3-Color Display Digital Gap Checker

Check at a glance if the workpiece is placed or not!

Main screen

<table>
<thead>
<tr>
<th>ON: Placed</th>
<th>Workpiece</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF: Not placed</td>
<td>Workpiece</td>
</tr>
</tbody>
</table>

The clearance distance between the detection surface and the workpiece can be found intuitively!

Sub screen

- **Large gap**
  - When the workpiece is away from the detection surface, the level meter will be away from the switch point value bar.

- **Small gap**
  - When the workpiece is seated on the detection surface, the level meter will reach the switch point value bar.

The number of level meter symbols changes depending on the clearance between the workpiece and the detection surface. A clearance which cannot actually be seen can be indicated on the display.

**Simple Setting**

Setting is possible while checking the displayed value!

**Energy Saving**

- Air consumption: **60% reduction**
  - For G type

**Environmental Resistance**

- Improved drainage resistance: **10 times or more**
  - Compared with the ISA2 based on the SMC’s specific testing condition (oil proof test).
- Easier maintenance

**Manifold**

With control unit

Series ISA3

CAT.NAS100-105B

New RoHS

F type Rated distance range 0.01 to 0.03 mm
(Displayable/Settable range: 0 to 60)

G type Rated distance range 0.02 to 0.15 mm
(Displayable/Settable range: 10 to 300)

H type Rated distance range 0.05 to 0.30 mm
(Displayable/Settable range: 30 to 500)

...Page 1

...Page 2

...Page 3

Pressing the □ and □ buttons for a minimum of 1 second will make the switch point the same as the current displayed value!
### 3 Step Setting (Switch Point Change Mode)

A simple operation to enter the switch point value (point at which the clearance reaches the switch point value)

1. Reproduce the seating of the workpiece, then press the ▲ button.
2. Press the ▲ or ▼ buttons to set the switch point value.
3. Press the ▼ button to complete the setting.

Pressing the ▲ and ▼ buttons for a minimum of 1 second, then releasing the buttons when the displayed switch point value disappears, will make the switch point the same as the current displayed value.

### Features of the 2-Screen, 3-Color Digital Display

The seating condition can be checked at a glance. The sub screen display can be selected from 6 display options.

**Main screen**
- Placed (Switch output ON)
- Not placed (Switch output OFF)

**Sub screen**
- Level meter
- Displayed value
- SUP side pressure
- OUT side pressure
- Switch point value
- Display OFF

* The displayed value is a reference value obtained by converting the distance between the workpiece and the detection surface into a digital numerical value, it is not displayed in units. For details, refer to “Relationship between Displayed Value and Distance” on page 11.

### Improved Environmental Resistance

**Easier maintenance**
The internal orifice part can be removed for cleaning. It is not necessary to remove the piping or metal connection fitting for cleaning when the product is installed in the user’s equipment.

**Drainage resistance:** 10 times or more
- Based on the SMC’s specific testing condition (oil proof test).
- Compared with the ISA2.

**Withstand pressure expanded**
- Max.: 87 psi [600 kPa]

* Compared with the ISA2 with 29 psi [0.2 MPa] pressure gauge.

**High pressure flushing is possible.**
- The switch output will be OFF during flushing.

* If the orifice is taken out, perform the switch point setting again.
The existing model (ISA2) needs to exhaust air from the exhaust port due to the bridge circuit. The ISA3 does not exhaust air from the product body. This reduces noise considerably compared with the existing model.

The new detection principle eliminates air being exhausted from the product. This makes the flow consumption 0 L/min. when the workpiece is seated. A much lower air consumption is required than the existing model.

Conditions: Unseated for 5 seconds and seated for 20 seconds (For G type)

By reducing the number of internal orifices from 3 to 1, there is less possibility of variations in the output due to clogging.

By removing the setting handle for S3, variations in the detection distance are prevented.

A larger orifice area provides less possibility of clogging. Even if the orifice is clogged with foreign matter, the product construction enables cleaning with the internal orifice removed.

