## INSTRUMENTATION

<table>
<thead>
<tr>
<th>Series</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IS3000</strong></td>
<td>7.1</td>
</tr>
<tr>
<td>Pneumatic Pressure Switch</td>
<td></td>
</tr>
<tr>
<td><strong>ISG</strong></td>
<td>7.2</td>
</tr>
<tr>
<td>Pneumatic Pressure Switch</td>
<td></td>
</tr>
<tr>
<td><strong>IS1000</strong></td>
<td>7.3</td>
</tr>
<tr>
<td>Compact Pressure Switch : Single Contact</td>
<td></td>
</tr>
<tr>
<td><strong>GS40</strong></td>
<td>7.4</td>
</tr>
<tr>
<td>Pressure Switch With LCD Digital Display</td>
<td></td>
</tr>
<tr>
<td><strong>PSE</strong></td>
<td>7.5</td>
</tr>
<tr>
<td>Air and Liquid Pressure Switch With Separate Sensor and Indicator</td>
<td></td>
</tr>
<tr>
<td><strong>PS1000/1100</strong></td>
<td>7.9</td>
</tr>
<tr>
<td>Pressure Sensor</td>
<td></td>
</tr>
<tr>
<td><strong>ZSE4/ISE4B</strong></td>
<td>7.10</td>
</tr>
<tr>
<td>Vacuum/Pressure Switch Or Transmitter - With Backlit LCD Pressure Indication</td>
<td></td>
</tr>
<tr>
<td><strong>ZSE4BD/ISE4BD</strong></td>
<td>7.12</td>
</tr>
<tr>
<td>Water Drop Resistant Type / Digital Indication Pressure Switch</td>
<td></td>
</tr>
<tr>
<td><strong>ZSE5/ISE5</strong></td>
<td>7.13</td>
</tr>
<tr>
<td>Digital Pressure Switch For General Purpose Fluid</td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td>Page Number</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>ISA Air Catch Sensor</td>
<td>7.15</td>
</tr>
<tr>
<td>IR2000 Precision Regulator</td>
<td>7.18</td>
</tr>
<tr>
<td>ITV2000, 3000 Electro-Pneumatic Regulator</td>
<td>7.20</td>
</tr>
<tr>
<td>VY Electro-Pneumatic Hybrid Regulator</td>
<td>7.21</td>
</tr>
</tbody>
</table>
PNEUMATIC PRESSURE SWITCH: IS3000

- High Frequency Operation
- Long Life
- Simple Pressure Setting
- Compact and Lightweight
- Optional Neon Lamp Available

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>IS3000-02</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>IS3100</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>IS3010-02</td>
</tr>
<tr>
<td>Pressure Regulating Range</td>
<td>IS3110</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperatures</td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>±20 kPa</td>
</tr>
<tr>
<td>Weight</td>
<td>0.15kg</td>
</tr>
<tr>
<td>Port/Connection</td>
<td>Rp(PT)/¼</td>
</tr>
<tr>
<td>Micro Switch Type</td>
<td>Standard</td>
</tr>
<tr>
<td>Minimum Applicable Load</td>
<td>DC 5V 160mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>1000kPa</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>800kPa</td>
</tr>
<tr>
<td>Pressure Regulating Range</td>
<td>100 - 700 kPa</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperatures</td>
<td>-5 - 60ºC</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Within 50kPa (Set Pressure 100 - 500 kPa)</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±20 kPa</td>
</tr>
<tr>
<td>Weight</td>
<td>0.15kg</td>
</tr>
<tr>
<td>Port/Connection</td>
<td>Rp(PT)/¼</td>
</tr>
<tr>
<td>Micro Switch Type</td>
<td>Standard</td>
</tr>
<tr>
<td>Minimum Applicable Load</td>
<td>DC 5V 160mA</td>
</tr>
</tbody>
</table>

WIRING

Please wire micro-switch in accordance with the molded symbols that appear beside the terminal screws.

M ICRO S WITCH R ATINGS

<table>
<thead>
<tr>
<th>Model</th>
<th>IS3000</th>
<th>IS3010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load</td>
<td>Non Inductive Load (A)</td>
<td>Inductive Load (A)</td>
</tr>
<tr>
<td></td>
<td>Resistance Load</td>
<td>Lighting Load</td>
</tr>
<tr>
<td>AC125</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>AC250</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>DC18</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>DC125</td>
<td>0.4</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Insulation Resistance 100 MΩ @ 500V (DC) *High Inrush Circuits

HOW TO ORDER

PNEUMATIC PRESSURE SWITCH: SERIES IS3000

CONNECTION

0 .... Rp(PT)/¼ Flange
1 .... Flange

MICROSWITCH TYPE

0 .... Standard
1 .... Microload

PORT SIZE

- .... Flange Mounted
02 .... Rp(PT) 1/4
N02 .... NPT 1/4

LAMP

- ..... No lamp
L1 ..... Neon lamp 110vAC
L2 ..... Neon lamp 220vAC
L5 ..... LED indicator
DC 24V

DIMENSIONS

PNEUMATIC PRESSURE SWITCH: SERIES IS3000
**Pneumatic Pressure Switch: Series ISG**

- ISG Pressure Switches are widely used in industrial machines and power plant applications to give automatic pressure control.
- Easy adjustment by external wrench is provided. Pressure setting is clearly seen with the use of a scale.
- High reliability and long life.
- Adjustable differential.

### Technical Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air, Non corrosive water, oil gases*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Setting Range</td>
<td>0.05<del>1MPa / 7</del>145PSI</td>
</tr>
<tr>
<td>Adjustable Differential</td>
<td>0.03<del>0.6MPa / 5</del>90PSI</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>1.5MPa / 220PSI</td>
</tr>
<tr>
<td>Electrical Contacts</td>
<td>1a, 1b Dual Contact</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>Grommet</td>
</tr>
<tr>
<td>Inlet Port Size</td>
<td>8 1/8 (male)</td>
</tr>
<tr>
<td>Ambient and Fluid Temp</td>
<td>Max 60°C / 140°F</td>
</tr>
<tr>
<td>Weight</td>
<td>1.3 kg</td>
</tr>
</tbody>
</table>

*Materials in contact with fluid: phosphor bronze/brass

### Electrical Capacity

<table>
<thead>
<tr>
<th>Voltage</th>
<th>AC amps</th>
<th>DC amps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Instantaneous Peak Current</td>
<td>Switch Cut-off Current</td>
</tr>
<tr>
<td>24</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>48</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>110</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>220</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>440</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>550</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

Insulation resistance: 100 MΩ min at 500V DC
Test voltage: AC 2000V for 1 minute.

