3-Screen Display
Multi-channel Digital Sensor Monitor

Up to 4 pressure sensors can be connected!

It is possible to change the settings while checking the measured value.

- Differential Pressure Check Mode p. 2
- 3 channels are displayed simultaneously. p. 2
- Input Range Selection p. 3
- Hub Function p. 4
  Convert analog signals to digital signals!

Visualization of Settings
- Set value (Threshold value)
- Hysteresis value
- Peak value
- Bottom value
- Channel display

It is possible to change the settings while checking the measured value.

Main screen
- Measured value (Current pressure value)

Sub screen
- Left side: Label (Display item)
- Right side: Set value (Threshold value)

Applicable Pressure Sensor Variations

- Compact Pneumatic Pressure Sensor PSE53
- Compact Pneumatic Pressure Sensor PSE54
- Low Differential Pressure Sensor PSE550
- Pressure Sensor for General Fluids PSE56
- Pressure Sensor for General Fluids PSE57

PSE200A Series

CAT.ES100-124A
Visualization of Settings

It is possible to change the settings while checking the measured value.

Mode Examples

Easy Screen Switching

The sub screen can be switched by pressing the down buttons.

Simple 3-Step Setting

After selecting the channel, when the SET button is pressed and the set value (P_1) is displayed, the set value (threshold value) can be set. When the SET button is pressed and the hysteresis (H_1) is being displayed, the hysteresis value can be set.

Now with a snap shot function for set value reading

Pressing the @ and # buttons simultaneously for a minimum of 1 second will make the set value (threshold value) the same as the current pressure value.
Centralized Control Saves Installation Space.

66% reduction in installation space
(Compared with the panel mounted Z/ISE200)

Panel mounted

Differential Pressure Check Mode

One monitor displays 2 lines of differential pressure.

A Single Monitor Various Applications

3 channels are displayed simultaneously.
(Customer defined channel can be set.)

Suction confirmation for workpieces containing moisture

Discharge pressure control for compressors

Liquid coolant pressure control

Liquid pressure control of gun drills
### Input Range Selection (for Pressure/Flow rate)

The sensor input range can be set to the required value and displayed. (Voltage input: 1 to 5 V)

Pressure switch/Flow switch can be displayed.

- **A** is displayed for 1 V. **B** is displayed for 5 V.
- The range can be set as required.
- Refer to page 8 for the specification of the sensors which can be connected.
- For the individual specifications of each connectable sensor, refer to the Web Catalog.

#### Functions pp. 14 to 17

- **Auto-preset function**
  - This function, when selected in the initial setting, calculates and stores the set value from the measured pressure.

- **Display value fine adjustment function**
  - Fine adjustment of the indicated value of the pressure sensor can be made within the range of ±5% of the read value.

- **Peak/Bottom value indication function**
  - This function constantly detects and updates the maximum (minimum) pressure when the power is supplied, and allows to hold the maximum (minimum) pressure value.

- **Key-lock function**
  - This function prevents operation errors such as accidentally changing setting values.

- **Zero-clear function**
  - This function clears and resets the zero value on the display of measured pressure.

- **Error display function**
  - This function displays error location and content when a problem or error has occurred.

- **Anti-chattering function**
  - This function prevents the detection of such temporary drops in the supply pressure as errors by changing the delay time setting.

- **Pressure range/Unit selection function**
  - The pressure range and displayed unit can be switched.

- **Zero-cut setting**
  - When the pressure display value is close to zero, this function forces the display to zero.

- **Selection of power-saving mode**
  - Power-saving mode can be selected. It shifts to power-saving mode automatically when there is no button operation for 30 seconds.

- **Setting of security code**
  - Users can select whether a security code must be entered to release the key lock.

- **Auto-shift function**
  - This function compensates for such supply pressure fluctuations. It measures the pressure at the time of auto-shift signal input and uses it as the reference pressure to correct the set value on the switch.

- **Differential pressure check mode**
  - Set and display the differential pressure between CH1 - CH2, and CH3 - CH4.

- **Channel to channel copy function**
  - The set values can be copied to other channel.

- **Channel select function**
  - Pressure value for the selected channel is displayed.

- **Channel scan function**
  - Pressure values for each channel are displayed in turn every 2 seconds.

---

### Connectors

Connection and removal of wiring is easy.

#### For Digital Flow Switch for Water / PF3W511

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF3W504</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>PF3W520</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>PF3W540</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>PF3W511</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

Set A and B to the values shown in the table on the left.

