

# General Purpose Pressure Switch

## ISG Series



### Model/Specifications

ISG General Purpose Switch is widely used in machine tools, industrial machines, compressors, chemical plants, power plants, and for automatic pressure control such as hydraulic, water, liquid and atmospheric pressure.



Open type      Open and hysteresis scale plate type



Dripproof

Model		Operating pressure range (MPa)	Hysteresis adjusting range (MPa)	Proof pressure (MPa)	Repeatability (MPa)	Body material in contact with fluid material	Hysteresis scale plate	Electrical entry
Open type (Non-waterproof)	Dripproof							
ISG110-030	ISG210-030	0.02 to 0.3	0.015 to 0.2	1.0	±0.006	Brass, Phosphor bronze	None	(Open type) Grommet
ISG110-031	ISG210-031					Brass, Phosphor bronze	Yes	
ISG111-030	ISG211-030					Stainless steel 316	None	
ISG111-031	ISG211-031					Stainless steel 316	Yes	
ISG120-030	ISG220-030	0.05 to 0.7	0.02 to 0.35	1.5	±0.014	Brass, Phosphor bronze	None	(Dripproof) Capcone ø11 to 13
ISG120-031	ISG220-031					Brass, Phosphor bronze	Yes	
ISG121-030	ISG221-030					Stainless steel 316	None	
ISG121-031	ISG221-031					Stainless steel 316	Yes	
ISG130-030	ISG230-030	0.1 to 1.0	0.03 to 0.4	1.5	±0.02	Brass, Phosphor bronze	None	(Dripproof) Capcone ø11 to 13
ISG130-031	ISG230-031					Brass, Phosphor bronze	Yes	
ISG131-030	ISG231-030					Stainless steel 316	None	
ISG131-031	ISG231-031					Stainless steel 316	Yes	
ISG190-030	ISG290-030	-10 to -100 kPa	7 to 53 kPa	0.5	±2 kPa	Brass, Phosphor bronze	None	
ISG191-030	ISG291-030					Stainless steel 316	None	

Ambient and fluid temp.: 5 to 80°C (No freezing), Contacts: 1a1b, 2ab (Option), Port size: 3/8, Weight: 1.2 kg (Open type), 1.3 kg (Dripproof)

### Fluid

Type of operating fluid is limited by the material of wetted parts. Select the model taking into consideration the material suitable for the operating fluid.

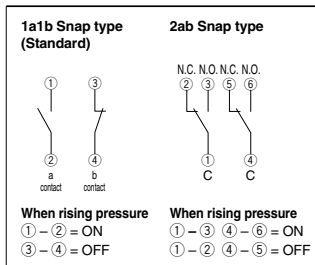
Fluid	Body material in contact with fluid material	
	Bellows	Fluid entering part
Non corrosive water/Air/Liquid/Inert gas	Phosphor bronze	Brass
Fluids which do not corrode stainless steel 316 e.g. steam (150°C or less) *	Stainless steel 316	Stainless steel 316

\* Ambient temperature: 80°C or less.

### Symbol



### Contacts



### Rated Voltage

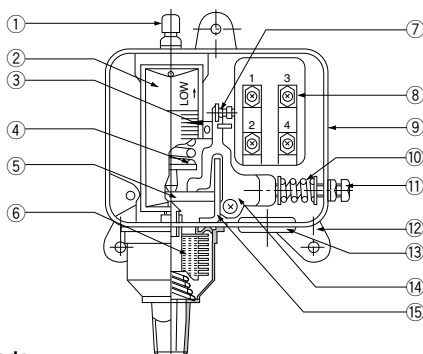
Note) Rated voltage	Non inductive (A)		Inductive load (A)	
	Load resistance	Light load	Inductive load	Motor load
110 VAC	12	2	12	3
220 VAC	10	1	10	1.5
440 VAC	6	1	3	1
24 VDC	3	2.5	3	2.5
48 VDC	1.5	1.2	1.5	1.25
110 VDC	0.5	0.25	0.5	0.2
220 VDC	0.25	0.1	0.25	0.1

Insulation resistance: 100 MΩ or more at 500 VDC by megameter

Voltage resistance: 2000 VAC/1 min.

