

# 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<br>Power supply voltage 12 to 15 VDC type: 0.18 A or less         |              |
| Minimum supply vacuum pressure <sup>(1)</sup>    |                             | Set pressure -13.3 kPa                                                                                             |              |
| Maximum supply vacuum pressure                   |                             | -101 kPa                                                                                                           |              |
| Regulating pressure range                        |                             | -1.3 to -80 kPa                                                                                                    |              |
| Input signal                                     | Current type <sup>(2)</sup> | 4 to 20 mA, 0 to 20 mA                                                                                             |              |
|                                                  | Voltage type                | 0 to 5 VDC, 0 to 10 VDC                                                                                            |              |
| Input impedance                                  | Current type                | 250 $\Omega$ or less                                                                                               |              |
|                                                  | Voltage type                | Approximately 6.5 k $\Omega$                                                                                       |              |
| Output signal <sup>(3)</sup><br>(Monitor output) | Analog output               | 1 to 5 VDC (Load impedance: 1 k $\Omega$ or more)<br>4 to 20 mA (Sink type) (Load impedance: 250 $\Omega$ or less) |              |
|                                                  | Switch output               | NPN open collector output: Max. 30 V, 30 mA<br>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 <sup>(4)</sup> 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.

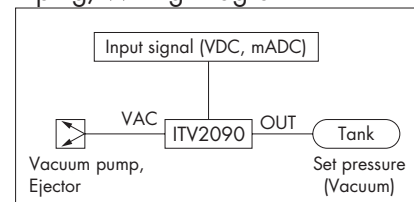


Straight type



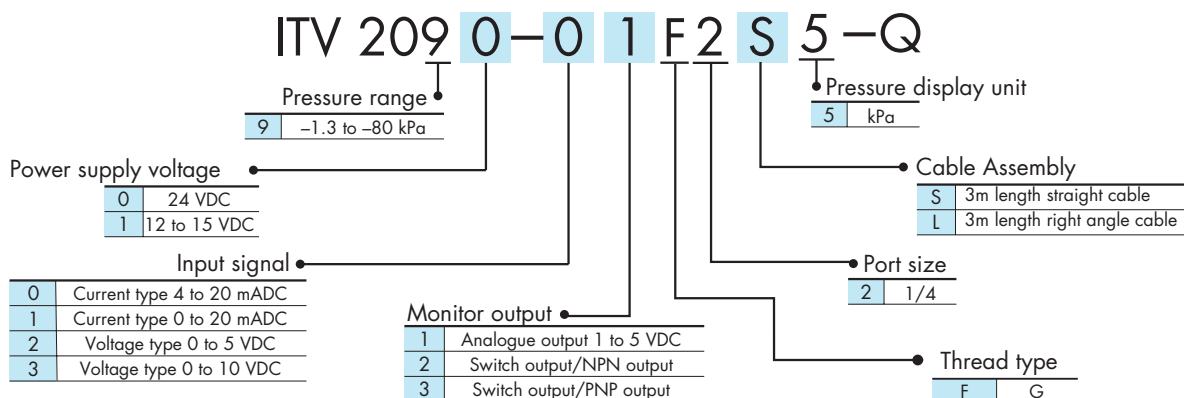
Right angle type

### Piping/Wiring Diagram



Air Preparation

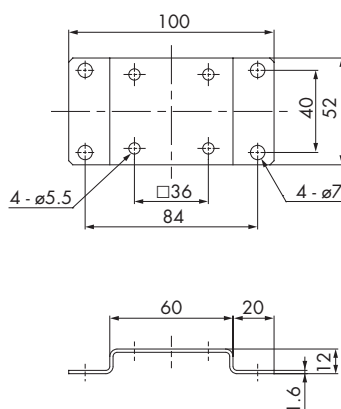
### How to Order ITV2090/2091



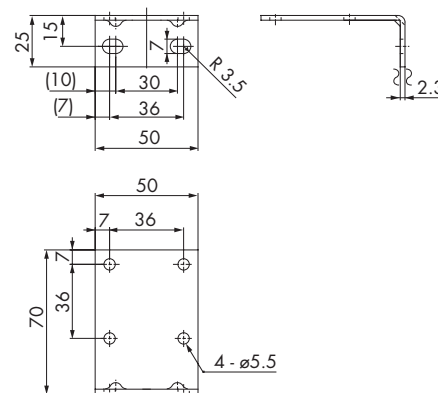
### Accessory (Option)/Part No. ITV2090/2091

| 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



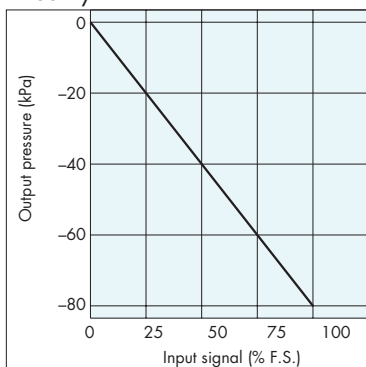
### L-bracket



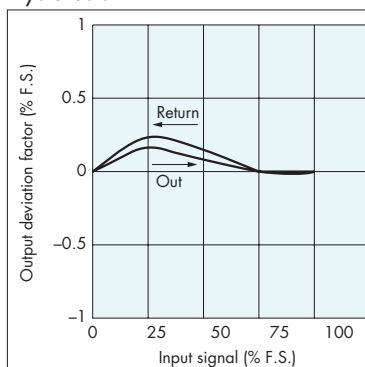
### Detailed Charts for ITV2090/2091

#### Series ITV209□

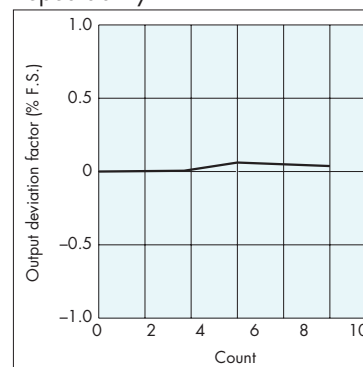
##### Linearity



##### Hysteresis

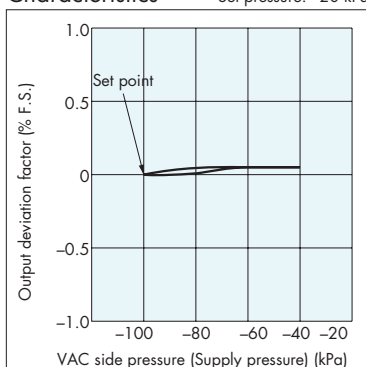


##### Repeatability



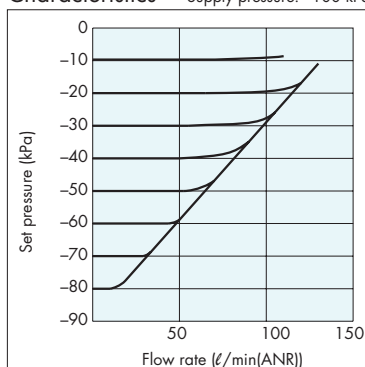
##### Pressure Characteristics

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.