#### For Flow Sensor / PFMV5

Setting of the display for analog voltage

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFMV5</td>
<td>1.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Set A and B to the values shown in the table on the left.
**Hub Function**

Converting analog signals to digital signals and supports IO-Link

A currently used sensor can be used.

- Supports analog voltage output 1-5 V

---

**Field setting and confirmation of measured values are possible.**

**Process Data**

<table>
<thead>
<tr>
<th>Bit offset</th>
<th>Item</th>
<th>CH1 measured: 16-bit signed integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bit offset</th>
<th>Item</th>
<th>CH2 measured: 16-bit signed integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bit offset</th>
<th>Item</th>
<th>CH3 measured: 16-bit signed integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bit offset</th>
<th>Item</th>
<th>CH4 measured: 16-bit signed integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measurement data of sensors for 4 channels are combined and cyclically sent as a process data.

Each channel has 2 outputs.

Implement diagnostic bits in the process data.

1. During differential pressure operation mode, CH1-CH2 measurement value is used.
2. During differential pressure operation mode, CH3-CH4 measurement value is used.
3. During SIO mode, only CH1 has 2 switch outputs. CH2-4 has one output each.
IO-Link is an open communication interface technology between the sensor/actuator and the I/O terminal that is an international standard, IEC61131-9.

**Visualization of operation/equipment status**
Remote monitoring and control by communication

- Device settings can be set by the master.
  - Threshold value
  - Operation mode, etc.

- Read the device data.
  - Switch ON/OFF signal and analog data
  - Device information:
    - Manufacturer, Product part number, Serial number, etc.
  - Normal or abnormal device status
  - Cable breakage

**Automatic setting function**
[Data storage function]
When replacing the sensor monitor with the same type (the same device ID), the parameters (set values) stored in the IO-Link master are automatically copied (set) to the new sensor monitor.

**Configuration File (IODD File*)**
- Manufacturer • Product part no. • Set value

*1 IODD File
IODD is an abbreviation of IO Device Description. This file is necessary for setting the device and connecting it to a master. Save the IODD file on the PC to be used to set the device prior to use.

**Reduction of setting man hours and reduced errors**

**Displays the output communication status and indicates the presence of communication data**

<table>
<thead>
<tr>
<th>Operation and Display</th>
<th>SIO mode</th>
<th>Start-up mode</th>
<th>Preoperate mode</th>
<th>Operate mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication with master</td>
<td>Normal</td>
<td>Operate</td>
<td>Normal communication status (readout of measured value)</td>
<td></td>
</tr>
<tr>
<td>IO-Link status indicator light</td>
<td>Start up</td>
<td>Preoperate</td>
<td>At the start of communication</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Abnormal</td>
<td>Version does not match</td>
<td>IO-Link version does not match that of the master. The master uses version 1.0. *The applicable IO-Link version is 1.1.</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Communication disconnection</td>
<td>Normal communication was not received for 1 second or longer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>SIO mode</td>
<td>General switch output</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 In IO-Link mode, the IO-Link indicator is ON or flashes. *2 When the sub screen is set to Mode
* "ModE LoC" is displayed when the data storage lock is enabled. (Except for version mismatch or when in SIO mode)
### Series Variations

#### Digital Sensor Monitor

<table>
<thead>
<tr>
<th>PSE200A</th>
<th>PSE300AC</th>
<th>PSE300A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preset Value</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>±0.1% (F.S.)</td>
<td>±0.1% (F.S.)</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>12 to 24 VDC</td>
<td>12 to 24 VDC</td>
</tr>
<tr>
<td><strong>No. of outputs for switch</strong></td>
<td>5 outputs</td>
<td>2 outputs</td>
</tr>
<tr>
<td><strong>Analog output</strong></td>
<td></td>
<td>4 to 20 mA</td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
<td>0 to 50°C</td>
<td>0 to 50°C</td>
</tr>
<tr>
<td><strong>Number of screens</strong></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Front face: IP65 Others: IP40</td>
<td>IP65</td>
</tr>
<tr>
<td><strong>3 Step</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Wiring Connector</strong></td>
<td>Connector</td>
<td>Connector</td>
</tr>
</tbody>
</table>

