

Electronic Vacuum Regulator

Series **ITV2090/2091**



Features

- ➔ Stepless control of vacuum pressure proportional to an electrical signal.
- ➔ Current or voltage input types.
- ➔ Monitor output as standard.
- ➔ 12V and 24V power versions.

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	
Input impedance	Current type	250 Ω or less	
	Voltage type	Approximately 6.5 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)/ $^{\circ}\text{C}$	
Output pressure display	Accuracy	$\pm 3\%$ (Full span)	
	Units	kPa ⁽⁴⁾ Minimum display: 1	
Ambient and fluid temperature		0 to 50 $^{\circ}\text{C}$ (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 analogue 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.

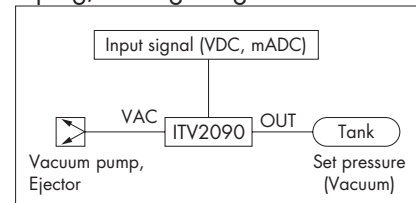


Straight type



Right angle type

Piping/Wiring Diagram



How to Order ITV2090/2091

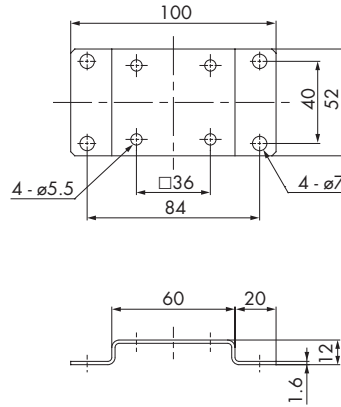
ITV 209 0-0 1 F 2 S 5-Q

<p>Pressure range</p> <p>9 -1.3 to -80 kPa</p> <p>Power supply voltage</p> <table border="1" style="font-size: 10pt;"> <tr><td>0</td><td>24 VDC</td></tr> <tr><td>1</td><td>12 to 15 VDC</td></tr> </table> <p>Input signal</p> <table border="1" style="font-size: 10pt;"> <tr><td>0</td><td>Current type 4 to 20 mADC</td></tr> <tr><td>1</td><td>Current type 0 to 20 mADC</td></tr> <tr><td>2</td><td>Voltage type 0 to 5 VDC</td></tr> <tr><td>3</td><td>Voltage type 0 to 10 VDC</td></tr> </table>	0	24 VDC	1	12 to 15 VDC	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	<p>Monitor output</p> <table border="1" style="font-size: 10pt;"> <tr><td>1</td><td>Analogue output 1 to 5 VDC</td></tr> <tr><td>2</td><td>Switch output/NPN output</td></tr> <tr><td>3</td><td>Switch output/PNP output</td></tr> </table>	1	Analogue output 1 to 5 VDC	2	Switch output/NPN output	3	Switch output/PNP output	<p>Pressure display unit</p> <p>5 kPa</p> <p>Cable Assembly</p> <table border="1" style="font-size: 10pt;"> <tr><td>S</td><td>3m length straight cable</td></tr> <tr><td>L</td><td>3m length right angle cable</td></tr> </table> <p>Port size</p> <p>2 1/4</p> <p>Thread type</p> <table border="1" style="font-size: 10pt;"> <tr><td>F</td><td>G</td></tr> </table>	S	3m length straight cable	L	3m length right angle cable	F	G
0	24 VDC																									
1	12 to 15 VDC																									
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																									
1	Analogue output 1 to 5 VDC																									
2	Switch output/NPN output																									
3	Switch output/PNP output																									
S	3m length straight cable																									
L	3m length right angle cable																									
F	G																									

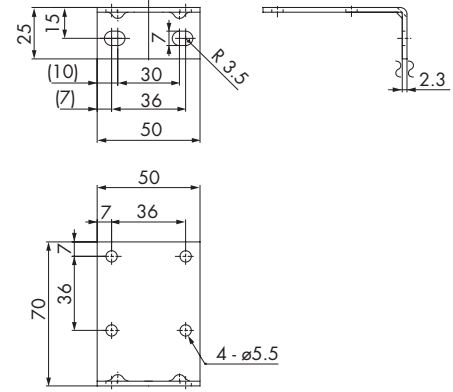
Accessory (Option)/Part No. ITV2090/2091

Description		Part no.
Flat bracket		P3020114
L-bracket		INI-398-0-6
Cable connector	Straight type	P398010-12
	Right angle type	P398010-13

Dimensions Flat bracket



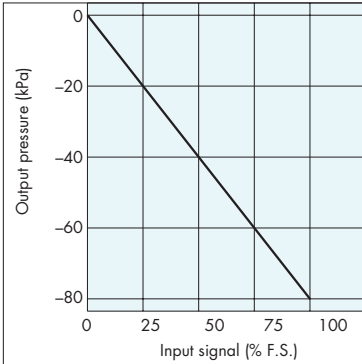
L-bracket



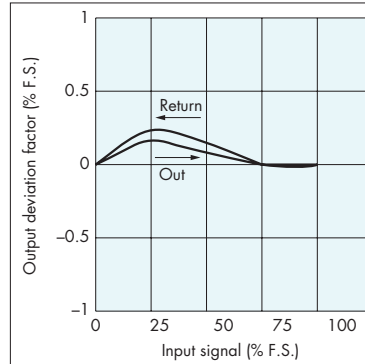
Detailed Charts for ITV2090/2091

Series ITV209□

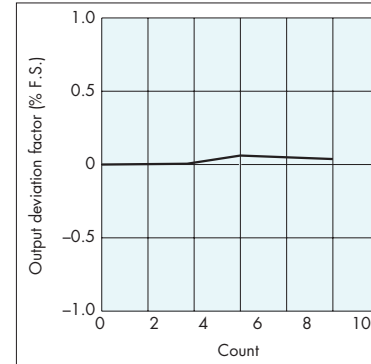
Linearity



Hysteresis



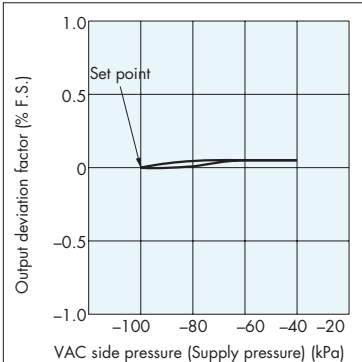
Repeatability



Pressure

Characteristics

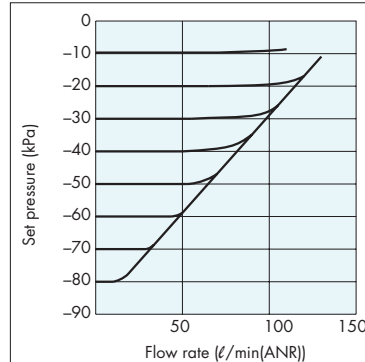
Set pressure: -20 kPa



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)

Dimensions Series ITV209□

Dimensions are exactly as per ITV20□□ Positive Pressure type. Please see ITV1000/2000/3000 pages.

Electrical Connections Series ITV209□

Note: Electrical connections are as positive pressure ITV. Please see ITV1000/2000/3000 pages.

Air Preparation