### How To Order

**Pneumatic Pressure Switch: Series ISG**

ISG130-031

### Safety

- Do not set differential below the minimum specified.
- The scale is for reference use only. Use gauge for accurate setting.
- Installation:
  - The switch can be installed vertically or horizontally.
  - Surge Absorber should be used in liquid lines to avoid pulsating pressure.
  - Ensure wiring is clear of mechanism movement.
  - When wiring industrial type non water proof units, ensure earth wire is fitted.
COMPACT PRESSURE SWITCH: SINGLE CONTACT SERIES IS1000

- Compact and Light Weight (50mm x 23mm x 15mm)
- Operational Pressure set made easy by Scale Plate
- Shield Plate attached to prevent external magnetic interference
- Long Life

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>IS1000-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof Pressure</td>
<td>1.0 MPa (145PSI)</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>0.7 MPa (100PSI)</td>
</tr>
<tr>
<td>Pressure Range: X201</td>
<td>0.1<del>0.4 MPa (14.5</del>60PSI)</td>
</tr>
<tr>
<td>Pressure Range: X215</td>
<td>0.15<del>0.6 MPa (22</del>90PSI)</td>
</tr>
<tr>
<td>Differential</td>
<td>0.08 MPA (12PSI) or less</td>
</tr>
<tr>
<td>Contact</td>
<td>1a single contact (low pressure, no contact)</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>Grommet•Lead wire length 3metre</td>
</tr>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Ambient and Fluid Temperature</td>
<td>5<del>60°C / 40</del>140ºF</td>
</tr>
<tr>
<td>Port Size</td>
<td>R 1/8 (Male)</td>
</tr>
</tbody>
</table>

**SWITCH CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Max Contact Capacity</th>
<th>2V (AC), 2W (DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>24V AC, DC or less</td>
</tr>
<tr>
<td>Max Operating Current</td>
<td>50mA</td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>30G</td>
</tr>
<tr>
<td>Response Time</td>
<td>1.2ms</td>
</tr>
</tbody>
</table>

*Note. Not suitable for 240V AC

**DIMENSIONS COMPACT PRESSURE SWITCH: SERIES IS1000**

**ACCESSORIES COMPACT PRESSURE SWITCH: SERIES IS1000 FOR USE IF WIRING LENGTH > 5M**

- CD-P11 Contact protection box (100V AC)
- CD-P12 Contact protection box (24V DC)

---

**HOW TO ORDER COMPACT PRESSURE SWITCH: SERIES IS1000**

- PORT THREAD
  - X201 01 …1/8 PT
  - X215 N01 …NPT1/8

- Lead Wire Length
  - X201 1~4 bar 3m
  - X215 1.5~6 bar 3m

---

When detecting ON-pressure signal, note that set pressure on scale plate plus ON-OFF differential will be ON-pressure signal.
- Don’t use with corrosive fluids.
- When piping switch by hand, hold body not wires.
- Electrical wire must not be subjected to excessive force.

---

**CERTIFICATIONS**

- CE: 93/68/EEC
- C-Mark: 89/336/EEC
**Pressure Switch with LCD Digital Display**

Series GS40

- Digital Pressure Gauge Function added to Pressure Switch
- Semi-Conductor Sensor
- High Reliability
- Easy Operation
- Low Power Consumption
- Digital Display of Low Limit during setting
- 5 Options of Displayed Pressure Unit
- Preliminary Alarm Display gives warning that pressure is within 10% of set point

**Technical Specifications**

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air and Insert Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential</td>
<td>3% F.S (Full Span) or less</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±3% F.S (5<del>40°C) ±5% F.S (0</del>60°C)</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>12 to 24 VDC (Ripple: ±10% or less)</td>
</tr>
<tr>
<td>Output</td>
<td>Open collector (NPN) 30V 80mA</td>
</tr>
<tr>
<td>Action Indicator Light</td>
<td>Lighting under ON condition (ON at preset) (pressure or less)</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>15mA (24VDC under ON condition) or less</td>
</tr>
<tr>
<td>Maximum Operating Pressure</td>
<td>145PSI (0.98 MPa)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>0<del>60°C / 32</del>140°F</td>
</tr>
<tr>
<td>Sampling Frequency</td>
<td>4Hz</td>
</tr>
<tr>
<td>Pressure Unit</td>
<td>psi kPa kgf/cm² MPa bar</td>
</tr>
<tr>
<td>Pressure Preset Range</td>
<td>0<del>142 0</del>975 0<del>9.9 0</del>0.98 0~9.8</td>
</tr>
</tbody>
</table>

**Circuit and Electrical Connection**

- **Red Lead Wire** - Connect with blue (+) side of the direct current to actuate the switch.
- **White Lead Wire** - Connect with the input terminal of the sequence controller or the DC relay or other load since this is the switch output.
- **Black Lead Wire** - Connects with minus (-) side of the direct current to actuate the switch.
- D1 - Reverse-connection preventing diode
- D2 - Surge killer (Surge absorbing diode)
- D3 - Surge killer (Surge absorbing diode)
- Tr - Output transistor

**How to Order Pressure Switch GS40**

GS40-01

**Setting Instructions**

**How to preset Pressure Switch**:

Keep pressing the push button (1) SET and turn the pressure set trimmer (3) P.SET and figures are shown on the pressure display board (4) LCD. (The preset pressure increases when the pressure switch is turned clockwise and it decreases when turned counterclockwise.) After presetting, return the push button (1) SET to the original place, and the pressure on the line side is shown on the pressure display board (4) LCD.

**How to change Pressure Unit**:

When the unit change switch (5) UNIT is adjusted to each position, the unit and figures of the pressure display change. P:psi, K:kPa, kgf:kgf/cm², M:MPa, b:bar

**Alarm Display**

When the pressure reaches within +10% of the value preset by a pressure switch value, the LCD lights to show that the pressure is approaching the preset value.

When the line pressure becomes lower than the preset pressure, the LED (red) of (2) ALM lights and the switch turns on.

**Dimensions Pressure Switch GS40**

**Wiring Examples of Relay and Resistance Load**

**Wiring Examples Used with a Sequence Controller**

(COM TERMINAL IS -VE)
REMOTE SENSOR PRESSURE SWITCH SYSTEM
SERIES PSE

AIR AND LIQUID PRESSURE SWITCHES WITH SEPARATE SENSOR AND INDICATOR
SERIES PSE

- Compact Remote Sensors can be mounted in inaccessible areas
- Separate Indicator with Digital Readout
- Backlit Seven Segment LED Display
- Two Input Channels on Indicator – remotely selected
- Air/Gas and Liquid Sensors available
- Pre-set and Alarm Functions incorporated into Indicator
- Remote Reset Function
- Indicator Settings can be key-locked
- Vacuum Sensor Available
- Din Rail and Panel Mount Indicator Options
- Choice of Sensor Fitting Threads