#### Pressure Sensor Controller

<table>
<thead>
<tr>
<th><strong>Compact Pneumatic Pressure Sensor PSE53</strong></th>
<th><strong>Compact Pneumatic Pressure Sensor PSE54</strong></th>
<th><strong>Low Differential Pressure Sensor PSE550</strong></th>
<th><strong>Pressure Sensor for General Fluids PSE56</strong></th>
<th><strong>Pressure Sensor for General Fluids PSE57</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated pressure range</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>−101 kPa to 0</td>
<td>−101 kPa to 0</td>
<td>0 to 2 kPa</td>
<td>−101 kPa to 0</td>
<td>−100 kPa to 100 kPa</td>
</tr>
<tr>
<td>−100 kPa to 100 kPa</td>
<td>−100 kPa to 100 kPa</td>
<td>0 to 1 kPa</td>
<td>−100 kPa to 100 kPa</td>
<td>0 to 1 MPa</td>
</tr>
<tr>
<td>0 to 100 kPa</td>
<td>0 to 100 kPa</td>
<td>0 to 500 kPa</td>
<td>0 to 500 kPa</td>
<td>0 to 5 MPa</td>
</tr>
<tr>
<td>0 to 1 MPa</td>
<td>0 to 1 MPa</td>
<td>0 to 1 MPa</td>
<td>0 to 5 MPa</td>
<td>0 to 10 MPa</td>
</tr>
</tbody>
</table>

#### Applicable Pressure Sensors

Refer to the Web Catalog for details.
3-Screen Display  
Multi-channel Digital Sensor Monitor

**PSE200A Series**

### How to Order

**Input/Output specification**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>NPN 5 outputs + Auto-shift input</td>
</tr>
<tr>
<td>1</td>
<td>PNP 5 outputs + Auto-shift input</td>
</tr>
<tr>
<td>2</td>
<td>IO-Link + NPN 4 outputs or NPN 5 outputs</td>
</tr>
<tr>
<td>3</td>
<td>IO-Link + PNP 4 outputs or PNP 5 outputs</td>
</tr>
</tbody>
</table>

**Unit specification**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>With unit selection function*1</td>
</tr>
<tr>
<td>M</td>
<td>SI units only*2</td>
</tr>
</tbody>
</table>

*1 Under the New Measurement Act, switches with the unit selection function are no longer allowed for use in Japan.
*2 Fixed unit: kPa, MPa, Pa

### Option 1

- **Panel mount adapter**
- **Waterproof seal**
  - (Accessory)
- Mounting screw (M3 x 8L) (Accessory)

### Option 2

- **Sensor connector** (4 pcs.)

### Option 3

- **Power supply/output connection cable (2 m)**

* Cable is shipped together, but not connected.

### Options/Part Nos.

When only optional parts are required, order with the part numbers listed below.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part no.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel mount adapter</td>
<td>ZS-26-B</td>
<td>Waterproof seal, mounting screws M3 x 8L (2 pcs.) included</td>
</tr>
<tr>
<td>Front protection cover + Panel mount adapter</td>
<td>ZS-26-C</td>
<td>Waterproof seal, mounting screws M3 x 8L (2 pcs.) included</td>
</tr>
<tr>
<td>48 conversion adapter</td>
<td>ZS-26-D</td>
<td></td>
</tr>
<tr>
<td>Front protection cover</td>
<td>ZS-26-D</td>
<td></td>
</tr>
<tr>
<td>Sensor connector</td>
<td>ZS-28-C</td>
<td>(1 pc. per set)</td>
</tr>
<tr>
<td>Power supply with M12 connector/Output cable (Made to Order)</td>
<td>ZS-26-LM12</td>
<td>For use when using an M12 connector for IO-Link communication</td>
</tr>
</tbody>
</table>

* Options are not assembled, but shipped together.
Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>PSE200A</th>
</tr>
</thead>
</table>

**Rated pressure range**
- 0 to 2 kPa
- 0 to −101 kPa
- −100 to 100 kPa
- 0 to 100 kPa
- 0 to 500 kPa
- 0 to 1 MPa
- 0 to 2 MPa
- 0 to 5 MPa
- 0 to 10 MPa

**Display/Pressure range**
- 0 to 2 kPa
- 0 to −101 kPa
- −100 to 100 kPa
- 0 to 100 kPa
- 0 to 500 kPa
- 0 to 1 MPa
- 0 to 2 MPa
- 0 to 5 MPa
- 0 to 10 MPa

**Pressure sensor display**
| 0.001 kPa | 0.1 kPa | 0.1 kPa | 0.1 kPa | 1 kPa | 0.001 MPa | 0.001 MPa | 0.01 MPa | 0.01 MPa |

