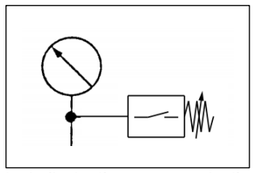
ORIGINAL INSTRUCTIONS

Instruction Manual
GP46
Pressure Gauge with Switch

[option]

Refer to Declaration of Conformity for relevant Directives



The intended use of this product is to indicate the pressure in the pneumatic system.

1 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.

*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.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

⚠ **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.

⚠ Warning

- **Always ensure compliance with relevant safety laws and standards.**
- All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

2 Specifications

Model			GP46
Gauge	Type		Back side thread
	Ambient and fluid temp.		-5 to 60°C (No freezing)
	Indicated pressure range		0-1.0 MPa
	Port size (1)		R1/8, R1/4 (Option M: with M5 female thread)
	Fluid (2) (6)		Air
	Indicated 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 (5-40°C) +-0.08 MPa (-5 to 60°C)
	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: With cover ring assembly		C	Part no: 1305104-4A
		C2	Part no: 1305104-10A
Weight (Kg)			0.12

2 Specification - continued

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). This indicates the position from ON to OFF when the pressure drops in the connection between N.O. (white line) and COM (black line). 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 counter-clockwise 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.

The working pressure should be the pressure that adds the set needle error (0.03MPa), hysteresis (0.07MPa), and display accuracy of the set pressure value (±0.05MPa). If accuracy is not taken into consideration, the connection between N.O. (white) and COM (black) may not turn on when the pressure rises.

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 for accuracy is 23°C ±5°C.

⚠ Warning

Special products might have specifications different from those shown in this section. Contact SMC for specific drawings.

3 Installation

3.1 Installation

⚠ Warning

- Do not install the product unless the safety instructions have been read and understood.
- Do not apply pressure over the max. value of the scale as it will lead to operation failure.
- The maximum frequency of use is 6 times/minute.
  If there is a pulsation of pressure, it will break in a short period of time.

3.2 Selection

⚠ Caution

- Make sure that no direct impact or vibrations are applied to the body.
- Do not apply high load voltage (current) or surge current as this can cause the switch to malfunction.

3.3 Mounting

⚠ Caution

- During transport and installation, do not apply shock to the product, such as by dropping doing so will affect its precision.
- Regarding the installation posture, place it perpendicular to the ground, with the zero point on the reading of a pressure gauge facing down.
- Do not install it in an area that is exposed to high temperature or humidity, because doing so will lead to improper operation.
- 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.

3.4 Environment

⚠ Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not install in an environment of high humidity.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact in excess of the product’s specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of the product’s specifications.

3 Installation - continued

3.5 Piping

⚠ Caution

- Before connecting piping make sure to clean up chips, cutting oil, dust etc.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave *1.5 - 2 threads* exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque below.

Connection thread size	Tightening torque (N・m)
R1/8	7-9
R1/4	12-14

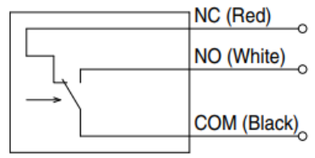
3.6 Lubrication

⚠ Caution

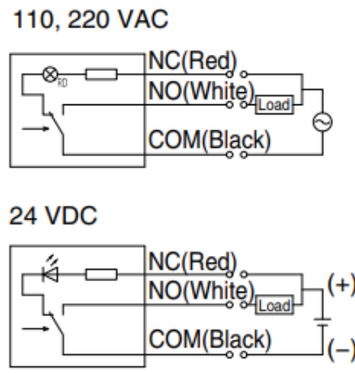
- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to catalogue for details.

3.7 Circuit Diagram

Without indicator light



With indicator light

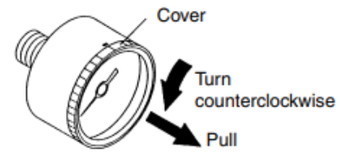


The arrow in the diagram indicates the direction of the pressure increase. The light turns OFF when the pressure becomes higher than the set pressure and turns ON when the pressure becomes lower than the set pressure.

