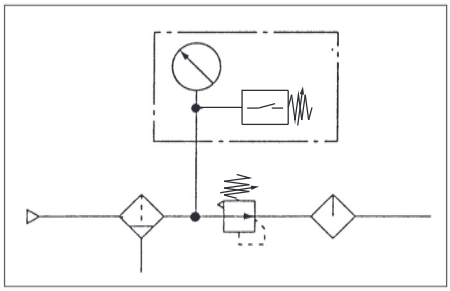
Pressure Gauge with Switch

GP46 Series

- **A pressure switch function has been added to the gauge.**
- **The pressure switch is equipped with a light for verifying operation.**
- **The pressure gauge is equipped with a limit indicator.**
- **To be used for verifying the supply pressure.**

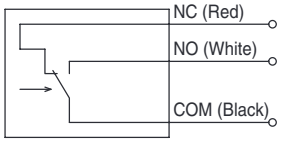
Circuit Example



- Be sure to read the precautions for selection and mounting.

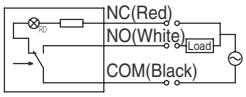
Circuit Diagram

Without indicator light



With indicator light

110, 220 VAC



24 VDC

The arrow in the diagram indicates the direction of the pressure increase. The light turns OFF when the pressure becomes higher than the set pressure and turns ON when the pressure becomes lower than the set pressure.

Standard Specifications

Model			GP46
Gauge	Type		Back side thread
	Ambient and fluid temperature		-5 to 60 °C (No freezing)
	Indicated pressure rang		0 to 1.0 MPa
	Port size (1)		R 1/8, R 1/4 (Option M: with M5 female thread)
	Fluid (2) (6)		Air
	Indication precision (7)		±0.03 MPa
Pressure switch	Setting range (3) (4)		0.1 to 0.8 MPa
	Hysteresis		0.07 MPa
	Pointer error (5)		±0.05 MPa (5 to 40 °C) ±0.08 MPa (-5 to 60 °C) No freezing
	Contact		With light: 1a (Normally open) Without light: 1ab (Normally open/ Normally closed)
	Wiring		Lead wire (Length: 300 mm)
	Indicator light	AC	Neon light
		DC	Light emitting diode (LED)
	Clear cover		Part no.: G46-00-00-3
	Attachment:	C	Part no.: 1305104-4A
	With cover ring assembly	C_2	Part no.: 1305104-10A
	Weight [kg]		0.12

Note 1) When mounting a pressure gauge, use caution not to tighten excessively. Excessive tightening will cause product to be damaged. Use a pipe tape for sealing.

Note 2) Water is not an acceptable fluid. When using the other fluids, please consult with SMC for compatibility information concerning corrosion.

Note 3) Set value of pressure switch is indicated by pointer (green). It is the point where the circuit between N.O. (white) and COM (black) is turned off during pressure decrease. To set the value, turn needle in clockwise position to the correct value. When setting; if desired set position has been passed, turn needle in a counterclockwise direction back again beyond the desired value and then once again return needle in a clockwise direction stopping at the desired value. Value must be set while needle is traveling in a clockwise direction.

Note 4) Make sure to provide a minimum difference of 0.1 MPa between the set pressure and the operating pressure (including the pressure drop). If the difference is smaller, it could lead to improper operation. Refer to page 890 for details on how to set the setting needle. Use caution: Operating pressure should be the sum of the pressure of the setting needle error (±0.03 MPa), the hysteresis (0.07 MPa), and the display accuracy (±0.05 MPa) on the set pressure value, or the circuit between N.O. (white) and COM (black) may not turn ON while pressure is increasing.

Note 5) Maximum error value: Add the pressure gauge indicator error of 0.03 MPa to the setting needle error.

Note 6) Avoid freezing as this may cause a malfunction.

Note 7) The guaranteed temperature range is 23 °C ±5 °C.

Model (Standard)

Model	Pressure range (1) MPa	Indication unit	Connection thread	Note
GP46-10-01 to 02 (-Q)	0 to 1.0	MPa	R1/8 R1/4	—
GP46-10-01 to 02L2				
GP46-10-01 to 02L5 (-Q)				

Note 1) Do not apply pressure more than the maximum display pressure. This will cause a malfunction.

Model (Made to Order)

Other versions of this unit can be made on a Made-to-Order basis. Please consult with SMC for details, as delivery times may be extended.

Model	Pressure range (1) MPa	Pressure range (1) psi	Indication unit	Connection thread	Note
GP46-10-01 to 02-X201	0 to 1.0	—	MPa	R 1/8 R 1/4	Lead wire length 3 m
GP46-10-01 to 02L2-X201					
GP46-10-01 to 02L5-X201					
GP46-P10-01 to 02-X30	0 to 1.0	0 to 140	MPa, psi		—
GP46-P10-01 to 02L5-X30					

Note 1) Do not apply pressure more than the maximum display pressure. This will cause a malfunction.