Except F type
Series ISA3

**Compact & Lightweight**

Volume: 40% reduction  
Weight: 55% reduction  
(Comparison between the ISA3-GC and the existing model ISA2 with One-touch fitting)

**Piping Variations**

Piping specification:  
- C type
- F type

One-touch fitting (ø4)  
One-touch fitting (ø6)

- Conforming to ISO1179-1

**Mounting**

Bracket  
DIN rail

**Keylock Function**

A key LED turns ON when the product is locked and the button operation is disabled to prevent unintentional changes to set values.

**Manifold**

With control unit  
Without control unit

Regulator  
Solenoid valve (2 port)  
Bracket mounting only
**Application Examples**

Confirmation of the datum level for press fitting of a shaft

Confirmation of close contact with the datum level for machining

**Main Functions**

**Display OFF mode**
Display OFF mode can be selected. The display can be turned OFF to reduce power consumption.

**Display color**
The color of the main display can be set to change depending upon the output activity. The display color change makes visual identification of the output ON/OFF easier.

<table>
<thead>
<tr>
<th>Display color</th>
</tr>
</thead>
<tbody>
<tr>
<td>When ON: Green</td>
</tr>
<tr>
<td>When OFF: Orange</td>
</tr>
<tr>
<td>Normally: Orange</td>
</tr>
<tr>
<td>Normally: Green</td>
</tr>
</tbody>
</table>

**Unit conversion**
The pressure unit displayed on the sub screen can be changed.

<table>
<thead>
<tr>
<th>Display unit</th>
<th>kPa</th>
<th>bar</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum setting unit</td>
<td>1</td>
<td>0.01</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**Security code**
By activating the security code, the key lock cannot be released without entering a security code.

**Displayed value compensation**
The displayed value can be corrected within ±20% R.D. of the displayed value at the time of shipment.

**Forced output**
The output can be fixed to an on/off state when starting the system or during maintenance. This enables confirmation of the wiring and prevents system errors due to unexpected output.

**Zero-clear of pressure display**
The pressure value displayed on the sub screen can be cleared to zero.

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**3-Color Display**

**Digital Gap Checker**

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**ON: Placed**

**OFF: Not placed**
3-Color Display
Digital Gap Checker
Series ISA3

How to Order

Without control unit
ISA3 - G C N - M 2

With control unit
ISA3 - G C N - M 2 - B - L 1

Rated distance range
- F: 0.01 to 0.03 mm
- G: 0.02 to 0.15 mm
- H: 0.05 to 0.30 mm

Piping specifications
Supply side Detection side
- C: Rc1/8 - ø4 One-touch fitting
- F: G1/8 - ø6 One-touch fitting

Output specifications
- N: NPN output
- P: PNP output

Unit specifications of pressure value
- Nil: With unit conversion function (Note 1)
- M: Fixed SI unit (Note 2)

Note 1) Under the New Measurement Law, sales of switches with the unit switching function have not been allowed for use in Japan.
Note 2) Unit: kPa, MPa

Option 1 (Cable)
- Nil: Straight
- L: Right angle

Option 2 (Bracket)
- Nil: None (DIN rail mounting) *5
- B: With bracket *4 *6

Bracket mounting position

<table>
<thead>
<tr>
<th>2 stations (Mount to 1st and 2nd station)</th>
<th>n stations (Mount to 1st and nth station)</th>
</tr>
</thead>
</table>

Control unit
With control unit
- Regulator AR20-□□G-1-A
- Solenoid valve (2 port type) VX210ZZZ2AX276
The supply port is available only on the left side.

Option 2 (Bracket)
- B: With bracket *4 *8

*4: At the factory, the options are not attached to the product, but packed together with it for shipment.

*5: Order DIN rail separately.
*6: About the number of brackets, 1 station: 1 piece is packed, 2 stations or more: 2 pieces are packed.