TECHNICAL SPECIFICATIONS
SERIES PSE

Model No | PSE101 | PSE103
---|---|---
Output Type | NPN Open Collector | PNP Open Collector
Max Output Voltage | 30V | 80mA
Max Current | 0.8A | 0.6A
Display Resolution | 0.1kPa (vacuum), 1kPa (high pressure)
Pressure Range Display | -99.9 to 10kPa (vacuum), -10 to 100kPa (low pressure), -0.1 to 1MPa (high pressure)
Display Type | 4 digit x 2 7 segments LED
Sampling Frequency | 4Hz
Display Light | Green when switch output 1
Emergency Display | “Error” display on 7 segment LED
Self Diagnosis Function | Excess pressure, excess current, sensor end connection, data error (All these display functions are provided)
Additional Function | Auto preset: Single touch button setting possible with each adsorption
Response Frequency | 100Hz (10mA)
Operating Temperature Range | 0 to 50°C (air should not be frozen) / 32 to 120°F
Temperature | 25 ± 1°C
Characteristic | 0 to 50°C / 32 to 120°F
Repetition Accuracy | ±0.3% F.S. or less
Noise Resistance | ≤500Vp-p pulse width 1µs standing 1ns
Withstand Voltage | Between whole wires and case 1000VAC 50/60Hz for one minute
Insulation Resistance | Between whole wires and case 2MΩ (1000VDC by megameter)
Protection Class | Panel mount type: IP66, wall mount, DIN rail type: IP40
Mounting | A: Panel mount. B: Wall mount, DIN rail
Sensor Supply Voltage | Same as Source Voltage
Connection Voltage Input | 1 to 5V (Input Impedance: 100kΩ)
Current Input | 4 to 20mA (Input Impedance: 250Ω)

*Based on 25°C (77°F)
1MPa = 145PSI

TECHNICAL SPECIFICATIONS
DIGITAL PRESSURE SWITCH WITH REMOTE SENSOR DIAGRAM

When installing indicators next to each other, allow 20mm between units. Minimum separation 65mm between centres.
## Technical Specifications

### Pressure Sensor (for air)

<table>
<thead>
<tr>
<th>Model No</th>
<th>PSE510</th>
<th>PSE511</th>
<th>PSE512</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure Range</td>
<td>0<del>1MPa (0</del>145PSI)</td>
<td>-101<del>0kPa (14.5</del>0PSI)</td>
<td>0~100kPa (14.5PSI)</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>1MPa</td>
<td>200kPa</td>
<td></td>
</tr>
<tr>
<td>Fluid</td>
<td>Air • Non-corrosive gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>Analogue output (1~5V load impedance: 10kΩ or more)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source Voltage</td>
<td>12~24VDC (ripple 10% or less)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Consumption</td>
<td>10mA or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>0<del>50°C (air should not be frozen) / 32</del>120°F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristic*</td>
<td>0<del>50°C (32</del>120°F)</td>
<td>+1% F.S. or less</td>
<td></td>
</tr>
<tr>
<td>Withstand Voltage</td>
<td>Between whole wires and case 1000VAC 50/60Hz for one minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Between whole wires and case 2MΩ at 50VDC by megameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>100G X, Y, Z directions (three times for each direction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection Structure</td>
<td>IP40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Based on 25°C (80°F)

### Pressure Sensor (non-corrosive gas and liquid)

<table>
<thead>
<tr>
<th>Model No</th>
<th>PSE520-01</th>
<th>PSE520-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure Range</td>
<td>0<del>1MPa (0</del>145PSI)</td>
<td></td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>2MPa (30PSI)</td>
<td></td>
</tr>
<tr>
<td>Fluid</td>
<td>Fluid which does not corrode SUS304 and SUS303</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>Analogue output (1~5V load impedance: 10kΩ or more)</td>
<td></td>
</tr>
<tr>
<td>Source Voltage</td>
<td>12~24VDC (ripple 10% or less)</td>
<td></td>
</tr>
<tr>
<td>Current Consumption</td>
<td>15mA or less</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-10<del>70°C (air should not be frozen) / 14</del>160°F</td>
<td></td>
</tr>
<tr>
<td>Characteristic*</td>
<td>-10<del>70°C (14</del>160°F)</td>
<td>+1% F.S. or less</td>
</tr>
<tr>
<td>Withstand Voltage</td>
<td>Between GND terminal and case 250VAC for one minute</td>
<td></td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Between external terminal and case 100MD (50VDC by megameter)</td>
<td></td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>30G (11ms or less) to X, Y, Z directions (three times for each direction)</td>
<td></td>
</tr>
<tr>
<td>Protection Structure</td>
<td>IP65</td>
<td></td>
</tr>
<tr>
<td>Material: Case</td>
<td>Case: SUS304, Fitting: SUS304</td>
<td></td>
</tr>
<tr>
<td>Pressure detection portion</td>
<td>Diaphragm: SUS630</td>
<td></td>
</tr>
<tr>
<td>Lead Wire</td>
<td>Special flexible polyvinyl chloride Ø6 three-core (red, black, white) 3000m</td>
<td></td>
</tr>
<tr>
<td>Port Size</td>
<td>1/8</td>
<td>1/4</td>
</tr>
<tr>
<td>Mass</td>
<td>Approx 220g</td>
<td></td>
</tr>
</tbody>
</table>

* Based on 25°C (80°F)

### How To Order

#### Air/Inert Gas Sensor

- **PSE51**
  - **Connection Type**
    - R06 ... 6mm male stem
    - M5 ... M5x0.8
    - 01 ... Rc(PT) 1/8 and M5x0.8
    - T01 ... NPTF 1/8 and M5x0.8

#### Gas and Liquid Sensor

- **PSE520**
  - **Port Size**
    - 01 ... Rc(PT) 1/8 and M5x0.8
    - T01 ... NPTF 1/8 and M5x0.8

### Accessories

- **PSE-V** Voltage to current converter (to convert a 1~5V input signal to a 4~20mA current output)
- **PSE-C** Protection cover for indicator
- **PSE-P** Panel mount adaptor plate
- **PSE-G** Panel mount gasket

---

**Remote Sensor Pressure Switch System
Series PSE**

---

**Courtesy of Steven Engineering, Inc.**

230 Ryan Way, South San Francisco, CA 94080-6370

Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200
www.stevenengineering.com
Note) When controller is installed next to model, controller should be at least 20mm away from model.
REMOTE SENSOR PRESSURE SWITCH SYSTEM
SERIES PSE

PSE520 - 01, T01

Protect tube (cannot be bent)

Dimensions refer to ones measured after R(PT) has been screwed in.

