

Compact Pressure Switch

Series ZSE1

(For vacuum)

ISE1

(For positive pressure)

For General Pneumatics



Can be integrated with ZM vacuum system.

Quick response

10mS

High accuracy

± 3% F.S. (Full Span)

Adjustable hysteresis

1 to 10% of set pressure

Easy and simple wiring

Connector style

Compact Pressure Switch **ZSE1/ISE1**

How to Order

Operating pressure range	
—	0 to 0.97MPa
L	0 to 100kPa

Port threads	
01	R(PT) 1/8
T1	NPTF 1/8

Note) M5 X 0.8 (female) threaded.

Piping specifications	
00	For mounting on ZM unit
01	R(PT) 1/8
T1	NPTF 1/8

Note) M5 X 0.8 (female) threaded.

Electrical entry	
—	Grommet (lead wire: 0.6m)
L	Grommet (lead wire: 3m)
C	With plug connector (lead wire: 0.6m)
CL	With plug connector (lead wire: 3m)
CN	Plug (without lead wire)

Output specifications	
14	NPN Open Collector 1 output w/o analog output, 3 revolution adjustment
15	NPN Open Collector 1 output w/o analog output, 200 revolution adjustment
16	NPN Open Collector 2 output w/o analog output, 3 revolution adjustment
17	NPN Open Collector 2 output w/o analog output, 200 revolution adjustment
18	NPN Open Collector 1 output w/ analog output, 3 revolution adjustment
19	NPN Open Collector 1 output w/ analog output, 200 revolution adjustment
55	PNP Open Collector 1 output w/o analog output, 200 revolution adjustment

With Connector/How to Order

- Without lead wire (Connector 1 pc., Socket 4 pcs.) ... **ZS-20-A**
- With lead wire..... **ZS-20-5A** -

Note) When ordering switch with 5m long lead wire, indicate both part numbers.
 Ex.) ZSE1-01-15CN....1 pc.
 ZS-20-5A-50.....1 pc.

Lead wire length	
—	0.6m
30	3m
50	5m

Positive pressure	ISE1	□ — □ — □ — □
Vacuum	ZSE1	— □ — □ — □

- PSE
- ZSE4 ISE4
- ZSE5 ISE5
- ZSE6 ISE6
- ZSE3 ISE3
- GS
- PS
- ISA
- ZSE1 ISE1
- ZSE2 ISE2
- ZSP
- IS□
- ZSM
- PF□
- IF□

ZSE1/ISE1 Specifications

Model	ZSE1	ISE1L	ISE1
Operating pressure range	-101kPa to 0	0 to 100kPa	0 to 1MPa
Max. pressure	200kPa		1MPa
Temperature characteristics	± 3% F.S.		
Power supply	12 to 24V DC (Ripple ±10% or less)		
Current consumption	17mA or less at 24V DC 2 output: 25mA or less at 24V DC		
Port size	01: R(PT)1/8, M5 X 0.8 T1: NPTF1/8, M5 X 0.8 00: ZM ejector mounted style		
Operating temperature range	0 to 60°C (No condensation)		
Lead wire	Grommet	Grommet oil resistant vinyl cabtire code -14, -15, -55: ø3.4, 0.2 mm ² - 16, -17, -18, -19: ø3.5, 0.14 mm ²	
	Plug connector	Heat resistant electrical wire ø1.55, 0.31 mm ²	

*There is no influence on switch even if 0.5MPa of vacuum pressure is supplied instantly to the switch in vacuum use.

Output Specifications

Model	-14	-15	-16	-17	-18	-19	-55
Output method	NPN Open Collector 30V, 80mA						PNP Open Collector ≤ 80mA
Hysteresis	1 to 10% of set press. (Variable)	3% F.S. or less (Fixed)		1 to 10% of set prss. (Variable)		1-10% of set press.	
Analog output	None				1 to 5V		None
Number of outputs	1		2		1		
Indicator light	ON: when output is ON (Red)		ON: when output is ON(OUT1: Red, OUT2: Green)		ON: when output is ON (Red)		
Trimmer adjustment	3 revolutions	200	3 revolutions	200	3 revolutions	200	