Supply side Detection side
- C: Rc1/8
- F: G1/8

Unit specifications of pressure value
- Nil: ø4 One-touch fitting
- M: ø6 One-touch fitting

Option 2 (Bracket)
- B: With bracket

*4: The bracket for control unit is shipped mounted on the product.

*7: When the piping specification is option C, the supply port for the regulator is Rc1/4.
When the piping specification is option F, the supply port for the regulator is G1/4 (according to ISO16030).

Supply side Detection side
- C: NPN output
- P: PNP output

Unit specifications of pressure value
- Nil: 0.01 to 0.03 mm
- G: 0.02 to 0.15 mm
- H: 0.05 to 0.30 mm

Note 1) Under the New Measurement Law, sales of switches with the unit switching function have not been allowed for use in Japan.

Note 2) Unit: kPa, MPa

With control unit
- Regulator AR20-□□G-1-A
- Solenoid valve (2 port type) VX210ZZZ2AX276
The supply port is available only on the left side.

Option 2 (Bracket)
- B: With bracket

*4: The bracket for control unit is shipped mounted on the product.

*7: When the piping specification is option C, the supply port for the regulator is Rc1/4.
When the piping specification is option F, the supply port for the regulator is G1/4 (according to ISO16030).
Parts List

- Joint screws (2 pcs.)
  ISA-16-1

- Spacer
  ∗
  Seal for extra station
  ISA-15

- Threaded plug with seal
  ISA-12-1

- Seal for extra station
  ISA-15

- Bracket
  ISA-14
  With 3 tapping screws (3 x 8)

- Cable with connector
  ZS-31-B
  Straight 5 m
  ZS-31-C
  Right angle 5 m

- Modular adapter
  E210-U01

DIN rail

Parts List (Control Unit)

- Regulator
  AR20-02G-1-A

  Piping specifications
  Nil: Rc1/4
  F: G1/4 ∗
  ∗: Conforming to ISO16030

- Solenoid valve (2 port type)
  VX210 Z Z2A X276

  Specifications
  Symbol | Specifications
  --- | ---
  X276 | - With restrictor
  | - IN, OUT ports: No thread machining

  Voltage/Electrical entry
  Symbol | Voltage | Electrical entry
  --- | --- | ---
  Z2A | 24 VDC | DIN terminal with light
  | | (With surge voltage suppressor)

- Body material/Port size/Orifice diameter
  Symbol | Body material | Port size | Orifice diameter
  --- | --- | --- | ---
  Z | Al | 1/8 | 0.4

- Bracket (For with control unit)
  ISA-17

  With 2 tapping screws (3 x 8)

- Spacer with bracket
  Y200T-A

  For specifications other than X276, refer to the WEB catalog or the Best Pneumatics No. 7.

Spacers are included for 4 and 6 stations.

For specifications other than X276, refer to the WEB catalog or the Best Pneumatics No. 7 for details.
Parts Structure