Micro-switch Rated Voltage

Load	Load resistant		
Rated voltage	30 VDC	125 VAC	250 VAC
Operating current range	0.01 to 0.5 A	0.01 to 0.3 A	0.01 to 0.2 A

EMC-GP46-01A-UK

How to Order

GP 46 – 10 – 01 ❑ ❑ – ❑ – ❑

❶ ❷ ❸ ❹ ❺ ❻

Pressure gauge with switch

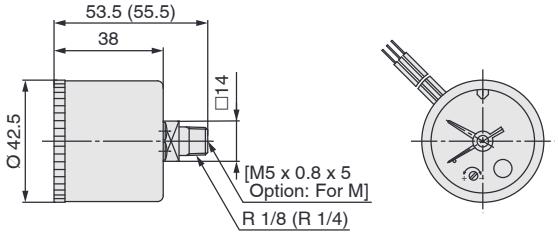
		Symbol	Description	GP46
		+		
❶	Max. display pressure	**10**	1.0 MPa	●
		P10 (1)	1.0 MPa, 150 psi	○
		+		
❷	Connection thread	**01**	R1/8	●
		02	R1/4	●
		+		
❸	Option	**—**	—	●
		M (2)	With M5 (Female thread)	●
		+		
❹	Suffix for indicator light Note 3)	**—**	Without indicator light	●
		L2	Neon light (100 VAC/220 VAC)	●
		L5	LED/24 VDC	●
		+		
❺	Attachment Note 4)	**—**	Without cover ring assembly	●
		C	Clear cover has no protrusion. (Clear cover is irremovable.)	●
		C2	Clear cover has protrusion. (Clear cover is removable.) The wrench flats protrude.	●
		+		
❻	Special specification	**—**	—	●
		X30	Both MPa and psi	○
		X201	Lead wire length 3 m	●
		Q (5)	Compliant with CE/UKCA marking	●

Note 1) This symbol must be used with Special specification "X30."
Note 2) To use the pressure gauge with M5 (female thread), attach the joint when piping the tube. For combinations with the special specification products, please consult SMC separately.
Note 3) Please consult with SMC for X30. 220 VAC is not available for -Q.
Note 4) For pressure gauges with the cover ring assembly, it is recommended to select the option M so as to perform the piping.
Note 5) The rated micro switch for CE/UKCA marked products is under the following conditions.

Load	Load resistant	
Rated voltage	30 VDC	125 VAC
Operating current range	0.01 to 0.5 A	0.01 to 0.3 A

Dimensions (-Q: With ground terminal on back side) ∗ The dimensions in ( ): Connection thread R 1/4

GP46-10-01 to 02 (M) (L2,5)

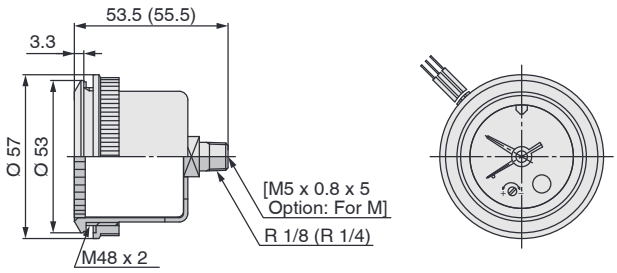


∗ The dimensions in ( ): Connection thread R 1/4

With cover ring assembly (For panel mount)

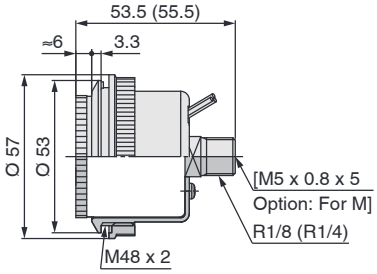
GP46-10-01 to 02 (M) (L2,5)-C

Type C (Clear cover is not removable.)

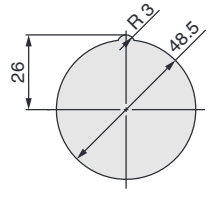


GP46-10-01 to 02 (M) (L2,5)-C2

Type C2 (Clear cover is removable. The wrench flats protrude.)



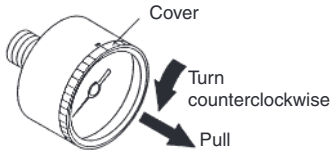
Panel fitting dimensions
Plate thickness Max. 3.5 t



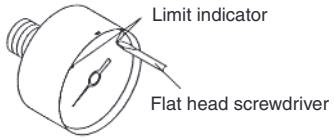
Procedures for Setting and Assembling

Procedure for Setting the Limit Gauge Indicator

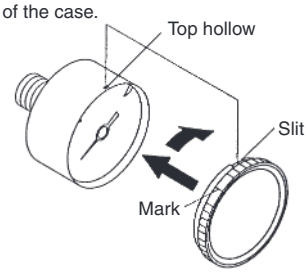
(1) Before setting the (green) limit indicator, turn the cover counterclockwise (approximately 6 to 7 mm) until it stops. Then, remove by pulling it towards you.



(2) Use a flat head screwdriver (with a 2.9 mm blade width) to set the (green) limit indicator. Be careful not to bend the other needle or damage the dial plate.

