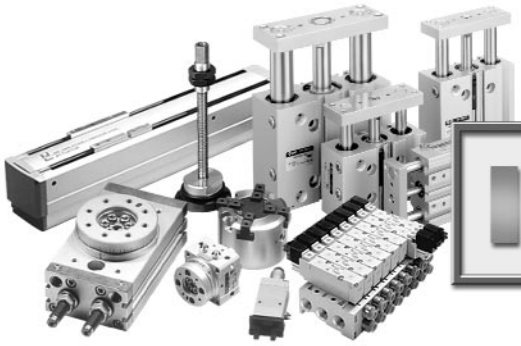


INFORMATION New!

SMC Pneumatics, Inc. 3011 N. Franklin Road Indianapolis, Indiana 46226
1-800-SMC-SMC1 (762-7621) www.smcusa.com **US98-E464 12/99**

Solid State Vacuum Regulator

Series ITV2090/2091

Stepless control of vacuum pressure in proportion to an electric signal

Straight type Right angle type

Able to operate with vacuum only
Pilot air required by the previous series (IT209) is unnecessary

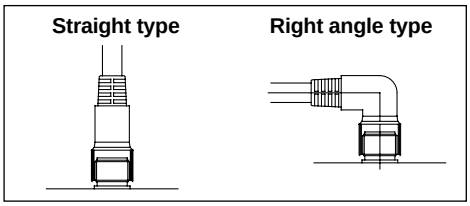
Air consumption is approximately 0ℓ/min (ANR) (when balanced)

Two types of monitor output
Either analog output or switch output can be selected

Bright, easy to read LED display

Same mounting dimensions as the previous IT series (same brackets)

Two cable entry directions available



Clean room type available (option)

Light weight design 350g weight △12% reduction (compared to previous series)

Zero and span adjustment possible without air pressure

IP65 compatible

How to Order

ITV 209 0 – 0 1 □ 2 □ S 5

Pressure range

9	–1.3 to –80kPa

Power supply voltage

0	24VDC
1	12 to15VDC

Input signal

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

* Order made

Monitor output

0*	Without (in case of preset input)
1	Analog output 1 to 5VDC
2*	Switch output/NPN output
3*	Switch output/PNP output
4*	Analog output 4 to 20mADC

* Order made

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Order made

Port size

2	1/4

Bracket

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

* Order made

Cable connector type

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

* Order made

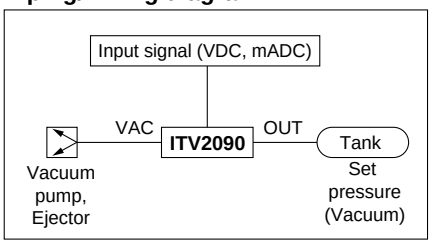
Pressure display units

5	kPa

Standard Specifications

Model		ITV2090	ITV2091
Power supply	Voltage	24VDC ±10%	12 to 15VDC
	Current consumption	Power supply voltage 24VDC type: 0.12A or less Power supply voltage 12 to 15VDC type: 0.18A or less	
Minimum supply vacuum pressure Note1)		Set pressure –13.3kPa	
Maximum supply vacuum pressure		–101kPa	
Regulating pressure range		–1.3 to –80kPa	
Input signal	Current type Note 2)	4 to 20mA, 0 to 20mA	
	Voltage type	0 to 5VDC, 0 to 10VDC	
	Preset input	4 points	
Input impedance	Current type	250Ω or less	
	Voltage type	Approx. 6.5kΩ	
	Preset input	Approx. 2.7kΩ	
Output signal Note 3) (Monitor output)	Analog output	1 to 5VDC (load impedance: 1 kΩ 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)	
	Units	kPa Note 4) Minimum display: 1	
Ambient and fluid temperature		0 to 50°C (with no condensation)	
Enclosure		IP65 equivalent	
Weight		350g	

Piping/Wiring diagram



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

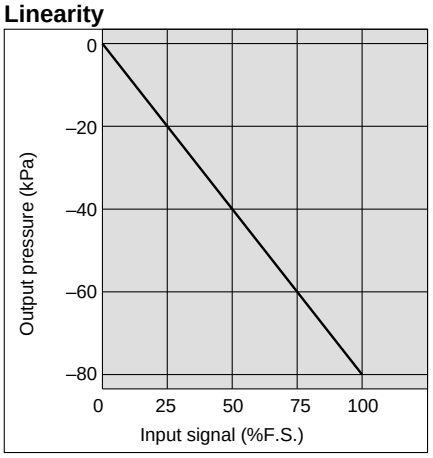
Note 2) 4 to 20mA is not possible with the 2 wire type. Power supply voltage (24VDC or 12 to 15VDC) is required.