Without control unit

With control unit

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Caution

SMC products are not intended for use as instruments for legal metrology.
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.
Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ISA3-F</th>
<th>ISA3-G</th>
<th>ISA3-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable fluid</td>
<td>Dry air (Filtered through a 5 µm filter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated distance range</td>
<td>0.01 to 0.03 mm</td>
<td>0.02 to 0.15 mm</td>
<td>0.05 to 0.30 mm</td>
</tr>
<tr>
<td>Displayable/Settable range (Distance reference)</td>
<td>0 to 60 mm</td>
<td>10 to 300 mm</td>
<td>30 to 500 mm</td>
</tr>
<tr>
<td>Minimum display unit (Distance reference)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated pressure range</td>
<td>15 to 29 psi (100 to 200 kPa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displayable range (Pressure value)</td>
<td>–2.9 to 32 psi (–20 to 220 kPa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withstand pressure</td>
<td>87 psi (600 kPa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection nozzle</td>
<td>ø1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption flow rate</td>
<td>0.18 scfm (5 L/min or less)</td>
<td>0.42 scfm (12 L/min or less)</td>
<td>0.78 scfm (22 L/min or less)</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>24 VDC ±10%, Ripple (p-p) 10% or less (With power supply polarity protection)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>25 mA or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch output</td>
<td>1 output (NPN or PNP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum load current</td>
<td>10 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum applied voltage</td>
<td>26.4 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual voltage</td>
<td>1 V or less (at 10 mA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature characteristics (Reference: 77°F [25°C])</td>
<td>0.005 mm</td>
<td>0.010 mm</td>
<td>0.020 mm</td>
</tr>
<tr>
<td>Repeatability</td>
<td>0.010 mm</td>
<td>0.015 mm</td>
<td>0.030 mm</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>0 to variable (Default: 3)</td>
<td>0 to variable (Default: 20)</td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>2-screen display, LCD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>IP67 equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Operating: 32 to 122°F (0 to 50°C), Stored: –4 to 158°F (–20 to 70°C) (No condensation or freezing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating humidity range</td>
<td>Operating/stored: 35 to 85% RH (No condensation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>1000 VAC or more (in 50/60 Hz) for 1 minute between terminals and housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>2 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piping specifications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For piping type C</td>
<td>Supply port: Rc1/8</td>
<td>Detection port: ø4 One-touch fitting</td>
<td></td>
</tr>
<tr>
<td>For piping type F</td>
<td>Supply port: G1/8 (ISO1179-1)</td>
<td>Detection port: G1/8 (ISO1179-1)</td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td>M12 cable with 4-pin connector, 4 cores, ø4, 5 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>113 g (Cable not included, One-touch fitting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards</td>
<td>CE, RoHS compliant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1: For details, refer to “Relationship between Displayed Value and Distance” on page 11.
*2: The pressure value will be indicated on the sub screen.
*3: For details of the detection nozzle, refer to the figures on page 11.
*4: If hysteresis is set to 3 (Default setting), “Displayable/Settable range of F type” is limited to 57. If hysteresis is set to 20 (Default setting), “Displayable/Settable range of G type” is limited to 280 and “Displayable/Settable range of H type” is limited to 480.

⚠️ Caution

The displayed value is a reference value obtained by converting the distance between the workpiece and the detection surface into a digital numerical value, it is not displayed in units.
For details, refer to “Relationship between Displayed Value and Distance” on page 11.
Rated distance range: Distance within which the product meets the specifications.
Displayable/Settable range: It is possible to display or set values, but it is not guaranteed to meet the specifications.

![Rated Distance Range and Displayable/Settable Range](image-url)
The distance for the product to turn ON varies depending on the supply pressure. The graphs below show the variation of the distance for the product to turn ON, for 3 types of gap, by changing the supply pressure (±7.3 psi [50 kPa]) when the product is set to turn ON at 22 psi [150 kPa] supply pressure.

Test conditions

<table>
<thead>
<tr>
<th>Detection nozzle: ø1.5</th>
<th>Piping: F type ø4 x ø2.5 tube/G, H type ø6 x ø4 tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference pressure: 22 psi (150 kPa)</td>
<td></td>
</tr>
</tbody>
</table>

* Use within the rated pressure range (15 to 29 psi [100 kPa to 200 kPa]). It will be impossible to measure the gap when the operating pressure is less than 12 psi [80 kPa] or more than 32 psi [220 kPa]. And the output will be OFF. (Refer to “Relationship between Supply Pressure and Display” on page 14.)

Supply Pressure Dependence Characteristics
Response Time

Response time is the elapsed time between the pressure supply and the turning ON of the switch output. The response time varies depending on the piping length from the OUT port to the detection nozzle, and the seating condition of the workpiece. The graphs below show the response time when the workpiece is approached at 90% distance and 0% distance (close contact). (∗: The switch point is 100% distance.)

(Example: When the switch point is set to 0.1 mm, the response time when the workpiece is at 0.09 mm and 0 mm are measured.)