Note) CE-compliant: 220 VAC, 110 VDC or less

## Construction



## Component Parts

No.	Description
1	Setting pressure adjusting bolt
2	Scale plate
3	Pointer
4	Setting pressure adjusting spring
5	Main lever
6	Bellows assembly
7	Adjusting bolt
8	Snap switch (1a + 1b type)

No.	Description
9	Body
10	Hysteresis adjusting spring
11	Hysteresis adjusting bolt
12	Bracket
13	Grommet
14	Connection lever for switch operation
15	Stopper for operation lever



[Option]

## How to Order

<b>ISG</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>-</b>	<b>03</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>
	1	2	3		4	5	6	7	

\* Select one by one, item for item.  
 \* For semi-standard, indicate symbols numerically, then alphabetically.  
 Ex.) ISG110-030-PW

	Symbol	Contents
1	Enclosure	1 Open type (Equivalent to IP40) 2 Dripproof (Equivalent to IP44)
	+	
2	Operating pressure range	1 0.02 to 0.3 MPa 2 0.05 to 0.7 MPa 3 0.1 to 1.0 MPa 9 -10 to -100 kPa
	+	
	3	Body material in contact with fluid material 0 Brass/phosphor bronze 1 Stainless steel 316
	+	
4	Port size	03 R 3/8 N03 NPT 3/8
	+	
5	Hysteresis scale plate	0 None 1 Hysteresis scale plate
	+	
6	a	Contacts Nil 1a1b W 2ab
		+
	b	Scale-plate pressure unit Nil MPa P Both MPa and psi
		+
7	CE-compliant Note 2)	Nil Noncompliant Q Compliant

Note 1) Not available for ISG19□, 29□

Note 2) Not available for CE-compliant products. CE-compliant products conform to 220 VAC or less, 110 VDC or less.

## Other

### Caution

1. Bellows assembly is available for maintenance. When replacing other parts, please contact SMC, since it cannot be repaired by user. Order Bellows assembly with the part number as follows:  
 Bellows assembly for ISG□□□-□□□  
 (No other part numbers exist.)  
 Ex.) Bellows assembly for ISG 110-030

## Operating Environment

1. Never use in an environment, where flammable fluids or gases are used. Since this product is not explosion-proof and may trigger an explosive disaster.

## Precautions

Be sure to read this before handling the products.  
 Refer to back page 50 for Safety Instructions and pages 11 and 12 for Pressure Switch Precautions.

## Selection

### Caution

1. Select the model taking into consideration the material suitable for the operating fluid. Type of operating fluid is limited by the material of wetted parts. Please contact SMC for materials not specified.

## Wiring

### Warning

1. Do not have the internal wiring attached to the connection lever for switch operation. It may malfunction.

### Caution

1. The grommet size of open type switch is ø17. It is possible to connect the electric piping 1/2B without grommet.  
 2. Terminal thread type is M4.

## Mounting/Piping

### Caution

1. Mounting is possible in either horizontal or vertical orientations.

## Pressure Source

### Warning

1. In the case of using switch in any liquid, install a water hammer or surge reducer to prevent the damage to switch caused by surges or pulsation pressure.

## Pressure Setting

### Caution

1. Set the pressure by adjusting the setting pressure adjusting bolt to the right to increase and to the left to decrease.
2. Adjust the hysteresis with hysteresis adjusting bolt. In case of switch with scale plate, adjust the hysteresis with a flat head screwdriver tightening the adjusting bolt in the thread cap. Turn to the right to increase and to the left to decrease.
3. Hysteresis must be within the specified range in this catalog, operation may be unstable when activated out of the specified range.
4. Scale plate is only for reference. Use the gauge to get the correct pressure value.
5. Set pressure scale at the value of the pressure increase.

