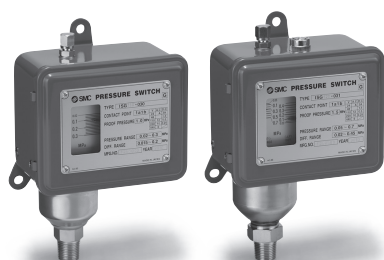


General Purpose Pressure Switch

ISG Series



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.

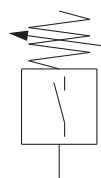


Open type Open and hysteresis scale plate type



Dripproof

Symbol



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	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)
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	Grommet
ISG120-031	ISG220-031		0.02 to 0.45			Brass, Phosphor bronze	Yes	
ISG121-030	ISG221-030		0.02 to 0.35			Stainless steel 316	None	
ISG121-031	ISG221-031		0.02 to 0.45			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	Capcone Ø 11 to 13
ISG130-031	ISG230-031		0.03 to 0.6			Brass, Phosphor bronze	Yes	
ISG131-030	ISG231-030		0.03 to 0.4			Stainless steel 316	None	
ISG131-031	ISG231-031		0.03 to 0.6			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

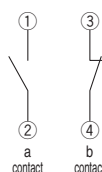
Type of operating fluid is limited by the material of wetted parts. Select the model taking into consideration the material suitable for the operating fluid.

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.

Contacts

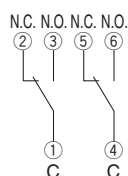
1a1b Snap type (Standard)



When rising pressure

① - ② = ON
③ - ④ = OFF

2ab Snap type



When rising pressure

① - ③ ④ - ⑥ = ON
① - ② ④ - ⑤ = OFF

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

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

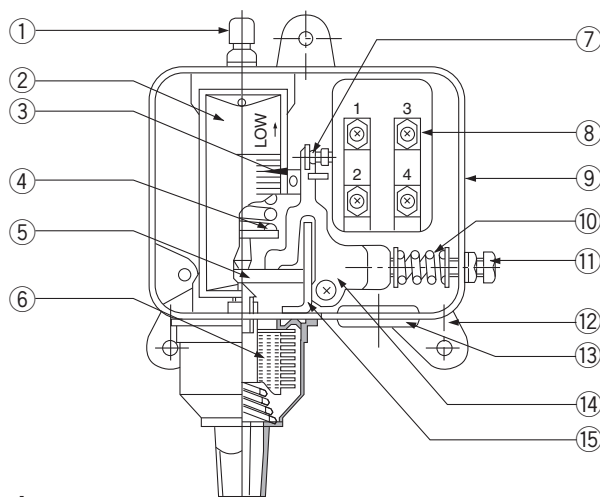
Voltage resistance: 2000 VAC/1 min.

ISG Series



EMC-ISG-01A-UK

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

How to Order

ISG **1** **1** **0** - **03** **0** - Q

1
2
3
4
5

• 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 Note 1)	Hysteresis scale plate

Note 1) Not available for ISG19□, 29□

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 for Safety Instructions.

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 Ø 17. 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

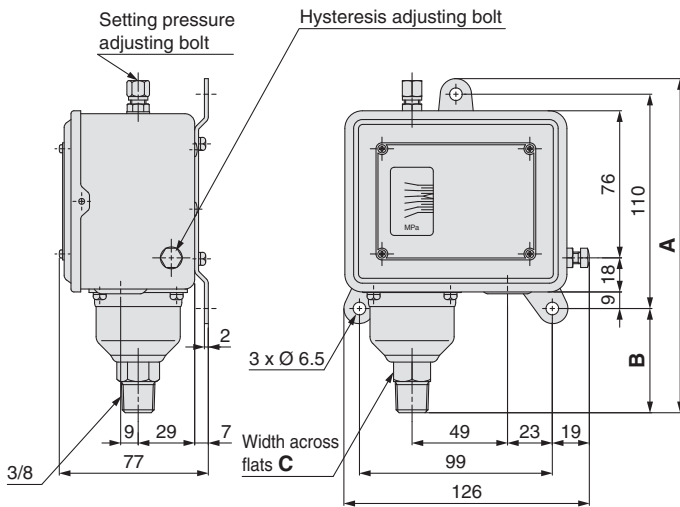
⚠ Caution

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 catalogue, 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.