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. Please note that the preset input type is not equipped with an output signal function.

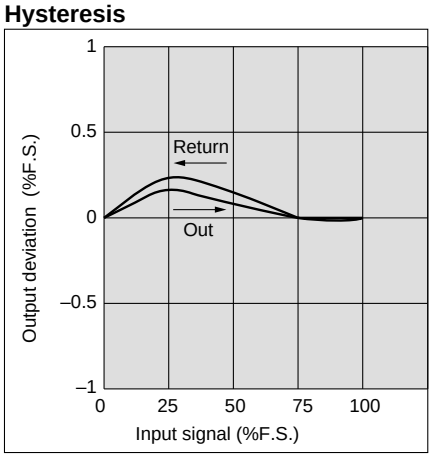
Note 4) Contact SMC regarding indication with other units of pressure.

Series ITV209□ Flow Rate Characteristics

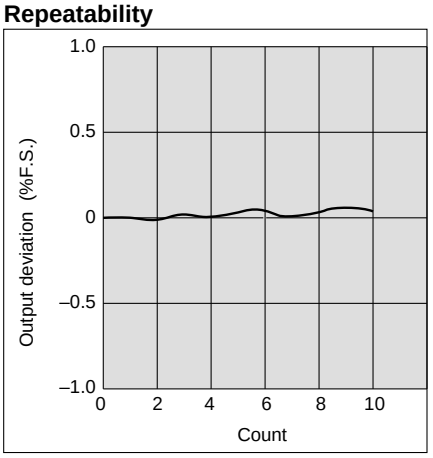
Linearity



Hysteresis

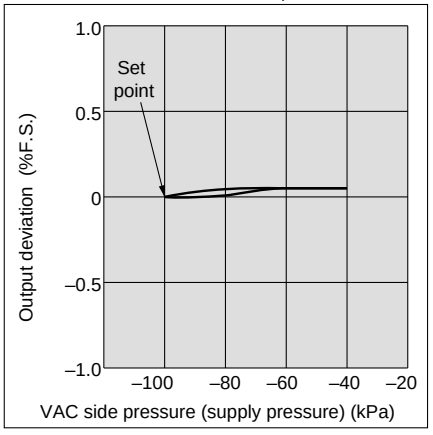


Repeatability



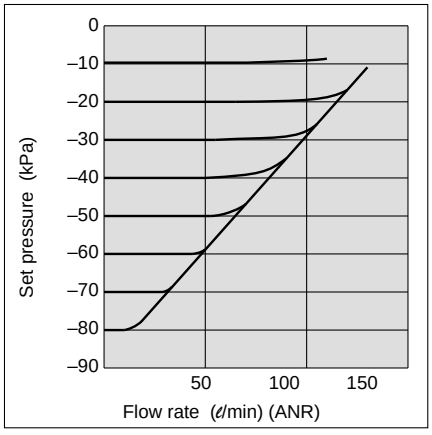
Pressure characteristics

Set pressure: –20kPa



Flow rate characteristics

Supply vacuum pressure: –100kPa



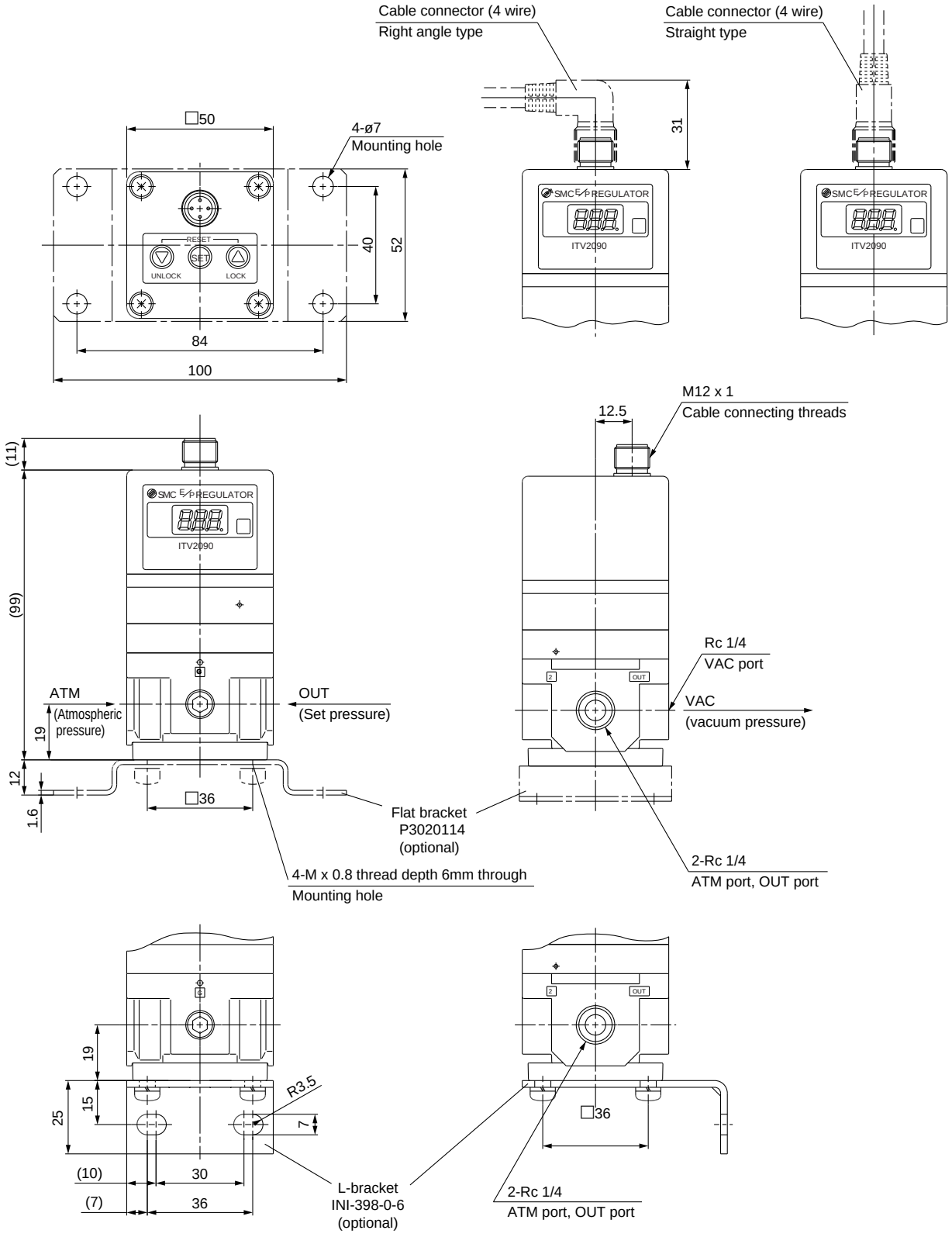
Flow rate characteristic measurement conditions

- Exhaust flow rate of the vacuum pump used for measurement: 500ℓ/min (ANR)
- Upstream vacuum pressure: –100kPa (when downstream flow rate is 0ℓ/min (ANR))
- Maximum flow rate: 132ℓ/min (ANR) (with upstream VAC. pressure at –39kPa)

Dimensions

ITV2090

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



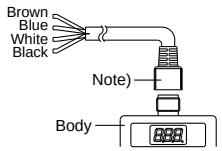
⚠ Specific Product Precautions

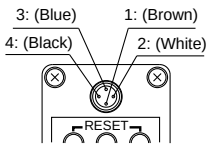
Be sure to read before handling. Consult SMC when outside the specifications.

Wiring

⚠ Caution

Connect the cable to the connector on the body with the wiring arranged as shown below. Proceed with caution, 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

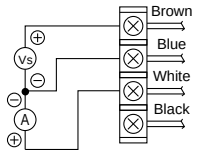
Preset input type

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 attempt to rotate the connector, as it does not turn.

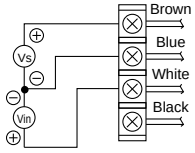
Wiring diagram

Current signal type



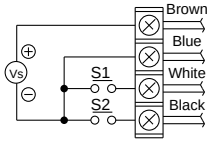
Vs: Power supply 24VDC
12 to 15VDC
A : Input signal 4 to 20mADC
0 to 20mADC

Voltage signal type



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

Preset input type



Vs: Power supply 24VDC
12 to 15VDC

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 0MPa.