<table>
<thead>
<tr>
<th>Test conditions</th>
<th>Detection nozzle: ø1.5</th>
<th>Piping: F type ø4 x ø2.5 tube/G, H type ø6 x ø4 tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply pressure</td>
<td>29 psi [200 kPa]</td>
<td></td>
</tr>
</tbody>
</table>

ISA3-F

Piping length: 1 m

* Response time when the workpiece is set at 90% distance

* Response time for close contact of workpiece

ISA3-G

Piping length: 1 m

ISA3-H

Piping length: 1 m

Piping length: 3 m

Piping length: 5 m

Supply pressure: 29 psi [200 kPa]
Relationship between Displayed Value and Distance

The graphs below show the relationship between the displayed value and distance.

| Test conditions | Detection nozzle: ø1.5  
| Detection nozzle piping: F type ø4 x ø2.5 tube 1 m, 3 m, 5 m/G, H type ø6 x ø4 tube 1 m, 3 m, 5 m  
| Supply pressure: 29 psi [200 kPa] |

ISA3-F

ISA3-G

ISA3-H

Nozzle Shape

The nozzle shape must be similar to Figure 1. Do not chamfer the nozzle as shown in Figure 2, as the characteristics will be affected.

Fig.1: Recommended nozzle shape  
Fig.2: Unsuitable nozzle shape

Internal Circuit and Wiring Example

ISA3-N   NPN (1 output)

ISA3-P   PNP (1 output)

* Refer to the WEB catalog or the Best Pneumatics No. 7 for wiring details of the VX2 series (2 port solenoid valve).
### Dimensions

**ISA3-□□ (Bracket mounting)**

- **Supply port**
  - ISA3-C: Rc1/8
  - ISA3-F: G1/8 *

- **Detection port**
  - ISA3-C: One-touch fitting
  - ISA3-F: G1/8 *

- Conforming to ISO1179-1

**ISA3-□□ (DIN rail mounting)**

- **Supply port**
  - ISA3-C: Rc1/8
  - ISA3-F: G1/8 *

- **Detection port**
  - ISA3-C: One-touch fitting
  - ISA3-F: G1/8 *

- Conforming to ISO1179-1

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DC (+)</td>
</tr>
<tr>
<td>2</td>
<td>N.C.</td>
</tr>
<tr>
<td>3</td>
<td>DC (–)</td>
</tr>
<tr>
<td>4</td>
<td>OUT1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>38</td>
<td>76</td>
<td>114</td>
<td>152</td>
<td>190</td>
<td>228</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Piping type</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>C (ø4 One-touch fitting)</td>
<td>13</td>
</tr>
<tr>
<td>C (ø6 One-touch fitting)</td>
<td>13.6</td>
</tr>
<tr>
<td>F (G thread)</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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</tr>
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<tr>
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<tr>
<td>2</td>
<td>N.C.</td>
</tr>
<tr>
<td>3</td>
<td>DC (–)</td>
</tr>
<tr>
<td>4</td>
<td>OUT1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>38</td>
<td>76</td>
<td>114</td>
<td>152</td>
<td>190</td>
<td>228</td>
</tr>
<tr>
<td>L2</td>
<td>62.5</td>
<td>125</td>
<td>162.5</td>
<td>200</td>
<td>237.5</td>
<td>275</td>
</tr>
<tr>
<td>L3</td>
<td>73</td>
<td>135.5</td>
<td>173</td>
<td>210.5</td>
<td>248</td>
<td>285.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Piping type</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>C (ø4 One-touch fitting)</td>
<td>13</td>
</tr>
<tr>
<td>C (ø6 One-touch fitting)</td>
<td>13.6</td>
</tr>
<tr>
<td>F (G thread)</td>
<td>19</td>
</tr>
</tbody>
</table>
Series ISA3

Dimensions

ISA3-L...B-L1 (With control unit)

ZS-31-B (Cable with connector)