ZSE20  
ISE20

ZSE30  
ISE30

ZSE40  
ISE40

ZSE10  
ISE10

ISE70

ZSE80  
ISE80

PS

ISA3

ISA2

ISE35

PSE

IS

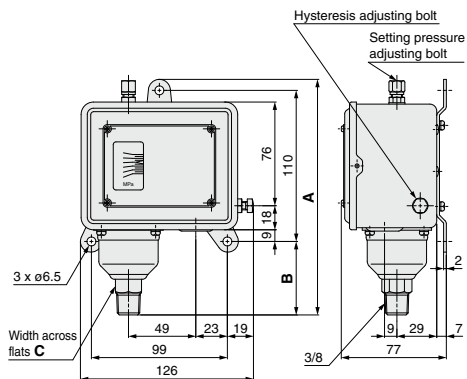
ISG

ZSM1

## Dimensions

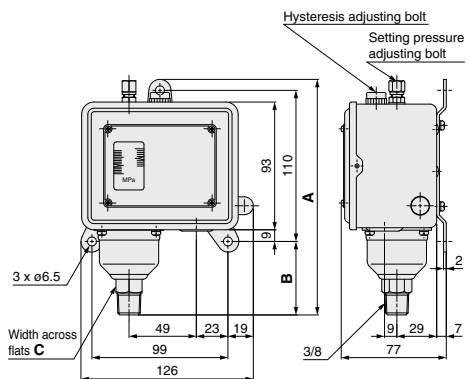
### Open type

**ISG110 to 191-030 (Without hysteresis scale plate)**



Part no.	A	B	C
<b>ISG110-030(-W)</b>	172	54	19
<b>ISG1□0 to 1□0-030(-W)</b>	169	51	19
<b>ISG1□1 to 1□1-030(-W)</b>	177	59	23

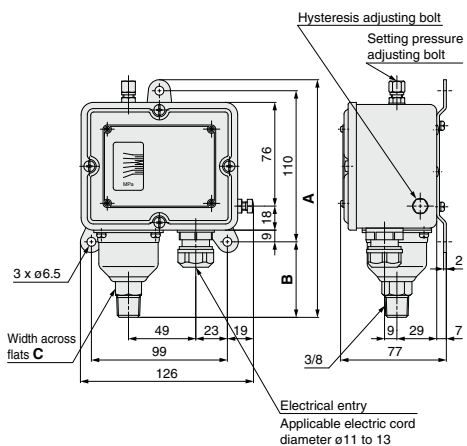
**ISG110 to 131-031 (With hysteresis scale plate)**



<b>Dimensions</b>				(mm)
Part no.	(A)	(B)	C	
<b>ISG110 to 130-031(-W)</b>	172	54	19	
<b>ISG111 to 131-031(-W)</b>	177	59	23	

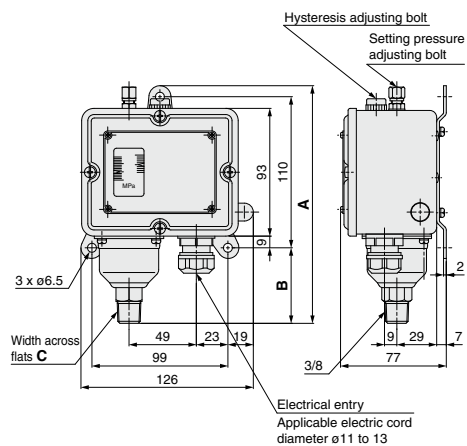
### Dripproof type

**ISG210 to 291-030 (Without hysteresis scale plate)**



Dimensions		(mm)		
Part no.	A	B	C	
ISG2□0 to 2□0-030(-W)	173	55	19	
ISG2□1 to 2□1-030(-W)	178	60	23	

**ISG210 to 231-031 (With hysteresis scale plate)**



<b>Dimensions</b> (mm)			
Part no.	(A)	(B)	C
<b>ISG210 to 230-031(-W)</b>	173	55	19
<b>ISG211 to 231-031(-W)</b>	178	60	23

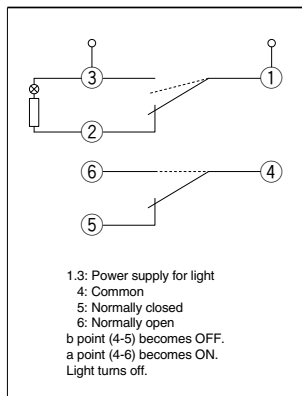
# Related Products:

## Pressure Switch with Indicator Light

Easy operation by indicating the operating status with a light.



