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Find the *SMC ZSE4-01-65* at our website: *Click HERE*

LCD Readout

Digital Pressure Switch

Series ZSE4

(For vacuum)

ISE4

(For positive pressure)

For General Pneumatics



Digital Readout and
push-button calibration

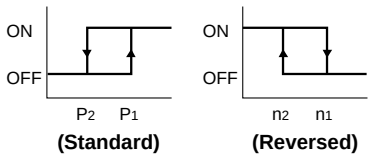
Choice of display units

Display units can be easily selected and changed, making these switches globaly acceptable.

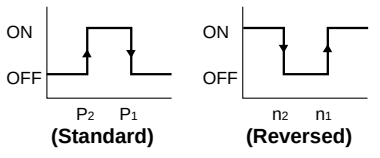
Vacuum	**kPa ⇔ mmHg ⇔ PSI ⇔ bar**
Positive press. (High)	**MPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**
Positive press. (Low)	**kPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**

Variety of switch output modes

Hysteresis mode

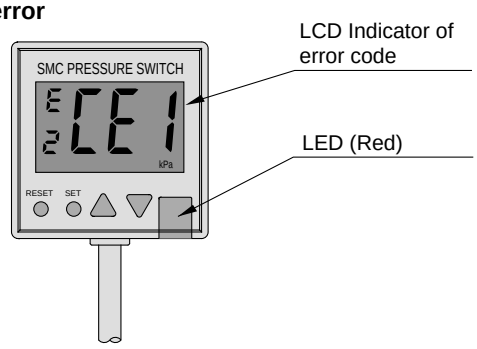


Window comparator mode



Self-diagnostic function

- **Over-voltage**
- **Over-pressure**
- **Data error**



Panel mounting available.

A special adaptor permits panel mounting.

Dust/Splash proof cover (Optional)

Refer to the p.3.2-21 to 3.2-24.

Calibration data

The calibration data is stored in an EEPROM. The EEPROM is rated to keep its memory for 100,000 hours (approx. 11 years) without having power supplied.

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ZSE4E/ISE4E Series 2/23/99 2:38 PM Page 16

How to Order

Setting pressure range

—	0 to 1MPa
L	0 to 100kPa

Positive pressure **ISE4** □□ – □ – □ □

Vacuum **ZSE4** □ – □ – □ □

Style

—	Standard
D*	Dust/Splash proof

*Refer to p.3.2-22 for the dust/splash proof specifications(IP66).

Lead wire length (Grommet)

—	0.6m
L	3m

Port size

01	Rc(PT) 1/8
T1	NPTF 1/8

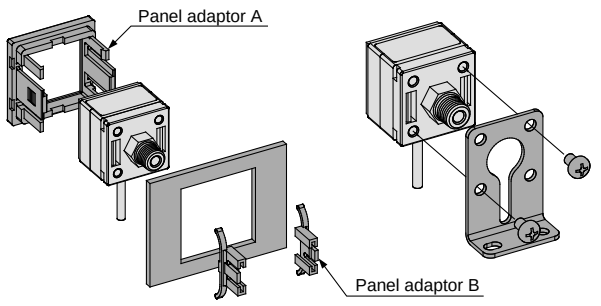
Note) Standard: M5 x 0.8 (Female)

Output specifications

25	NPN Open collector/1output (Sinking)
26	Analog output (1 to 5V)
65	PNP Open collector/1 output (Sourcing)

Panel mount adaptor No.
(Panel adaptor A + Panel adaptor B)
ZS-22-A
Panel adaptor A ·····ZS-22-01
Panel adaptor B ·····ZS-22-02

Bracket No.
(With two M4 mounting threads)
ZS-22-B



⚠Caution

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.3.0-7 to 3.0-9 for precautions on every series.