ZS-31-C (Cable with connector)

ISA-14 (Bracket for without control unit)

Y200T-A (Spacer with bracket)

ISA-17 (Bracket for with control unit)

Pin no. | Lead wire color | Description
--- | --- | ---
1 | Brown | DC (+)
2 | White | N.C.
3 | Blue | DC (–)
4 | Black | OUT1

Stations | 1 | 2 | 3 | 4 | 5 | 6
--- | --- | --- | --- | --- | --- | ---
L1 | 55.6 | 93.6 | 131.6 | 169.6 | 207.6 | 245.6
L2 | 136.4 | 174.4 | 212.4 | 250.4 | 288.4 | 326.4

Piping type

- C: (ø4 One-touch fitting)
- C: (ø6 One-touch fitting)
- F: (G thread)

Connector pin no.

H

13

13.6

19

*: Bracket mounting only

*1: Conforming to ISO16030

*2: Conforming to ISO1179-1

ZS-31-B (Cable with connector)

ZS-31-C (Cable with connector)

ISA-14 (Bracket for without control unit)

Y200T-A (Spacer with bracket)

ISA-17 (Bracket for with control unit)
### Error Indication

<table>
<thead>
<tr>
<th>Main screen</th>
<th>Name</th>
<th>Description</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supply pressure error</td>
<td>Displayed when supply pressure is not in the range 12 to 32 psi [80 to 220 kPa]. Measurement is not possible.</td>
<td>Supply rated pressure (15 to 29 psi [100 to 200 kPa]). The product will return to measurement mode automatically.</td>
</tr>
<tr>
<td></td>
<td>Outside of the displayable range (Switch point change mode)</td>
<td>The workpiece is outside the displayable range.</td>
<td>Move the workpiece closer to the detection nozzle.</td>
</tr>
<tr>
<td>Er1</td>
<td>OUT1 over current error</td>
<td>The switch output (OUT1) load current has exceeded 80 mA.</td>
<td>Turn the power OFF and remove the cause of the over current. Then turn the power ON again.</td>
</tr>
<tr>
<td>Er3</td>
<td>Zero clear error</td>
<td>Zero clear was not performed at atmospheric pressure. (Pressure outside of ±2 psi [±14 kPa] was supplied present.)</td>
<td>Perform zero clear at atmospheric pressure.</td>
</tr>
<tr>
<td>Er0</td>
<td>System error</td>
<td>An internal data error has occurred.</td>
<td>Turn the power OFF and turn it ON again.</td>
</tr>
<tr>
<td>Er4 to Er9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub screen</th>
<th>Name</th>
<th>Description</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLLL</td>
<td>Supply pressure error</td>
<td>Pressure exceeding 32 psi [220 kPa] is supplied.</td>
<td>Keep the supply pressure within the displayable range of –2.9 to 32 psi [–20 to 220 kPa].</td>
</tr>
<tr>
<td>HHHH</td>
<td>Supply pressure error (When [SUP side pressure value display] is set to the sub screen)</td>
<td>Vacuum pressure (less than –2.9 psi [–20 kPa]) is supplied.</td>
<td></td>
</tr>
</tbody>
</table>

### Relationship between Supply Pressure and Display

- **Cannot be detected.**
- **Detection which satisfies the specification is available.**
- **Cannot be detected.**

Can be detected, but specification is not satisfied. Can be detected, but specification is not satisfied. Breakage may occur.

**Main screen**

- Range in which [ON/OFF] is displayed in the main screen
- Switch output is automatically turned OFF.

**Sub screen**

- Range which can be displayed when [SUP side pressure value display] is set to the sub screen
- Pressure range: psi [kPa]

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)-1), and other safety regulations.

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications. Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment. The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment, or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

1. The product is provided for use in manufacturing industries. The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary. If anything is unclear, contact your nearest sales branch.

2. The exports of SMC products or technology from one country to another are subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Limited warranty and Disclaimer

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.-2) Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.