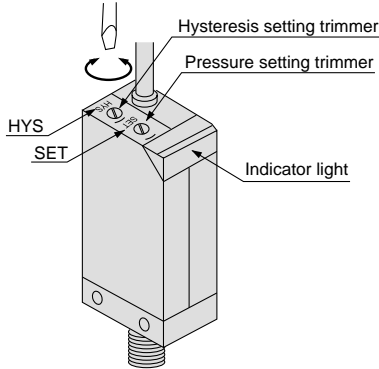
ZSE1/ISE1

How to Set Pressure

● Rotate SET potentiometer (trimmer) clockwise to increase (high vacuum pressure) the ON point. Do not apply excessive force when adjusting the trimmer with a screwdriver.

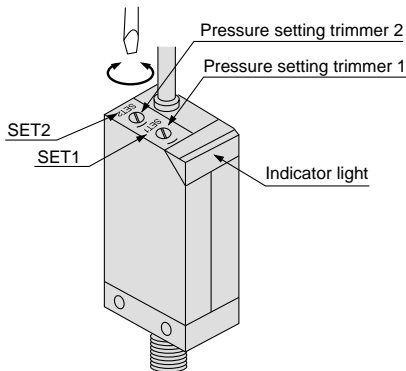
1/2 SE1-□□-14, -15, -18, -19

- Switches with variable hysteresis can be adjusted by means of the HYS potentiometer in the range 1 to 10% of the ON set point.
- Adjust ON setting, adjust hysteresis, and then re-adjust ON setting for best results.

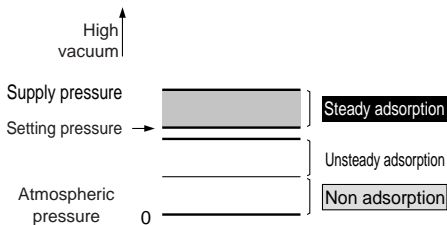


1/2 SE1-□□-16, -17

● For switch type "-16" or "-17", rotating SET1 will adjust ON setting for OUT1 (Black lead wire, Red LED) and SET2 will adjust ON setting for OUT2 (White lead wire, Green LED).



● Set the possible min. pressure for adsorption in case of the use for adsorption confirmation. If setting the pressure lower than that, switch becomes ON in case that adsorption is not completely done. If setting the pressure higher than that, switch does not become ON though absorbing workpieces in good matter.



● Regarding the pressure setting

⚠ Caution

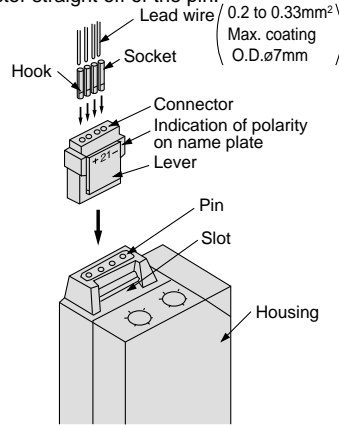
Observe the following precautions for setting the vacuum pressure: Use your fingertips to gently turn the screwdriver. Do not use a screwdriver with a large grip or with a tip that does not fit into the trimmer groove.

How to Use Connector

① Connection

● When assembling the connector to the switch housing, push the connector straight onto the pins until the lever locks into the housing slot.

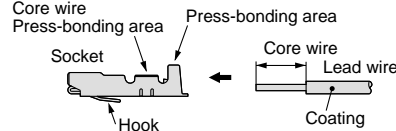
● When removing the connector from the switch housing, push the lever down to unlock it from the slot and then withdraw the connector straight off of the pin.



② Press bonding socket to lead wire.

Strip the end of the lead wire 3.2 to 3.7mm long. Put wire into socket taking care to prevent the lead wire insulation from entering the core wire pressure bonding area.

Press bond using press-bonding tool (Part No. DXTI70-75-1.)



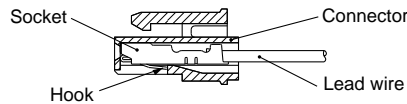
③ Assembly of socket to connector.

● Assembling

Push socket into hole in connector until the hook of the socket locks into the connector. (The socket hook will spring open inside the connector) Gently pull lead wire back to confirm that socket is locked in position.