PSE520 - 02, T02

Protect tube (cannot be bent)

Dimensions refer to ones measured after R(PT) has been screwed in.
**Pressure Sensors Series PS1000/1100**

- Very compact
- Lightweight and robust
- Vacuum or pressure
- Adjustable

**Technical Specifications Series PS1000/1100**

<table>
<thead>
<tr>
<th>Model No</th>
<th>PS1000-RO6L</th>
<th>PS1100-RO6L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
<td></td>
</tr>
<tr>
<td>Operating Pressure Range</td>
<td>-0.1<del>1.0MPa (-14.5</del>145PSI)</td>
<td>-0.1<del>0.45MPa (-14.5</del>65PSI)</td>
</tr>
<tr>
<td>Setting Pressure Range</td>
<td>-0.1<del>0.45MPa (-14.5</del>65PSI)</td>
<td>-0.1<del>0.4MPa (-14.5</del>60PSI)</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>≤4% F.S.</td>
<td></td>
</tr>
<tr>
<td>Temperature Characteristics</td>
<td>≤3% F.S.</td>
<td></td>
</tr>
<tr>
<td>Repetition Accuracy</td>
<td>≤1% F.S.</td>
<td></td>
</tr>
<tr>
<td>Load Voltage</td>
<td>DC12~24V (Ripple ≤10%)</td>
<td></td>
</tr>
<tr>
<td>Load Current</td>
<td>5~40mA</td>
<td></td>
</tr>
<tr>
<td>Leak Current</td>
<td>≤1mA</td>
<td></td>
</tr>
<tr>
<td>Inner Drop Voltage</td>
<td>≤5V</td>
<td></td>
</tr>
<tr>
<td>Switch Output (see Diagram)</td>
<td>Present Pressure ≤ Set Pressure: ON</td>
<td>Present Pressure ≤ Set Pressure: ON</td>
</tr>
<tr>
<td>Indication Lamp</td>
<td>ON, Red LED turns on</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0<del>60°C / 32</del>140°F</td>
<td></td>
</tr>
<tr>
<td>Piping Method</td>
<td>Ø6 reducer</td>
<td></td>
</tr>
<tr>
<td>Lead Wire</td>
<td>Grommet Type Oil-proof Captyre-cord two Wires Ø2.55, 0.18mm², 3m</td>
<td></td>
</tr>
</tbody>
</table>

**How to Order Series PS1000/1100**

- 10 ...2-Wire System (for Positive Pressure)
- 11 ...2-Wire System (for Vacuum and Residual Pressure)

**Wiring Method**
- L ...Grommet and Lead Wire 3m

**Piping Method**
- RO6 ...Ø6 Reducer
- R07 ...1/4" Reducer

**Switch Specification**

10 ...2-Wire System (for Positive Pressure)
11 ...2-Wire System (for Vacuum and Residual Pressure)

**Switch Output Function**

1. Set Pressure
2. Setting pressure
3. Pressure Setting Trimmer
   - By turning the pressure trimmer, pressure is set.
   - Pressure becomes bigger at the clockwise direction, and for the high vacuum rate, turn the trimmer to the counter-clockwise direction.
   - Please use the SlideDriver which has the adequate size for the trimmer, and turn it easy with fingers.

**Dimensions PS1000/1100**

- [Diagram of dimensions showing the parts of the pressure sensor, LED indicator, and pressure setting trimmer]
**INSTRUMENTATION**

**PRESSURE SWITCHES**

**VACUUM/PRESSURE SWITCH OR TRANSMITTER WITH OPTIONAL BACKLIT LCD PRESSURE INDICATION**

**SERIES ZSE4/ISE4**

- Large LCD Display shows actual pressure and permits easy setting of ON/OFF
- Series allows choice of applicable pressure range and output type
- A variety of switch output modes can be selected by push button setting
- Display can be set to show peak or minimum pressures during normal operation
- Complete Self Diagnosis with Error Indication
- Panel Mountable

### TECHNICAL SPECIFICATIONS

#### NOTE 1:

- **Minimum Differential**
  - Hysteresis mode: When P1<P2=P2 by less than three units, differential is automatically set at three units of P1 display
  - Window mode: Differential is fixed at three units of the display

#### Switch Output Type (-25)

- NPN Output: ZSE4-01-25L
- ISE4L-01-25L
- ISE4L-01-25L

#### Analog Output:

- ZSE4-01-26L
- ISE4L-01-26L
- ISE4L-01-26L

#### Operating Pressure Range:

- +10 to -101KPa (1.5~15PSI)
- -0.1~1 Bar (-1.5~15PSI)
- -1~10 Bar (-1.5~145PSI)

<table>
<thead>
<tr>
<th>Minimum Displayed Unit</th>
<th>NPN Output</th>
<th>Pressure Models</th>
<th>Pressure Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI: 0.1</td>
<td>PSI: 0.1</td>
<td>PSI: 1</td>
<td>PSI: 0.1</td>
</tr>
<tr>
<td>Bar: 0.01</td>
<td>Bar: 0.01</td>
<td>Bar: 0.1</td>
<td>Bar: 0.1</td>
</tr>
<tr>
<td>kPa: 1</td>
<td>kPa: 0.1</td>
<td>kPa: 0.01</td>
<td>kPa: 0.01</td>
</tr>
</tbody>
</table>

#### Switch Indicator ON (green light)

- ON (green light)
- ON (green light)
- ON (green light)

#### Differential (NOTE 1):

- Differential is set at three units of the display

#### Fluid:

- Air, inert gas
- Air, inert gas
- Air, inert gas

#### Temperature Characteristics:

- +3% F.S
- +3% F.S
- +3% F.S

#### Power Supply:

- DC12-24V (less than or equal to ripple 10%)

#### Current:

- 45mA

#### Operation Temp Range:

- 0~50°C / 32~120°F

#### Noise Resistance:

- 100Vp-p pulse width 1 micro standing irs

#### Insulation Strength:

- AC1000V 50/60Hz (1min)

#### Insulation Resistance:

- 2MΩ (DC500V by megger)

#### Vibration Resistance:

- 10~500Hz width = 1.5mm or acceleration 10G to X, Y, Z direction (2 hours)

#### Shock Resistance:

- 100G, X, Y, Z

#### Weight:

- 45g

#### Port Size:

- 1/8, M5 x Male and M5 x 0.8 Female

### OUTPUT CIRCUIT AND WIRING

#### Output Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Item</th>
<th>Output Method</th>
<th>Output Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSE4-01-25</td>
<td>Vacuum</td>
<td>NPN output</td>
<td>NPN open collector 30V, 80mA, residual voltage 1V or less</td>
</tr>
<tr>
<td>ISE4-01-25</td>
<td></td>
<td>Analog output</td>
<td>1~5V (±1%±1%), lead impedance 1kΩ</td>
</tr>
<tr>
<td>ZSE4-01-65</td>
<td>Positive Pressure</td>
<td>PNP output</td>
<td>PNP open collector 80mA</td>
</tr>
<tr>
<td>ISE4L-01-65</td>
<td>100kPa (14.5PSI) Type</td>
<td>Analog output</td>
<td>1~5V (±1%±1%), lead impedance 1kΩ</td>
</tr>
<tr>
<td>ZSE4-01-65</td>
<td></td>
<td>PNP output</td>
<td>PNP open collector 80mA</td>
</tr>
<tr>
<td>ISE4L-01-65</td>
<td>Positive Pressure</td>
<td>PNP output</td>
<td>PNP open collector 80mA</td>
</tr>
<tr>
<td>ZSE4-01-25</td>
<td></td>
<td>Analog output</td>
<td>1~5V (±1%±1%), lead impedance 1kΩ</td>
</tr>
<tr>
<td>ISE4L-01-25</td>
<td></td>
<td>PNP output</td>
<td>PNP open collector 80mA</td>
</tr>
</tbody>
</table>

**NOTE 1:** Minimum Differential
- Hysteresis mode: When P1>P2>P2 by less than three units, differential is automatically set at three units of P1 display
- Window mode: Differential is fixed at three units of the display

**PRECAUTIONS:**

1. When handling the switch, hold the body, not the wire. Electrical cable must not be subjected to excessive force.
2. When connecting the switch, use a spanner on the hexagon fitting. NEVER use tools on the switch body.
3. Do not use switch near corrosive materials.
4. The switch is not liquid sealed. Protect from rain, dew, spray or use enclosed type ZSE4BD/ISE4BD as shown on page 7.11.
INSTRUMENTATION

**PRESSURE SWITCHES**

**INSTRUCTIONS**

LCD .............. Displays present Pressure
Displays ON/OFF Setting
Displays Error Code
Displays Unit

LED (Green) ...... Displays Switch Operation Conditions
LED (Red) ...... Blinks on and off when an error occurs

SET key .......... Switches to the Setting Mode
When the button is pressed for one second or more, the mode changes to the output mode.