### Contacts



### Spare Parts

"Bellows assembly" and "Light/Top cover assembly" are available for maintenance. Order them following the example below: (Component parts' number are not existed.)

Ex.) 1S2761 - Bellows assembly for 103L1  
1S2761 - Light and top cover assembly for 103L1

When replacing other parts, please contact SMC for repair, since it cannot be repaired by user.



### Precautions

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 11 and 12 for Pressure Switch Precautions.  
Refer to page 173 for Precautions.

### Specifications

Operating pressure range	0.1 to 1.0 MPa
Hysteresis adjusting range	0.03 to 0.4 MPa
Proof pressure	1.5 MPa
Repeatability	±0.02 MPa
Contacts	1ab (Light 1b)
Port size	3/8
Ambient and fluid temperature	-5 to 80°C (No freezing)
Enclosure	Open type (Equivalent to IP40)
Electrical entry	Grommet
Weight	1.3 kg

### Fluid

Type of operating fluid is limited by the material of wetted parts. Select the model taking into consideration the material suitable for the operating fluid.

Fluid	Body material in contact with fluid material	
	Bellows	Fluid entering part
Non-corrosive water/Air/Liquid/Inert gas	Photophor bronze	Brass
Fluids which do not corrode stainless steel 316	Stainless steel 316	Stainless steel 316

### Snap Switch Rated Voltage

Rated voltage	Non inductive (A)		Inductive load (A)	
	Load resistance	Light load	Inductive load	Motor load
110 VAC	12	2	12	3
220 VAC	10	1	10	1.5
440 VAC	6	1	3	1
24 VDC	3	2.5	3	2.5
48 VDC	1.5	1.2	1.5	1.25
110 VDC	0.5	0.25	0.5	0.2
220 VDC	0.25	0.1	0.25	0.1

Insulation resistance: 100 MΩ or more at 500 VDC by megameter  
Voltage resistance: 2000 VAC/1 min.

### How to Order

IS2761-103L1- 

1                      2                      3                      4

• Select one by one, item for item.

		Symbol	Contents
①	Body material in contact with fluid material	Nil	Brass/phosphor bronze
		1	Stainless steel 316
		+	
②	Port size	03	R 3/8
		N03	NPT 3/8
		+	
③	Indicator light power supply	L1	110 VAC
		L2	220 VAC
		L9	24 VDC
		+	
④ Option	Scale-plate pressure unit	Nil	MPa
		P <small>Note 1)</small>	Both MPa and psi

Note 1) Not available for hysteresis scale plate type.