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ZSE4/ISE4

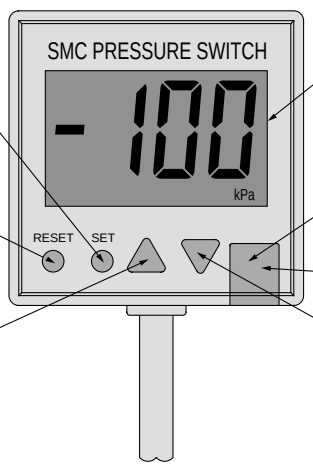
Specifications

Model		Vacuum ZSE4	Positive pressure: 100kPa ISE4L	Positive pressure: 1MPa ISE4
Operating pressure range		0 to –101kPa	0 to100kPa	0 to 1MPa
Max. pressure		200kPa		1MPa
Min.display unit	kPa	1	1	–
	MPa	–	–	0.01
	mmHg	5	–	–
	kgf/cm²	–	0.01	0.1
	PSI	0.1	0.1	1
	bar	0.01	0.01	0.1
Indicator light		ON: When Green LED turns on		
Frequency response		200Hz (5ms)		
Hysteresis(1)	Hysteresis mode	Adjustable (3 digits or more)		
	Window comparator mode	Fixed (3 digits)		

Fluid	Air, Non corrosive gases
Temperature characteristics	±3% F.S. or less
Repeatability	±1% F.S. or less
Supply voltage	12 to 24V DC (Ripple±10% or less)
Output specification	NPN open collector 30V, 80mA or less PNP open collector 80mA or less
Current consumption	25mA or less
Error display	Red light blinks. Display the error code on LCD
Pressure display	3 1/2 digits (10 mm-size numerals)
Self-diagnostic function	(Over current(2)), Over pressure, Data error, Pressure during zero out
Operating temperature range	0 to 50°C (No condensation)
Noise resistance	1000Vp-p, Pulse width: 1μ S·Standing: 1nS
Voltage resistance	Between external terminals and housing 1000V AC 50/60Hz for 1 min.
Insulation resistance	Between external terminals and housing 2MΩ (500V DC by megameter)
Vibration resistance	10 to 500 Hz Pulse width 1.5mm or acceleration 98$^{m}/_{s^2}$ (smaller vibrations) to X, Y, Z direction (2 hrs)
Shock resistance	980$^{m}/_{s^2}$ to X, Y, Z direction (3 times for each direction)
Lead wire	Grommet oil-resistant vinyl cabtire code ø3.4 0.2 mm² 3 core
Weight	Standard: 40g (including 0.6m-long lead wire), Dust/Splash proof: 110g
Port size(2)	01: R(PT)1/8, M5 X 0.8 T1: NPTF1/8, M5 X 0.8
Protective construction(3)	Standard: IP40, Dust/Splash proof: IP66

Note 1) ●Hysteresis mode: When the values of P1 and P2 are the same or when P1>P2 within 3 digits, the hysteresis will be automatically 3 digits for the set value of P1.
●Window comparator mode: The hysteresis is 3 digits, so separate P1 from P2 by 7 digits or more and set them. 1 digit is the minimum pressure display unit. (See the table above.)
Note 2) ●Analog output has no overcurrent detection function.
Note 3) ●Refer to p.3.2-21 to p.3.2-24 for the details about the dust/splash proof specifications.

Description



SET key
Switches the mode. Used for unit change and output mode change by pressing the button for at least 1 second.

RESET key
Clears abnormalities. Displays "0".

UP key
Increases ON/OFF set point. Switched to peak mode high by pressing the key during normal operation.

LCD
Displays present pressure.
Displays ON/OFF setting value.
Displays error code.
Displays unit.

LED (Green)
Displays OUT1 operation condition.