**Environmental**
- Temperature: Operating: 0 to 50°C, Stored: −10 to 60°C
- Humidity: Relative: 10% to 90% at 40°C (No condensation)
- Shock: 3 G, 2 ms
- Vibration: 0.5g, 5 Hz to 550 Hz

**Enclosure**
- IP65 (when panel-mounted), IP40 (otherwise)

**Standards**
- CE marking (EMC Directive, RoHS Directive)
- Digital filter

**Input**
- Voltage input: 1 to 5 VDC (Input impedance: 1 MΩ)
- Over voltage protection (up to a voltage of 26.4 VDC)

**Auto-shift input**
- Voltage free input

**Unit**
- MPa, kPa, Pa, kgt/cm², bar, mbar, inHg, mmHg, mmH2O (depends on selected range)

**Protection**
- Over current protection

**Hysteresis**
- Variable from 0 to 30 s/0.01 s increments

**Display**
- Main screen: 4 digits (7 segments), Sub screen (Left): 4 digits (some digits are 11-segments, 7 segments for other), Sub screen (Right): 5 digits (some digits are 11-segments, 7 segments for other)

**Indicator light**
- Lights up when switch output is turned ON, OUT1, OUT2: Orange

**Digital filter**
- Variable from 0 to 30 s/0.01 s increments

**Configuration file**
- 131 (0 x 0083)

**Cable Specifications**

<table>
<thead>
<tr>
<th>Conducting area</th>
<th>0.15 mm² (AWG26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulator O.D.</td>
<td>0.9 mm</td>
</tr>
<tr>
<td>Sheath Finished O.D.</td>
<td>ø4.8</td>
</tr>
</tbody>
</table>

For pressure switch precautions and specific product precautions, refer to the “Operation Manual” on the SMC website. Click [here](https://www.smcworld.com) for details.
Applicable Pressure Sensors

<table>
<thead>
<tr>
<th>Applicable SMC pressure sensor</th>
<th>Rated pressure range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSE53</td>
<td>PSE54</td>
</tr>
<tr>
<td>PSE531, PSE541</td>
<td>—</td>
</tr>
<tr>
<td>PSE533, PSE543</td>
<td>—</td>
</tr>
<tr>
<td>PSE532</td>
<td>—</td>
</tr>
<tr>
<td>PSE530, PSE540</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Internal Circuits and Wiring Examples

PSE20 □□□□

- Input/Output specifications

0

- NPN open collector 5 outputs + Auto-shift 1 input

1

- PNP open collector 5 outputs + Auto-shift 1 input
Internal Circuits and Wiring Examples

PSE20 A

- Input/Output specifications

2

- IO-Link/NPN open collector 1 output + NPN open collector 4 outputs

When used as an IO-Link device

When used as a switch output device
PSE200A Series

Internal Circuits and Wiring Examples

PSE20 □ □ □ □

Input/Output specifications

3

· IO-Link/PNP open collector 1 output + PNP open collector 4 outputs

When used as an IO-Link device

When used as a switch output device

12 to 24 VDC
Multi-channel Digital Sensor Monitor PSE200A Series

Dimensions

Front protection cover + Panel mount adapter

Panel fitting dimensions
Applicable panel thickness:
0.5 to 8 mm

Sensor connector (4P x 4)

Connector (Option)

Power supply/Output connection cable (Accessory)

Sensor connector 

Pin no. Terminal

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DC (+)</td>
</tr>
<tr>
<td>2</td>
<td>DC (–)</td>
</tr>
<tr>
<td>3</td>
<td>CH1_OUT1</td>
</tr>
<tr>
<td>4</td>
<td>CH1_OUT2</td>
</tr>
<tr>
<td>5</td>
<td>CH2_OUT1</td>
</tr>
<tr>
<td>6</td>
<td>CH3_OUT1</td>
</tr>
<tr>
<td>7</td>
<td>CH4_OUT1</td>
</tr>
<tr>
<td>8</td>
<td>Auto-shift input</td>
</tr>
</tbody>
</table>

Power supply/Output connector (8P)

Power supply with M12 connector/Output cable (Made to Order)
* For use when using an M12 connector for IO-Link communication

Panel fitting dimensions

48 conversion adapter + Panel mount adapter

Front protection cover + Panel mount adapter
Display examples of the main and sub (set value) screens of each mode. (When 1 MPa range is selected)

**Hysteresis mode, Normal output**
- **Threshold value setting**
- **Switch ON**
  - Turns ON at the set value or more.
- **Switch OFF**
  - Turns ON at the set value or more.