ZSE20  
ISE20

ZSE30  
ISE30

ZSE40  
ISE40

ZSE10  
ISE10

ISE70

ISE80  
ISE80

PS

ISA3

ISA2

ISE35

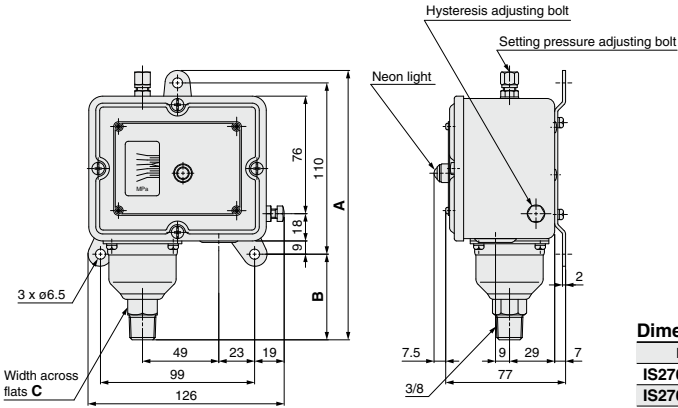
PSE

IS

ISG

ZSM1

Dimensions



Dimensions (mm)			
Part no.	A	B	C
IS2761-103L□	173	55	19
IS2761-1103L□	178	60	23

# General Purpose Pressure Switch

## ISG Series

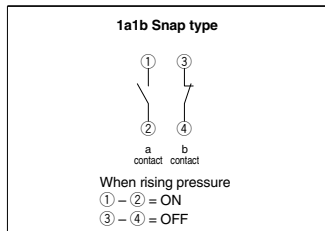


### Model/Specifications

Model	Operating pressure range (MPa)	Hysteresis adjusting range (MPa)	Proof pressure (MPa)	Repeatability (MPa)	Body material in contact with fluid material	Hysteresis scale plate
30-ISG210-030	0.02 to 0.3	0.015 to 0.2	1.0	±0.006	Brass, Phosphor bronze	None
30-ISG210-031					Brass, Phosphor bronze	Yes
30-ISG211-030					Stainless steel 316	None
30-ISG211-031					Stainless steel 316	Yes
30-ISG220-030	0.05 to 0.7	0.02 to 0.35	1.5	±0.014	Brass, Phosphor bronze	None
30-ISG220-031		0.02 to 0.45			Brass, Phosphor bronze	Yes
30-ISG221-030		0.02 to 0.35			Stainless steel 316	None
30-ISG221-031		0.02 to 0.45			Stainless steel 316	Yes
30-ISG230-030	0.1 to 1.0	0.03 to 0.4	1.5	±0.02	Brass, Phosphor bronze	None
30-ISG230-031		0.03 to 0.6			Brass, Phosphor bronze	Yes
30-ISG231-030		0.03 to 0.4			Stainless steel 316	None
30-ISG231-031		0.03 to 0.6			Stainless steel 316	Yes
30-ISG290-030	-10 to -100 kPa	7 to 53 kPa	0.5	±2 kPa	Brass, Phosphor bronze	None
30-ISG291-030					Stainless steel 316	None

Ambient and fluid temp.: 0 to 40°C, Contacts: 1a1b, Port size: 3/8, Weight: 1.3 kg  
Lead wire connection: G1/2

### Contacts



### Rated Voltage

Rated voltage	Non inductive (A)		Inductive load (A)	
	Load resistance	Light load	Inductive load	Motor load
110 VAC	12	2	12	3
220 VAC	10	1	10	1.5
24 VDC	3	2.5	3	2.5
48 VDC	1.5	1.2	1.5	1.25
110 VDC	0.5	0.25	0.5	0.2
220 VDC	0.25	0.1	0.25	0.1

Insulation resistance: 100 MΩ or more at 500 VDC by megameter  
Voltage resistance: 2000 VAC/1 min.

### How to Order

**30-ISG** 2 1 0 - 03 0

①    ②    ③    ④    ⑤

\* Select one by one, item for item.

For dimensions, refer to the standard model. (Lead wire connection is different.)

	Symbol	Contents
①	Enclosure	2 Dripproof (Equivalent to IP44)
②	Operating pressure range	+ 1 0.02 to 0.3 MPa
		2 0.05 to 0.7 MPa
		3 0.1 to 1.0 MPa
		9 -10 to -100 kPa
③	Body material in contact with fluid material	0 Brass/phosphor bronze
		1 Stainless steel 316
④	Port size	03 R 3/8
⑤	Hysteresis scale plate	0 None
		1 (Note) Hysteresis scale plate

(Note) Not available for ISG19□, 29□

ZSE20  
ISE20  
ZSE30  
ISE30  
ZSE40  
ISE40  
ZSE10  
ISE10  
ISE70  
ZSE80  
ISE80  
PS  
ISA3  
ISA2  
ISE35  
PSE  
IS  
ISG  
ZSM1