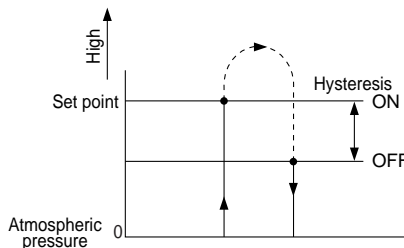
● Disassembling

When disassembling socket from connector, push the hook of the socket down with a small dia. instrument. Pull socket out by means of the lead wire. If the socket is to be re-used, bend hook of the socket out to its original position before re-assembling.



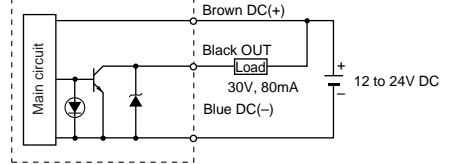
Hysteresis

Hysteresis is the pressure difference between the ON and the OFF pressure of the output signal. The set pressure is the pressure selected to switch from OFF to ON condition.

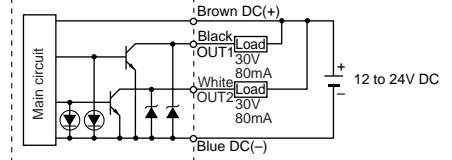


Internal Circuit and Wiring

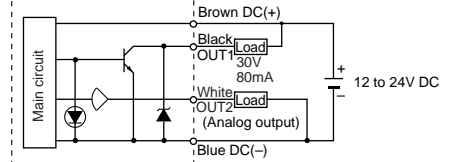
1/2 SE1-□□-14, -15



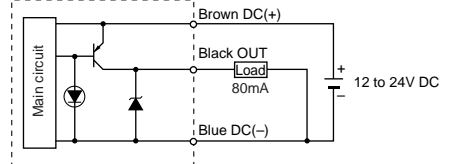
1/2 SE1-□□-16, -17



1/2 SE1-□□-18, -19



1/2 SE1-□□-55

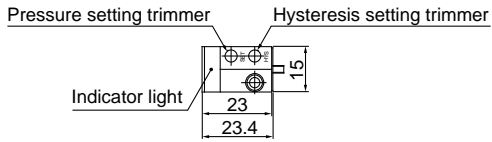


⚠ Caution

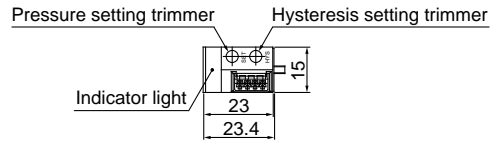
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.3.0-7 to 3.0-9 for precautions on every series.

Dimensions

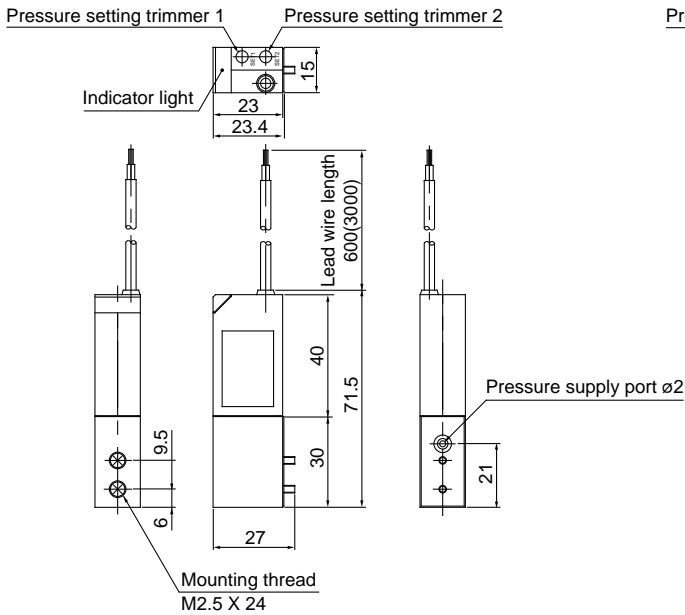
Grommet style
ZSE1-00 -14, -15, -18, -19