**Hysteresis setting**
- **Switch ON**
  - Difference between OFF and ON
- **Switch OFF**
  - Difference between ON and OFF

**Window comparator mode, Normal output**
- **Threshold value setting**
- **Switch ON**
  - Turns ON at the set value or more.
  - Turns ON at the set value or less.
- **Switch OFF**
  - Turns ON at the set value or more.

**Hysteresis setting**
- **Switch ON**
  - Difference between OFF and ON
- **Switch OFF**
  - Difference between ON and OFF

**Window comparator mode, Reversed output**
- **Threshold value setting**
- **Switch ON**
  - Turns ON at the set value or less.
- **Switch OFF**
  - Turns ON at the set value or less.
Function Details

A Auto-preset function (F4)
This function, when selected in the initial setting, calculates and stores the set value from the measured pressure. For example, if this function is used for suction verification, the optimum set value is determined automatically by repeating vacuum and break with the target workpiece several times.

Suction Verification

P_1 or n_1

H_1

Formula for Obtaining the Set Value

<table>
<thead>
<tr>
<th>P_1 or n_1</th>
<th>H_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_1=A−(A−B)/4</td>
<td>H_1=(A−B)/2</td>
</tr>
<tr>
<td>n_1=B+(A−B)/4</td>
<td></td>
</tr>
</tbody>
</table>

B Display value fine adjustment function (F6)
Fine adjustment of the indicated value of the pressure sensor can be made within the range of ±5% of the read value. (This eliminates wide variations of the indicated value.)

C Peak/Bottom value indication function
This function constantly detects and updates the maximum (minimum) pressure when the power is supplied, and allows to hold the maximum (minimum) pressure value.

When the ⬆️ and ⬅️ buttons are simultaneously pressed for 1 second or longer, while “holding”, the held value will be reset.

D Key-lock function
This function prevents operation errors such as accidentally changing setting values.

E Zero-clear function
This function clears and resets the zero value on the display of measured pressure. The indicated value can be adjusted within ±7% F.S. of the pressure at the time of factory shipment. (±3.5% F.S. for compound pressure)

F Error display function
This function displays error location and content when a problem or error has occurred.

<table>
<thead>
<tr>
<th>Error name</th>
<th>Error code</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over current error</td>
<td>[Err 1]</td>
<td>The load current applied to the switch output has exceeded the maximum value. +1 indicates the channel with an error.</td>
<td>Turn the power off and remove the cause of the over current. Then supply the power again.</td>
</tr>
<tr>
<td>Residual pressure error</td>
<td>[Err 2]</td>
<td>During zero-clear operation, pressure over ±7% F.S. is present. Note that the mode is returned to measurement mode automatically 1 second later. The zero-clear range varies by ±1% F.S. due to variation between individual products.</td>
<td>Perform zero-clear operation again after restoring the applied pressure to an atmospheric pressure condition.</td>
</tr>
<tr>
<td>Applied pressure error</td>
<td>[Err 3]</td>
<td>Supply pressure exceeds the maximum set pressure.</td>
<td>Reset applied pressure to a level within the set pressure range. Check the sensor connection.</td>
</tr>
<tr>
<td></td>
<td>[Err 4]</td>
<td>Supply pressure is below the minimum set pressure. A sensor may be disconnected or mis-wired.</td>
<td></td>
</tr>
</tbody>
</table>

If the error cannot be reset after the above measures are taken, or errors other than those above are displayed, please contact SMC for investigation.
Function Details

G Anti-chattering function (Simple setting mode or F1, F2)
A large bore cylinder or ejector consumes a large volume of air during operation and may experience a temporary drop in the supply pressure. This function prevents the detection of such temporary drops in the supply pressure as errors by changing the delay time setting. The delay time can be set in the range of 0.00 to 60.00 [s] in 0.01 [s] increments.

<Principle>
This function averages pressure values measured during the response time set by the user and then compares the average pressure value with the pressure set point value to output the result on the switch.

H Pressure range/Unit selection function (F0)
Pressure range and displayed units can be switched with this function.

I Zero-cut setting (F14)
When the pressure display value is close to zero, this function forces the display to zero. The range to display zero can be changed within the range of 0.0 to 10.0%.

Example: When the PSE570 (1 MPa range), zero-cut value = 1.0%, 0 is displayed in the range of −9 to 9 kPa.

J Power-saving mode (F80)
Power-saving mode can be selected. It shifts to power-saving mode automatically when there is no button operation for 30 seconds. The product is set to normal mode (Power-saving mode is OFF) at the time of factory shipment. (When in power-saving mode, [ECo] will flash in the sub screen and the operation light will be ON (only when the switch is ON).)