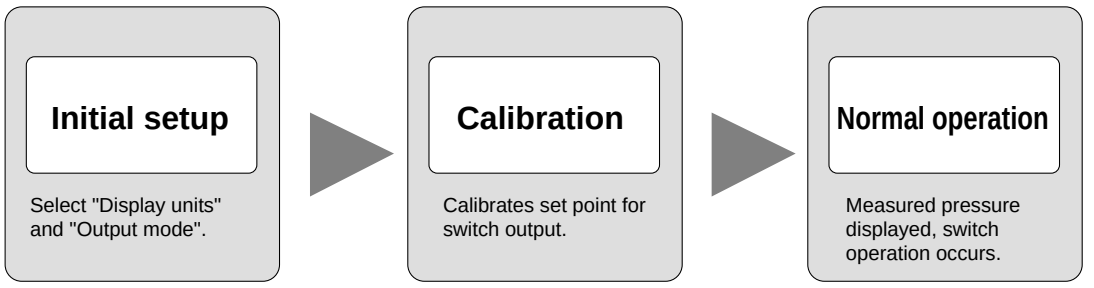
LED (Red)
Blinks on and off when an error occurs.

DOWN key
Decreases ON/OFF set point. Switched to peak mode low by pressing the key during normal operation. Used for unit change and output mode change.

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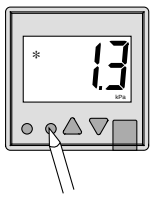
Calibration Procedures

Procedures



Initial setup

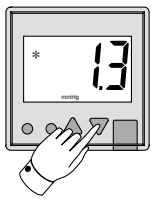
1. Initial setup mode



Press the "SET" button for at least 1 second. "1.3" is displayed and the display blinks.

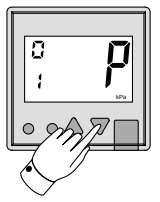
∗) "1.3 " is a program version of micro computer.

2. Selection of "Display unit"



Select "Display unit" by pressing the ▼ button.
For
High prss. MPa → kgf/cm² → PSI → bar
Low prss. kPa → kgf/cm² → PSI → bar
For vacuum kPa → mmHg → PSI → bar

3. Selection of "Output mode"

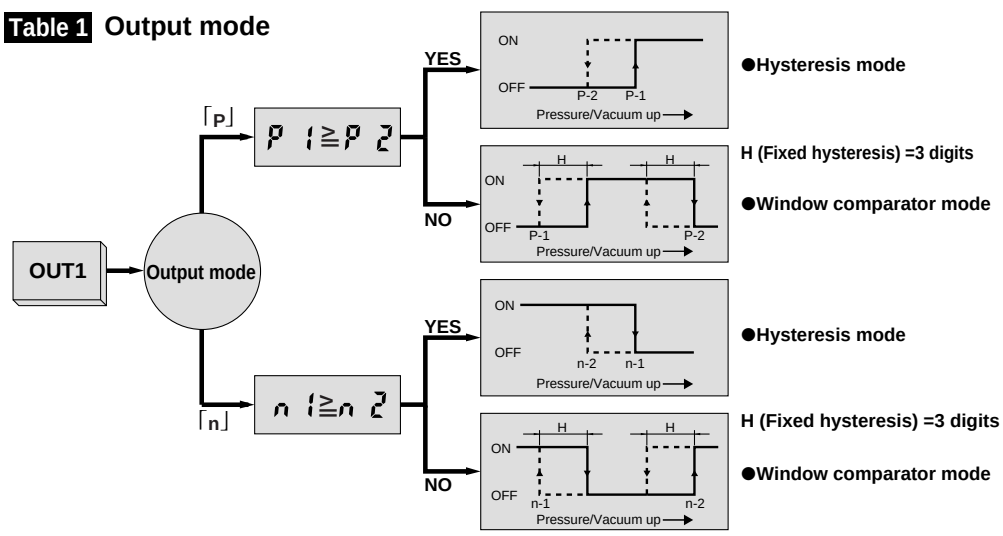


Select "Output mode" by pressing the ▼ button.

p : Normal mode
n : Reversed output mode
(Refer to **Table 1**.)

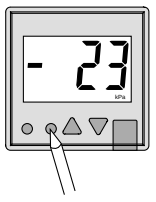
By pressing the "SET" button, the calibration is completed.