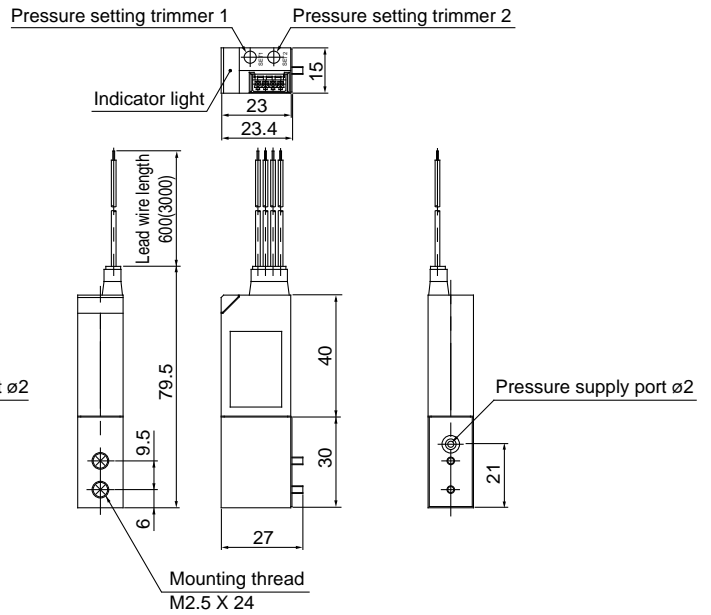
Connector style
ZSE1-00 -14C, -15C, -18C, -19C



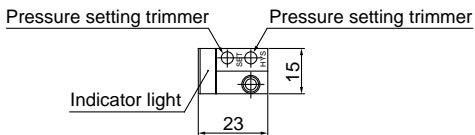
ZSE1-00 -16, -17



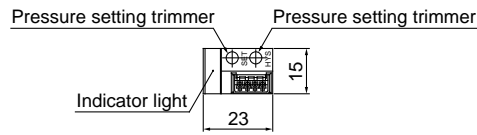
ZSE1-00 -16C, -17C



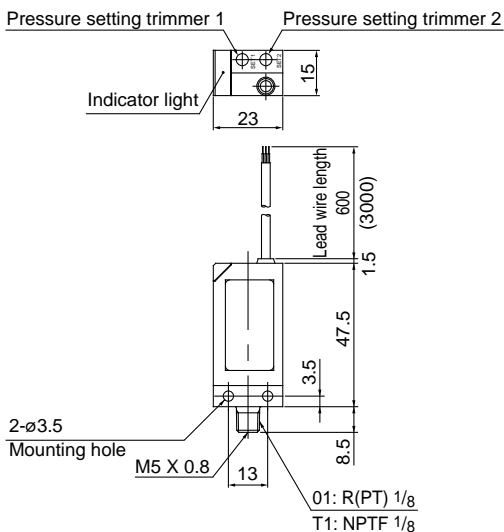
Grommet style
 $\frac{1}{2}$ SE1-⁰¹_{T1}-14, -15, -18, -19



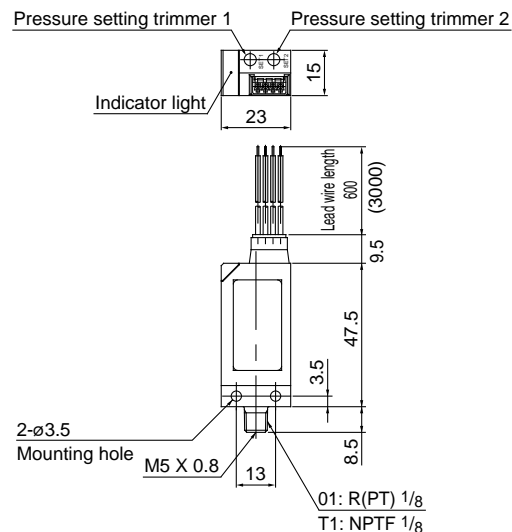
Connector style
 $\frac{1}{2}$ SE1-⁰¹_{T1}-14C, -15C, -18C, -19C



$\frac{1}{2}$ SE1-01 -16, -17



$\frac{1}{2}$ SE1-01 -16C, -17C



PSE

ZSE4
ISE4

ZSE5
ISE5

ZSE6
ISE6

ZSE3
ISE3

GS

PS

ISA

ZSE1
ISE1

ZSE2
ISE2

ZSP

IS□

ZSM

PF□

IF□