UP key .......... Increases ON/OFF Setting Value.
When the button is pressed during Pressure Display, the mode changes to the peak display mode.

DOWN key ...... Decreases ON/OFF setting value
When the button is pressed during Pressure Display, the mode changes to the bottom display mode. * Used for unit change and output mode change.

RESET ............ Clears anomaly
Displays “O” (Press up and down key together)

• Peak and bottom display allows the LCD to show the highest and lowest pressures encountered by the switch but normal switch or analog operation is unaffected.

**ERROR INDICATION AND INSTRUCTIONS**

<table>
<thead>
<tr>
<th>Display</th>
<th>Situation</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 dE</td>
<td>E1 dE</td>
<td>Push “Reset” and re-insert settings</td>
</tr>
<tr>
<td>E2 CE1</td>
<td>Over current is evident in (Output 1) switch</td>
<td></td>
</tr>
<tr>
<td>E3 PE</td>
<td>&gt;500 kPa pressure applied to vacuum switch. 150% of rated pressure applied to pressure switch</td>
<td></td>
</tr>
<tr>
<td>E4 PE</td>
<td>Setting pressure must be less than maximum rated pressures</td>
<td></td>
</tr>
</tbody>
</table>

**HOW TO ORDER**

**VACUUM PRESSURE SWITCH Series ZSE4**

- **ZSE4B**
  - Options
    - B ...... Backlit LCD
  - Piping Specifications
    - 01 ...... Direct Piping 1/8
    - T1 ...... NPTF 1/8
  - Switch Specifications
    - 65 ...... 3 Wire Output PNP
    - 25 ...... 3 Wire Output NPN
    - 26 ...... 3 Wire Analog Output
  - Wiring Specifications
    - L ...... Grommet entry 3m lead

**HOW TO ORDER**

**POSITIVE PRESSURE SWITCH Series ISE4**

- **ISE4**
  - Operating Pressure
    - -0.1 ~ 1MPa
  - Options
    - B ...... Backlit LCD
  - Piping Specifications
    - 01 ...... Direct Piping 1/8
    - T1 ...... NPTF 1/8
  - Switch Specifications
    - 65 ...... 3 Wire Output PNP
    - 25 ...... 3 Wire Output NPN
    - 26 ...... 3 Wire Analog Output
  - Wiring Specifications
    - L ...... Grommet entry 3m Lead
    - -0.6m

**DIMENSIONS Series ZSE4/ISE4 Standard Type**

**DIMENSIONS Series ZSE4/ISE4 Panel Mounting Type**

**ACCESSORIES**

**ZSE4/ISE4**

Panel Mount Adaptor ...... ZS-22-A

**ZSE4B**

- Options
  - B ...... Backlit LCD
- Piping Specifications
  - 01 ...... Direct Piping 1/8
  - T1 ...... NPTF 1/8
- Switch Specifications
  - 65 ...... 3 Wire Output PNP
  - 25 ...... 3 Wire Output NPN
  - 26 ...... 3 Wire Analog Output
- Wiring Specifications
  - L ...... Grommet entry 3m lead
  - -0.6m

**Panel Mounting Kit ZS-22-A**

- Options
  - B ...... Backlit LCD
- Piping Specifications
  - 01 ...... Direct Piping 1/8
  - T1 ...... NPTF 1/8
- Switch Specifications
  - 65 ...... 3 Wire Output PNP
  - 25 ...... 3 Wire Output NPN
  - 26 ...... 3 Wire Analog Output
- Wiring Specifications
  - L ...... Grommet entry 3m Lead
  - -0.6m
**INSTRUMENTATION**

**PRESSURE SWITCHES**

**WATER DROP RESISTANT TYPE**

**DIGITAL INDICATION**

**PRESSURE SWITCH SERIES ZSE4D/ISE4D**

- IP66 Environment Protection. This Pressure Switch is constructed to resist water spray and fine particles for use in adverse environmental conditions
- DIN Rail Mountable
- Direct Wall Mountable

**TECHNICAL SPECIFICATIONS**

As for ZSE4B/ISE4B except:
- **Weight**: 110g
- **Port Size**: 1/8 (Taper Female)
- **Enclosure**: IP66 According to IEC 529

**HOW TO ORDER**

**VACUUM PRESSURE SWITCH SERIES ZSE4D**

- **OPTIONS**
  - - - Non-Backlit (Standard)
  - B - - Backlit LCD
  - Dust/Splash Proof

**PIPING SPECIFICATIONS**

- O1 - Direct Piping 1/8 PT
- T1 - NPTF 1/8

**WIRING SPECIFICATIONS**

- - - 0.6m
- L - - Grommet Entry 3m Lead

**SWITCH SPECIFICATIONS**

- 65 - 3 Wire Output PNP
- 25 - 3 Wire Output NPN
- 26 - 3 Wire Analog Output

**OPERATING PRESSURE**

- - - - - - - 1MPa
- L - - - - 10 ~ 100KPa

**BREATHER PIPING METHOD**

If there is the possibility that the switch will be used in an atmosphere where there is excessive water, oil or dust around the body, and these substances may enter through the atmospheric port, insert a Ø4mm tube into this port and pipe away to a cleaner area.

**HOW TO ORDER**

**POSITIVE PRESSURE SWITCH SERIES ISE4**

- **OPTIONS**
  - - - Non-Backlit (Std)
  - B - - Backlit LCD
  - Dust/Splash Proof

**PIPING SPECIFICATIONS**

- O1 - Direct Piping 1/8 PT
- T1 - NPTF 1/8

**WIRING SPECIFICATIONS**

- L - - Grommet Entry 3m Lead
- - - - 0.6m

**SWITCH SPECIFICATIONS**

- 65 - 3 Wire Output PNP
- 25 - 3 Wire Output NPN
- 26 - 3 Wire Analog Output

**OPERATING PRESSURE**

- - - - - - - - 0.1 ~ 1MPa

**DIN RAIL MOUNTING**

To mount, hook on to bottom rail and hand push in direction of arrow.

To remove, use a screwdriver in the direction shown by the arrow.

Courtesy of Steven Engineering, Inc.