Table 1 Output mode



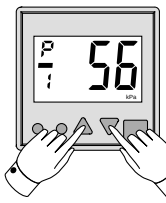
Calibration procedures

1. Set point value input mode



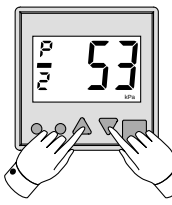
Press the "SET" button.

2. Input set point value (1)



▲ button: Increase set point value
▼ button: Decrease set point value

3. Input set point value (2)



By pressing the "SET" button, the calibration is completed.

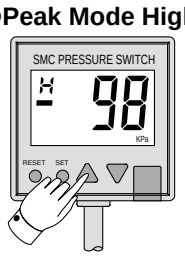
▲ button: Increase set point value
▼ button: Decrease set point value

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ZSE4/ISE4

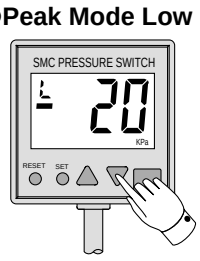
Other Functions

●Peak Mode High



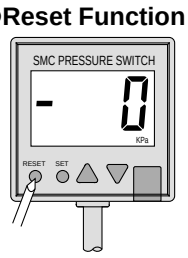
To display the high peak pressure (highest degree of vacuum), press the UP button during normal operation. The LCD displays "H". To return back to normal operation press the UP button again.

●Peak Mode Low



To display the low peak pressure (lowest degree of vacuum), press the DOWN button during normal operation. The LCD displays "L". To return back normal operation, press the DOWN button again.

●Reset Function



Simultaneously pressing the UP and DOWN button will reset the switch.

1) Reset will cause the following during normal operation:
- Peak high is cleared.
  Peak low is cleared.
  Zero is reset.

2) Reset will cause the following when error has occured:
- Switch will assume normal operation (all calibration data has retained).
- In case of data error, reset the setup mode and then switch will assume normal operation.

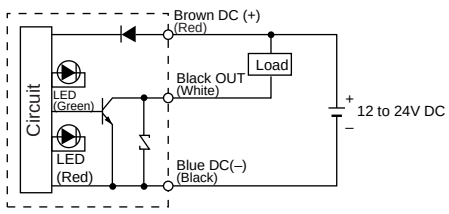
Note) In the setup mode, the reset function does not work.

Internal Circuit and Wiring

Lead wire colors inside ( ) are those prior to conformity with IEC standards.

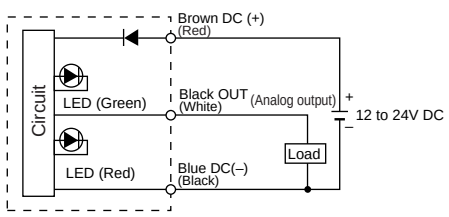
-25
NPN Open Collector

Max.30V, 80mA
Residual voltage:
1V or less



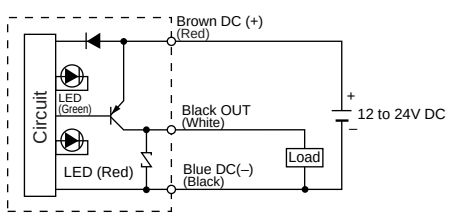
-26
Analog Output

1 to 5V (±5%F.S.)
Load impedance: 1kΩ



-65
PNP Open Collector

Max.80mA



Error Codes

Error codes

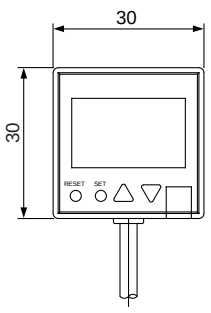
Display	Cause	Solution
E1 dE	Calibration was changed by accident, reason unknown.	Push RESET to reset all the data.
E2 CE1 (1)	Output 1 output current is exceeding 80mA.	Turn off the power and verify the load connected output 1.
	Output 1 (Black wire) could be shorted out.	Verify that the output is not shorted out and reset the switch.
E3 PE	Max. operating pressure has been exceeded for more than 2 seconds.1.5 x Max.operating prss. For pressure switch 0.5MPa (72psi) for vacuum switch	Reduce the supply pressure to below the max. pressure rating and then reset the switch.
E4 HP	When zeroing out the gauge, pressure differences ±0.07MPa for ISE4 and ±7kPa for ZSE4 have occured.	Apply atmospheric pressure and then reset the switch.