Dimensions

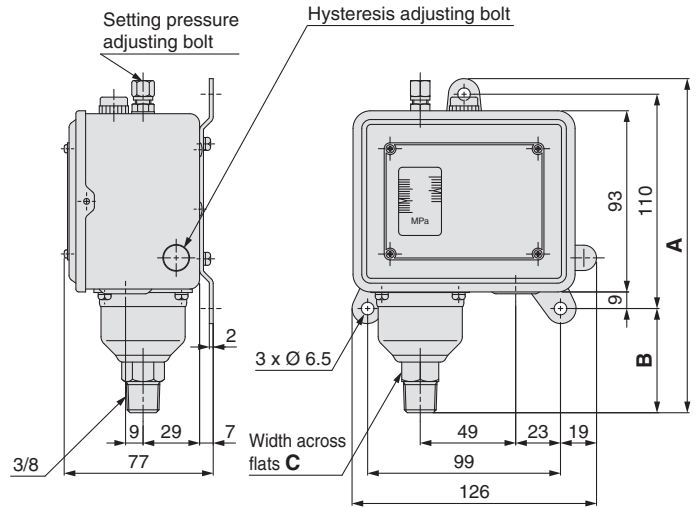
Open type

ISG110 to 191-030 (Without hysteresis scale plate)



Dimensions [mm]			
Part no.	A	B	C
ISG110-030(-W)	172	54	19
ISG1□0 to 1□0-030(-W)	169	51	19
ISG1□1 to 1□1-030(-W)	177	59	23

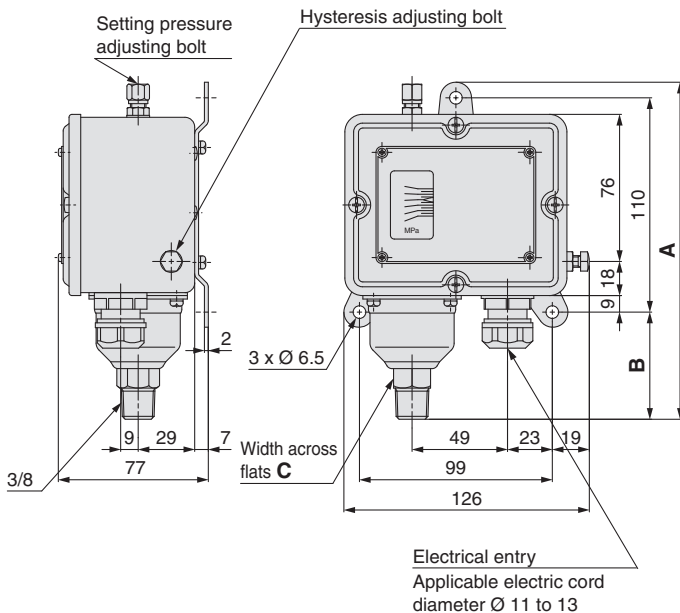
ISG110 to 131-031 (With hysteresis scale plate)



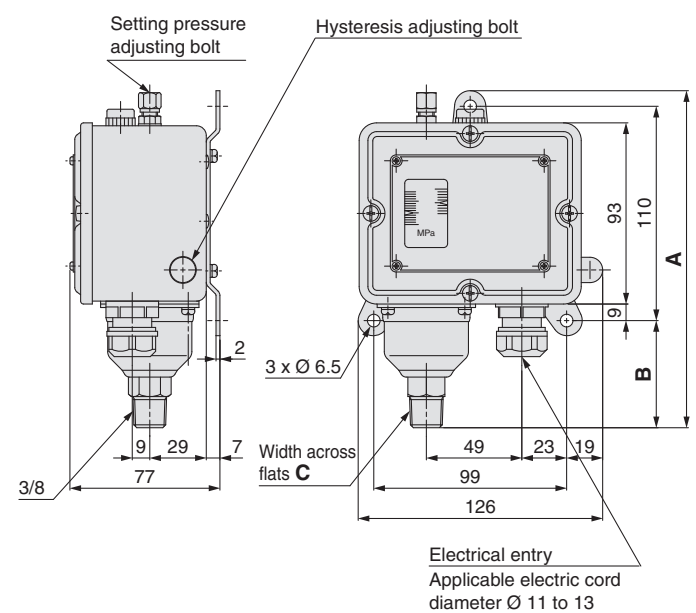
Dimensions [mm]			
Part no.	(A)	(B)	C
ISG110 to 130-031(-W)	172	54	19
ISG111 to 131-031(-W)	177	59	23

Dripproof type

ISG210 to 231-031 (With 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



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

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.

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.

- 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.
etc.

Warning

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 catalogue 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.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

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 catalogue.
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.

Caution

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.

Limited warranty and Disclaimer/Compliance Requirements

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 catalogue for the particular products.
- 2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

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.

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.

Safety Instructions

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

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