230 Ryan Way, South San Francisco, CA 94080-6370

Main Office: (650) 588-9200

Outside Local Area: (800) 258-9200

www.stevenengineering.com
**Technical Specifications**  

**Series ZSE5/ISE5**

### Pressure Setting

<table>
<thead>
<tr>
<th>Item</th>
<th>ZSE5-02-26L</th>
<th>ZSE5-02-27L</th>
<th>ZSE5-02-67L</th>
<th>ISE5-02-26L</th>
<th>ISE5-02-27L</th>
<th>ISE5-02-67L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Setting</td>
<td>-100kPa~100kPa (14.5PSI)</td>
<td>-0.1MPa~1MPa (145PSI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Unit Setting

- mmHg, kPa, PSi, kgc/m2, bar
- | ZSE: | ISE: |
- kg/cm2: 0.02, bar: 0.02

### Min Setting Range

- mmHg: 10, kPa: 2, PSI: 0.2

### Hysteresis Mode

- ZSE: Adjustable (2 digit or more)
- ISE: Adjustable (3 digit or more)

### Display Light

- ZSE: ON turn on light
- ISE: ON turn on light

### Response Frequency

- 200Hz

### Max Operating Pressure

- 200kPa (30PSI)
- 1.5MPa (220PSI)

### Technical Specifications

**Switch**

<table>
<thead>
<tr>
<th>Model</th>
<th>Switch Specification</th>
<th>Output Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSE5-02-26L</td>
<td>None (Analog Output)</td>
<td>1~5V(5%F.S.)</td>
</tr>
<tr>
<td>ZSE5-02-27L</td>
<td>Two Output (NPN Open Collector)</td>
<td>30V, 80mA</td>
</tr>
<tr>
<td>ZSE5-02-67L</td>
<td>Two Output (PNP Open Collector)</td>
<td>80mA</td>
</tr>
<tr>
<td>ISE5-02-26L</td>
<td>None (Analog Output)</td>
<td>1~5V(5%F.S.)</td>
</tr>
<tr>
<td>ISE5-02-27L</td>
<td>Two Output (NPN Open Collector)</td>
<td>30V, 80mA</td>
</tr>
<tr>
<td>ISE5-02-67L</td>
<td>Two Output (PNP Open Collector)</td>
<td>80mA</td>
</tr>
</tbody>
</table>

**Fluid**

- Fluid that will not corrode SUS304 and SUS630

**Temperature Characteristics**

| +1% max. or +5% up to 55°C |

**Repetition Accuracy**

| +1% max. |

**Power Supply**

| 12~24VDC (Ripple 10% max.) |

**Consumption Current**

| 45mA max. |

**Emergency Display**

| Red/display the error code on LCD |

**Pressure Display**

| 3 1/2 digit LCD |

**Self-Diagnosis Function**

| Excess pressure/Data error |

**Operating Temperature**

| 0~55°C (-13~120°F) |

**Noise Resistance**

| 500Vpp pulse width 1μs, standing 1nS |

**Insulation Resistance**

| Between whole wires and case 2MΩ (50VDC by megameter) |

**Vibration Resistance**

| 5~50Hz, acceleration 1g at X, Y, Z direction (two hours) |

**Shock Resistance**

| 100g to X, Y, Z direction (three times for each direction) |

**Weight**

| 126g (Including 3m-long lead wire) |

**Options**

- ZSE5B: ...Non-Backlit (Std)  
  B: ...Backlit LCD  

**Piping Specifications**

- ...PT 1/4  
  T2: ...NPTF 1/4  

**Switch Specifications**

- ...3m  
- ...2 Output (NPN) 4-Wire  
- ...2 Output (PNP) 4-Wire  

**Notes**

- Hysteresis mode
  - ZSE: ...When the values of P1 and P2 are the same or when P1>P2 within two digits, the hysteresis will be automatically two digits for the set value of P1.  
  - ISE: ...When the values of P1 and P2 are the same or when P1>P2 within three digits, the hysteresis will be automatically three digits for the set value of P1.  

- Window comparator mode
  - ZSE: ...The hysteresis is two digits, so separate P1 from P2 by five digits or more and set them.  
  - ISE: ...The hysteresis is three digits, so separate P1 from P2 by seven digits or more and set them.  

  *(One digit is the minimum pressure display unit)*
**Fluid Options**

- Dry Air
- Drain-Containing Air
- Hydraulic Fluid (JIS-K2213)
- Silicon Oil (JIS-K2213)
- Lubricating Oil (JIS-K6301)
- Freon
- Carbon Dioxide
- Ammonia
- Argon
- Nitrogen Gas
- Chlorine Gas

**Accessories**

- Bracket ZS-22-D With Four M3 Tappings
AIR CATCH SENSOR
SERIES ISA

Detects the presence of an object by the use of Back Pressure
Colored Indicator Lights ensure quick and accurate setting
Water Splash and Dust Particle resistant to IP66
Free Mount or Manifold Types Available
Switch is movable without disturbing manifold

APPLICATIONS
SEE NEXT PAGE

TECHNICAL SPECIFICATIONS

Fluid ..................... Dry air filtered to 5µm
Operating Pressure ........... 0.05MPa~0.2MPa (7~30PSI)
Pressure Range ............... 0.1MPa~0.2MPa (14.5~30PSI)
Detection Distance Range ........ 0.01~0.3mm
Repeatability ................ ≤0.01mm (Detection distance 0.01~0.15mm)
Hysteresis .................. ≤0.01mm
Detection Nozzle Bore Size .... Ø1 standard
Indication .................. Operation lamp: Green when on + deviation indicator
Power Supply Voltage ........ DC12~24V
Current Consumption .......... ≤30mA
Output Type: ISA11 ........ PNP open collector 30V ≤ 80mA
ISA15 .................... PNP open collector 30V ≤ 80mA
Operating Temp Range ........ 0~60˚C / 32~140˚F (no dew formation)
Vibration Resistance ........ 10G
Proof Pressure ................ 0.5MPa / 73PSI
Proof Noise .................. Direct input 1000Vp-p
Weight .................... 250g (incl. gauge & 5m lead wire)
Port Size .................. RC 1/8
Air consumption .............. 16 l/min (@0.10MPa Supply Pressure)
.............................. 21 l/min (@0.15MPa Supply Pressure)
.............................. 25 l/min (@0.20MPa Supply Pressure)
1MPa = 145PSI

怎样订购
AIR CATCH SENSOR SERIES ISA

ISA 01

输出
11 ... NPN
15 ... PNP

数量
1 .... 1 station
16 .... 6 stations

配线
... No terminal box
L .... Terminal Box wiring on Left Hand Side
R .... Terminal Box wiring on Right Hand Side