K Setting of security code (F81)
Users can select whether a security code must be entered to release the key lock. At the time of factory shipment, it is set so that a security code is not required.
**L** Auto-shift function (F5) (This setting is only possible for the PSE200A/PSE201A.)

When there are large fluctuations in the supply pressure, the switch may fail to operate correctly. This function compensates for such supply pressure fluctuations. It measures the pressure at the time of auto-shift signal input and uses it as the reference pressure to correct the set value on the switch.

**Set value correction by auto-shift function**

When the auto-shift function is selected, "$S \simeq c_{op}$" will be displayed on the sub screen for about 1 second, and the pressure value at that point will be saved as reference value $T_4$. Based on the saved reference value, output on-off points controlled by set values $R_1$, $R_2$, $T_1$, and $T_2$ will also be rectified.

$R_1$, $R_2$, $T_1$, $T_2$, and $T_4$ will be rectified.

The above is an example in hysteresis mode. On-off points are similarly rectified in window comparator mode. Outputs that enable the auto-shift function can be changed via the settings.

**M** Differential pressure check mode (F0)

Set and display the differential pressure between CH1 - CH2, and CH3 - CH4. Selected channel is CH1: Differential pressure between CH1 - CH2 can be set and displayed.

Selected channel is CH2: Measurement value of CH2 can be set and displayed.

Selected channel is CH3: Differential pressure between CH3 - CH4 can be set and displayed.

Selected channel is CH4: Measurement value of CH4 can be set and displayed.

**N** Channel to channel copy function (F95)

Information that can be copied includes the following:

- F0 (system setting): Connected range, displayed unit
- F1 (OUT1 setting), F3 (digital filter), F4 (auto-preset), F5 (auto-setting), F10 (sub-screen setting), F11 (display resolution setting), F14 (zero-cut setting)

When CH1 is copied to CH2, CH3, and CH4, information on OUT1 in CH1 will be copied.

When CH2 (CH3, or CH4) is copied to CH1, information on OUT1 in CH2 (CH3, or CH4) will be copied only to OUT1 in CH1.

$*$ When the channel to channel copy function is used, the copied pressure set value may vary by $\pm 1$ digit.

Example) When copying CH1 to another channel

- Channel can be selected as the copy channel.

---

**Settable Range for Auto-Shift Input**

<table>
<thead>
<tr>
<th>Range settings</th>
<th>Settable range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 2 kPa</td>
<td>−2.30 to 2.300 kPa</td>
</tr>
<tr>
<td>0 to −101 kPa</td>
<td>115.0 to −115.0 kPa</td>
</tr>
<tr>
<td>−100 to 100 kPa</td>
<td>−210 to 210.0 kPa</td>
</tr>
<tr>
<td>0 to 100 kPa</td>
<td>−115.0 to 115.0 kPa</td>
</tr>
<tr>
<td>0 to 500 kPa</td>
<td>−575 to 575 kPa</td>
</tr>
<tr>
<td>0 to 1 MPa</td>
<td>−1.155 to 1.155 MPa</td>
</tr>
<tr>
<td>0 to 2 MPa</td>
<td>−2.20 to 2.205 MPa</td>
</tr>
<tr>
<td>0 to 5 MPa</td>
<td>−5.50 to 5.50 MPa</td>
</tr>
<tr>
<td>0 to 10 MPa</td>
<td>−11.00 to 11.00 MPa</td>
</tr>
<tr>
<td>0 to 1.6 MPa</td>
<td>−1.785 to 1.785 MPa</td>
</tr>
<tr>
<td>0 to 20 MPa</td>
<td>−22.0 to 22.00 MPa</td>
</tr>
<tr>
<td>0 to 25 MPa</td>
<td>−27.5 to 27.50 MPa</td>
</tr>
</tbody>
</table>

**Auto-shift zero**

The basic function of auto-shift zero is the same as that of auto-shift. However, it corrects values on the display based on a pressure value of $T_4$, which is set as the reference value when auto-shift function is selected.
**PSE200A Series**

**Function Details**

**0 Channel select function**
Pressure value for the selected channel is displayed.
The function setting of each channel is performed on the selected channel.

![Display images](image1)

**P Channel scan function**
Pressure values for each channel are displayed in turn every 2 seconds.

![Display images](image2)
Safety Instructions

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) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.

Caution:
Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Warning:
Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

Danger:
Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.