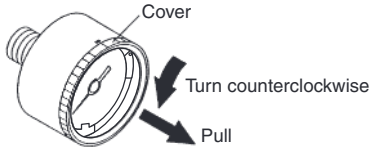


(3) After completing the setting, replace the cover.
Fit the cover by aligning the cutout in the cover to the groove on the top of the black case. Turn the cover clockwise (approximately 6 to 7 mm) until it stops. Make sure that the matching mark on the cover is aligned with the groove on the top of the case.

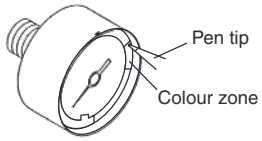


Procedure for Setting the Limit Gauge Indicator (Colour Zone Type)

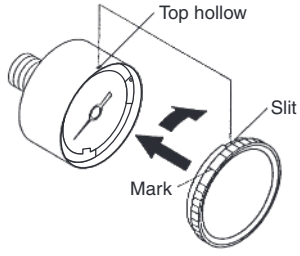
(1) Before setting the colour zone (red), turn the cover counterclockwise (approximately 6 to 7 mm) until it stops. Then remove by pulling it towards you.



(2) Use a pen tip to set the colour zone (red). Be careful not to bend the other needle or damage the dial plate.

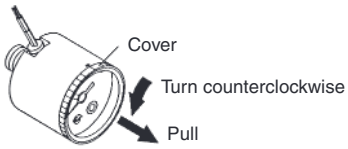


(3) After completing the setting, replace the cover.
Fit the cover by aligning the cutout in the cover to the groove on the top of the black case. Turn the cover clockwise (approximately 6 to 7 mm) until it stops. Make sure that the matching mark on the cover is aligned with the groove on the top of the case.

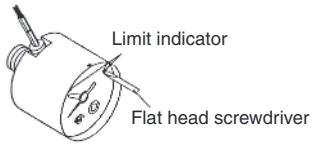


Procedure for Setting the Limit Gauge Indicator and the Setting Needle

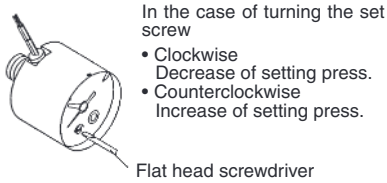
(1) Before setting the limit indicator and the (green) setting needle, turn the cover counterclockwise (approximately 6 to 7 mm) until it stops. Then, remove by pulling it towards you.



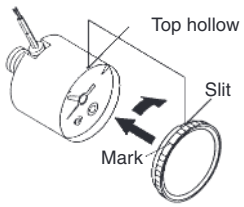
(2) Use a flat head screwdriver (with a 2.9 mm blade width) to set the (green) limit indicator. Be careful not to bend the other needle or damage the dial plate.



(3) Before setting the setting needle, use a flat head screwdriver (with a 2.9 mm blade width) to turn the setting screw and set the setting needle to the set pressure.

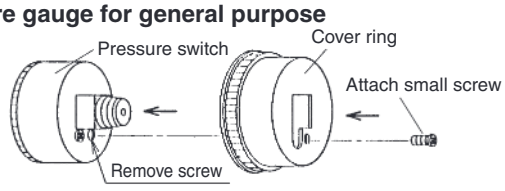


(4) After completing the setting, replace the cover.
Fit the cover by aligning the cutout in the cover to the groove on the top of the black case. Turn the cover clockwise (approximately 6 to 7 mm) until it stops. Make sure that the matching mark on the cover is aligned with the groove on the top of the case.

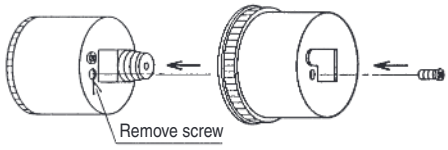


Procedure for Assembling the Cover Ring Assembly

● Pressure gauge for general purpose



● Pressure gauge with switch



1. Remove the small screw (1 position) from the pressure gauge.
2. Place the cover ring on the pressure gauge.
3. Using the small screw that is provided with the cover ring, install the cover ring. The installation torque is 0.3 to 0.5 N·m.

Pressure Gauge Guide
Specific Product Precautions

Be sure to read this before handling the products.

Selection

⚠ Caution

1 . Do not apply high load voltage (current) or surge current as this can cause the switch to malfunction.
2 . Make sure that no direct impact or vibrations are applied to the body.
3 . If operating under pressure pulsations or in high frequency operations, please contact SMC

Selection

⚠ Caution

1. During transport and installation, do not apply shock to the product, such as by dropping doing so will affect its precision.
2 . Regarding the installation posture, place it perpendicular to the ground, with the zero point on the reading of a pressure gauge facing down.
3 . Do not install it in an area that is exposed to high temperature or humidity, because doing so will lead to improper operation.
4 . To screw in the pressure gauge, make sure to turn the gauge by placing a wrench over the square wrench flats.
If the pressure gauge is screwed in by holding it on some other area, air leakage or damage may result.

⚠ 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.

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