选项
B .... Bracket
G .... Gauge

设置点
红 LED = Output is OFF
绿 LED = Output is ON

设置点
10µM
5µM
5µM

喷嘴类型
检测喷嘴应有一个ID，范围为1.0~2.0mm和2mm深。避免将喷嘴的边缘倒角。倒角会导致检测距离范围变窄。

 Correct ✔

Incorrect ✘

DO NOT chamfer the nozzle

ACCESSORIES
AIR CATCH SENSOR SERIES ISA
Bracket ....................... ISA-1-A
Gauge ....................... G33-3-01

Courtesy of Steven Engineering, Inc.
230 Ryan Way, South San Francisco, CA 94080-6370
Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200
www.stevenengineering.com
### AIR CATCH SENSOR
**SERIES ISA**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Terminal Box Type</th>
<th>Single Unit Type</th>
<th>Single Unit: DIN Rail Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>110 145 180 215 250</td>
<td>L1 70 105 140 175 210</td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>140 175 210 245 280</td>
<td>L2 70 105 140 175 210</td>
<td></td>
</tr>
<tr>
<td>L3</td>
<td>175 210 245 280 315</td>
<td>L3 140 175 210 245 280</td>
<td></td>
</tr>
</tbody>
</table>

No. of Sensors | 2 | 3 | 4 | 5 | 6 |
---|---|---|---|---|---|
L1 | 110 | 145 | 180 | 215 | 250 |
L2 | 140 | 175 | 210 | 245 | 280 |
L3 | 175 | 210 | 245 | 280 | 315 |

**No. of Sensors**
- L1: 70 105 140 175 210
- L2: 36 71 105 141

**Courtesy of Steven Engineering, Inc.**

230 Ryan Way, South San Francisco, CA 94080-6370
Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200
www.stevenengineering.com
1. Checking the presence of a workpiece

- Without workpiece: Low back pressure
- With workpiece: High back pressure

2. Checking the normal clearance position of a workpiece

- Normal clearance position: High back pressure
- Abnormal clearance position: Low back pressure

3. Checking the position of a workpiece

- ❌ Out of position
- ✔️ In position
## Precision Regulator Series IR1/2/3000

- **Compact and Lightweight**
- **Easy Setting**
- **Excellent Flow Characteristics**
- Can be combined with (N)AF Air Filter and/or (N)AM (Mist Separator) due to the adaptation of the Modular Style Body

### Technical Specifications

#### Basic Type

<table>
<thead>
<tr>
<th>Model</th>
<th>IR1000/2000</th>
<th>IR1010/2010</th>
<th>IR1020/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Size</td>
<td>Series 10D0: 1/8&quot; / Series IR20D0: 1/4&quot;</td>
<td>Series 10D0: 1/8&quot; / Series IR20D0: 1/4&quot;</td>
<td>Series 10D0: 1/8&quot; / Series IR20D0: 1/4&quot;</td>
</tr>
<tr>
<td>Max Supply Pressure</td>
<td>1MPa (145PSI)</td>
<td>1MPa (145PSI)</td>
<td>1MPa (145PSI)</td>
</tr>
<tr>
<td>Min Supply Pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulating Pressure Range</td>
<td>0.005~0.2MPa</td>
<td>0.005~0.4MPa</td>
<td>0.005~0.8MPa</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>0.2% FS Max</td>
<td>0.2% FS Max</td>
<td>0.2% FS Max</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.3% FS Max</td>
<td>±0.3% FS Max</td>
<td>±0.3% FS Max</td>
</tr>
</tbody>
</table>

#### Air Consumption

- Series 10D0: 5/min Max at Supply Pressure of 1MPa
- IR20D0: 3/min Max at Supply Pressure of 1MPa | Note 2 |

#### Gauge Port Size

- 1/8" (2 Ports - Front/Back)

#### Ambient & Fluid Temperature

- -5 ~ 60ºC / 23 ~ 140ºF (with no freezing)

---

### How To Order

#### Precision Regulator Series IR1/2/3000

- **IR**
- **Model**
- **Port Size**
- **Body Size**

<table>
<thead>
<tr>
<th>Series</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR1000</td>
<td>IR1010</td>
<td>IR1020</td>
<td></td>
</tr>
<tr>
<td>IR2000</td>
<td>IR2010</td>
<td>IR2020</td>
<td></td>
</tr>
<tr>
<td>IR3000</td>
<td>IR3010</td>
<td>IR3020</td>
<td></td>
</tr>
</tbody>
</table>

#### Type of Setting

- **0** Basic Type (Handle)
- **1** Air-Operated Type (Series IR2000/3000 Only)

#### Regulating Pressure Range

<table>
<thead>
<tr>
<th>For Series IR1000/2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Series IR2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

#### ACCESSORIES

- **R** Without Accessories
- **B** With Bracket
- **G** With Pressure Gauge

#### Technical Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Basic</th>
<th>Air-Operated</th>
<th>Air-Operated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>IR30D0</td>
<td>IR2120</td>
<td>IR3120</td>
</tr>
<tr>
<td>Max Supply Pressure</td>
<td>1MPa (145PSI)</td>
<td>1MPa (145PSI)</td>
<td>1MPa (145PSI)</td>
</tr>
<tr>
<td>Min Supply Pressure (Set P)</td>
<td>±0.05MPa</td>
<td>±0.05MPa</td>
<td>±0.1MPa</td>
</tr>
<tr>
<td>Regulating Pressure Range</td>
<td>0.01~0.2MPa</td>
<td>0.005~0.8MPa</td>
<td>0.01~0.8MPa</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>0.2% FS Max</td>
<td>0.2% FS Max</td>
<td>0.2% FS Max</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.5% FS Max</td>
<td>±0.5% FS Max</td>
<td>±0.5% FS Max</td>
</tr>
<tr>
<td>Air Supply Pressure at 1MPa</td>
<td>≤0.95/min (Bleed P)</td>
<td>≤4/min</td>
<td>≤0.95/min</td>
</tr>
<tr>
<td>Consumption at 0.7MPa</td>
<td>≤2/min (EXH)</td>
<td>≤2/min</td>
<td>≤2/min at Max</td>
</tr>
<tr>
<td>Gauge Port Size</td>
<td>1/8&quot; (2 Ports - Front/Back)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>-5 ~ 60ºC / 23 ~ 140ºF (with no freezing)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SUFFIX

- **R** Pressure Gauge on the Opposite Side
- *The Standard Mounting Piston of the Pressure Gauge is with SUP Port on the left, OUT Port on the right, viewing the gauge from the Port

#### ACCESSORIES

<table>
<thead>
<tr>
<th>Series</th>
<th>IR1000/2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracket</td>
<td>G33-2-01, G33-4-01, G33-10-01</td>
</tr>
<tr>
<td>Pressure Gauge</td>
<td>G43-2-01, G43-4-01, G43-10-01</td>
</tr>
</tbody>
</table>