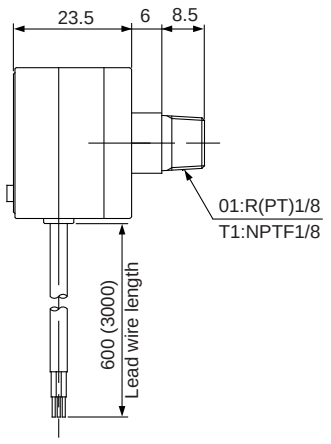
Note 1) Does not apply to Analog output.

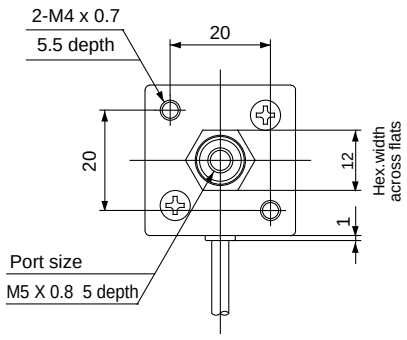
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Dimensions

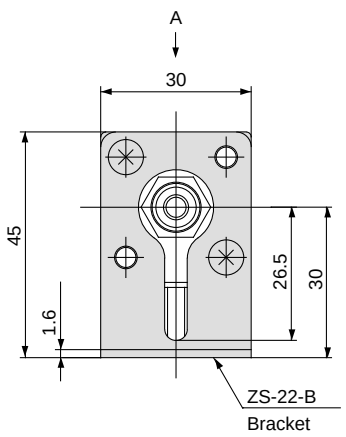
Standard

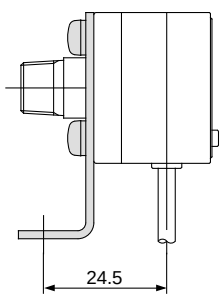


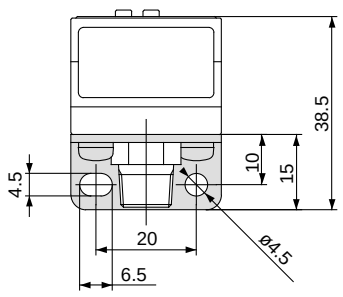




With bracket

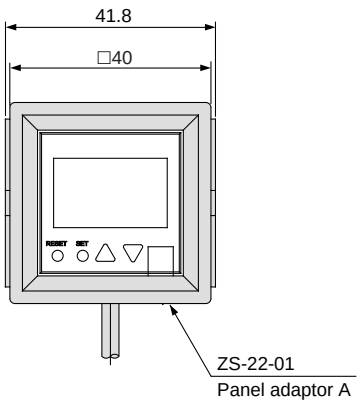


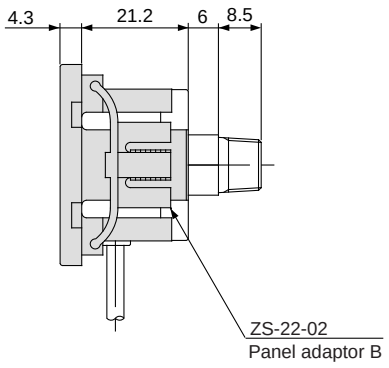




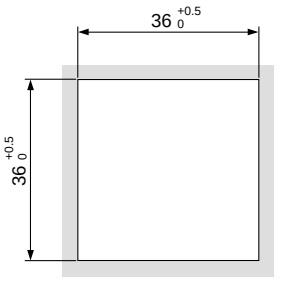
View A

Panel mounting





Cutout dimensions for panel mounting



Thickness of panel: 1 to 3.2mm

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