" or "AN202-02") on the exhaust port (EXH port). The pipe connection port size is Rc1/4.

- 5) Refer to the manual shipped with the product for usage details.

⚠ Caution

Wiring

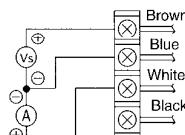
Connect the cable to the connector on the main unit as shown in the following diagram. Take precautions as incorrect wiring will damage the unit. Use a DC power supply capable of supplying the necessary power requirements with minimal ripple.



Note) The right angle type connector extends to the left side (over the supply port side).

Wiring diagram

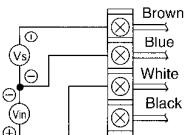
Current signal type



Vs: Power supply 24VDC
12VDC

A : Input Signal 4 to 20mA
0 to 20mA

Voltage signal type



Vs: Power supply 24VDC
12VDC

Vin: Input Signal 0 to 5VDC
0 to 10VDC