**Accuracy ± 3% (full span)**
## TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>ITV201</th>
<th>ITV203</th>
<th>ITV205</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Supply Pressure</td>
<td>0.2MPa</td>
<td>1.0MPa</td>
<td>1.0MPa</td>
</tr>
<tr>
<td>Min Supply Pressure</td>
<td>Setting Pressure 0.1MPa / 14.5PSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting Pressure Range</td>
<td>0.005<del>0.1MPa 0.005</del>0.5MPa 0.005~0.9MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Voltage</td>
<td>DC24V+10%, DC12~15V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Signal</td>
<td>Current Type 4<del>20mA, 0</del>20mA DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage Type</td>
<td>0<del>5VDC, 0</del>10VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Impedance</td>
<td>Current Type 250Ω or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage Type</td>
<td>Approx 6.5Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Signal</td>
<td>Analog Output: 1<del>5 VDC / 4</del>20mA DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch Output</td>
<td>NPN Open Collector Output: 30V, 30mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PNP Open Collector Output: 30V, 30mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>±1% or less (Full Span)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hysteresis</td>
<td>±0.5% or less (Full Span)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.5% or less (Full Span)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Pressure Accuracy</td>
<td>±3% or less (Full Span)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indication (3 Digit)</td>
<td>Minimum Unit: MPa: 0.01, Kgf/cm²: 0.01, Bar: 0.01 PSI: 0.1 KPa: 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Fluid Temperature</td>
<td>5 ~ 50°C / 40 ~ 122°F (No Dew Condensation)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note 1)
2 Wire 4~20mA DC and 2 Wire mA DC are not possible. Power Voltage (24VDC or 12VDC) is necessary.

### Note 2)
Either Analog Output or Switch Output can be selected. For Switch Output Selection, either NPN Output or PNP Output can be selected.

### Note 3)
For ITV205, ITV305, 1PSI is the minimum Unit.

---

### Model Type
2 ....... 2000
3 ....... 3000

### Pressure Range
1 ....... 0.005~0.1MPa / 0.7~14.5PSI
3 ....... 0.005~0.5MPa / 0.7~73PSI
5 ....... 0.005~0.9MPa / 0.7~130PSI

### Power Voltage
0 ....... DC24V
1 ....... DC12V

### Input Signal
0 ....... Current Type 4~20mA DC
1 ....... Current Type 0~20mA DC
2 ....... Voltage Type 0~5V DC
3 ....... Voltage Type 0~10V DC

### Monitor Output
1 ....... Analog Output 1~5V DC
2 ....... Switch Output / NPN Output
3 ....... Switch Output / PNP Output
4 ....... Analog Output 4~20mA DC

---

### Pressure Delay
- ....... MPa
2 ....... kgf/cm²
3 ....... Bar
4 ....... PSI
5 ....... KPa

### Cable Connector Type
S ....... Straight Type 3m
L ....... Right Angle Type 3m
N ....... No Cable Connector

### Thread Type
- ....... Rc
N ....... NPT
T ....... NPTF
F ....... G

### Options
- ....... Without Bracket
B ....... With Bracket

---

1MPa = 145PSI

---

**Courtesy of Steven Engineering, Inc.**

230 Ryan Way, South San Francisco, CA 94080-6370

Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200

www.stevenengineering.com
ELECTRO-PNEUMATIC HYBRID REGULATOR SERIES VY

- Simple Construction
- Easy to Connect
- Choice of Signal Voltage Ranges
- Wide Range of Body Sizes with Common Control Unit
- Internal and External Pilot Versions Available
- Integral Pressure Sensor and Amplifier
- High Relief Capacity to Exhaust

An applicable solution for applications where the precision and response of the IT range is not required. The VY-HyReg Range is constructed by utilizing a standard control unit either alone (VYID00-M5) or as a Pilot Valve controlling one of the Range of VEK1 Power Valves.

**TECHNICAL SPECIFICATIONS**

| Control Unit | Dimensions | SEE NEXT PAGE |

**CONTROL UNIT**

**How To Order Series VY**

**VY1 O — — — — —**

**PILOT**

0 ...... Internal
1 ...... External (not on VYID00)

**Bleed Air Consumption**

| (at 9 Kgf/cm ≤ Supply Pressure) Maximum 10 nL/min |

**Mounting Type**

| Any Orientation |

**Applicable Fluid**

| Dry Air, Inert Gas |

**Required Filtration Level for Supply and Pilot Air**

| 5 μm |

**Lubrication**

| Unnecessary (see note 7) |

**Ambient and Fluid Temperature**

| 0 - 50 °C / 32-120°F |

**Maximum Operating Pressure**

| 7 PSI ≤ (128 PSI / 0.88 MPa) |

**Set Pressure**

| 0.5 Kgf/cm ≤ Supply Pressure |

**Control Signal Voltage**

| 1 ~ 5 V DC Standard |

**External Pilot Supply Pressure**

| (For VY1°01 Type) Set Pressure ~ 130 PSI / 9 Kgf/cm ≤ Control Signal Power Requirement |

Less than 1 mW

| Power Consumption 1.8 W maximum |

**Electrical Connection**

| DIN Plug |

**Ambient and Fluid Temperature**

| 0 - 50 °C / 32-120°F |

**Maximum Operating Pressure**

| 7 PSI ≤ (128 PSI / 0.88 MPa) |

**Set Pressure**

| 0.5 Kgf/cm ≤ Supply Pressure |

**Control Signal Voltage**

| 1 ~ 5 V DC Standard |

**External Pilot Supply Pressure**

| (For VY1°01 Type) Set Pressure ~ 130 PSI / 9 Kgf/cm ≤ Control Signal Power Requirement |

Less than 1 mW

| Power Consumption 1.8 W maximum |

**Electrical Connection**

| DIN Plug |

**Bleed Air Consumption**

| (at 9 Kgf/cm ≤ Supply Pressure) Maximum 10 nL/min |

| Mounting Any Orientation |

**Notes:**

1. Avoid mounting the valve in a position where it will be subject to vibration.
2. Ensure that pipework is thoroughly clean and free of water and debris during installation.
3. Use a three-core screened cable for signal and power. Conductor diameter minimum 0.5 mm ≤ each core
4. Wiring - terminal designations are molded onto the valve body.
5. The valve bleeds air to exhaust when energized so operation without a silencer is not recommended.
6. If the valve is used with lubricated air, the factory pre-lubrication will be washed out so lubrication must be continued.
7. If lubricated air must be used, the external pilot type (VY1°01) and oil-free air supplied to the pilot port.
8. Manifold mounted versions of the VY-Hyreg are available.

**Wiring:**

The use of three-core screened cable is strongly recommended with the screen earthed at the end away from the VY Valve.

**Terminal Designations are as follows:**

1 = 24v Power Supply
2 = Control Signal
3 = Common Negative for both power and signal.

---

**SYMBOLS**

- **P** — Bracket
- **F** — Foot (A and 1 body sizes only)
- **G** — Gauge (not available on D body)
- **N** — Silencer

---

<table>
<thead>
<tr>
<th>Mounting Type</th>
<th>Symbol</th>
<th>Symbol</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Mounted</td>
<td>D</td>
<td>M5</td>
<td>M5</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0.007</td>
<td>0.007</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
</tbody>
</table>

---

---

**BOdy SIZE**

<table>
<thead>
<tr>
<th>Port size</th>
<th>Base Mounted</th>
<th>1%</th>
<th>0.5%</th>
<th>0.05%</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>M5</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>2.5%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

---

---

---