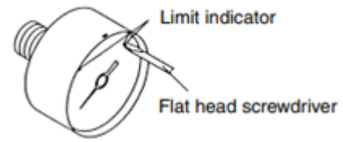
4 Settings

4..1 Procedure for Setting the Limit Gauge Indicator

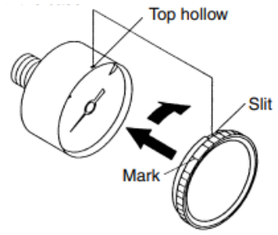
4.1.1. Before setting the (green) limit indicator, turn the cover counter clockwise (approximately 6 to 7 mm) until it stops. Then, remove by pulling it towards you.



4.1.2. 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.

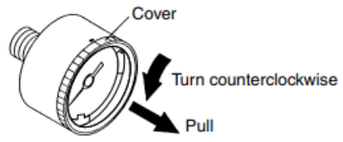


4.1.3. After completing the setting, replace the cover. Fit the cover by aligning the cut out in the cover to the groove on the top of the black case. Turn the cover clockwise (approximately 6 to 7 mm) until it stops. Make sure that the matching mark on the cover is aligned with the groove on the top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

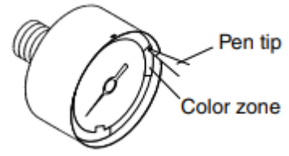


4.2 Procedure for Setting the Limit Gauge Indicator (Color Zone Type)

4.2.1. Before setting the color zone (red), turn the cover counter clockwise (approximately 6 to 7 mm) until it stops. Then remove by pulling it towards you.

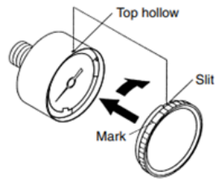


4.2.2. Use a pen tip to set the color zone (red). Be careful not to bend the other needle or damage the dial plate.



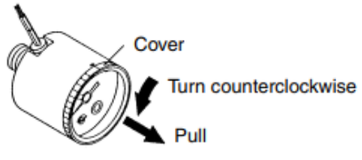
4 Settings – continued

4.2.3. After completing the setting, replace the cover. Fit the cover by aligning the cut out 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.

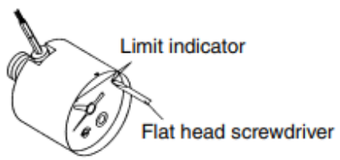


4.3 Procedure for Setting the Limit Gauge Indicator and the Setting Needle

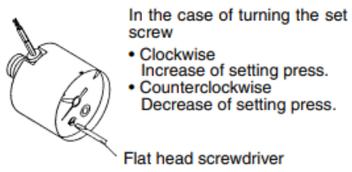
4.3.1. Before setting the limit indicator and the (green) setting needle, turn the cover counterclockwise (approximately 6 to 7 mm) until it stops. Then, remove by pulling it towards you.



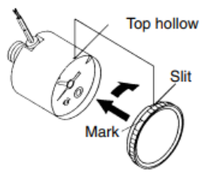
4.3.2. Use a flat head screwdriver (with a 2.9 mm blade width) to set the (green) limit indicator. Be careful not to bend the other needle or damage the dial plate.



4.3.3. 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.



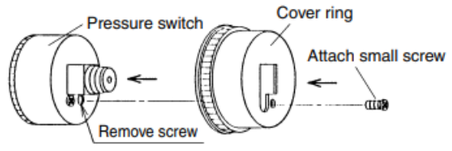
4.3.4. After completing the setting, replace the cover. Fit the cover by aligning the cut out in the cover to the groove on the top of the black case. Turn the cover clockwise (approximately 6 to 7 mm) until it stops. Make sure that the matching mark on the cover is aligned with the groove on the top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



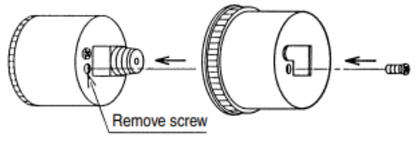
4 Settings – continued

4.4 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 0.6 to 0.7 N・m. However, when reassembling, it shall be 0.5 to 0.6 N・m.

5 How to Order

Refer to drawings or catalogue for 'How to Order'.

6 Outline Dimensions (mm)

Refer to drawings or catalogue for outline dimensions.

7 Maintenance

7.1 General Maintenance

⚠ Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous.
- Maintenance of pneumatic systems should be performed only by qualified personnel.
- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
- After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly, and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

8 Limitations of Use

8.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

9 Product disposal

This product should not be disposed of as municipal waste. Check your local regulations and guidelines to dispose this product correctly, in order to reduce the impact on human health and the environment.

10 Contacts

Refer to www.smcworld.com or www.smc.eu for contacts.

SMC Corporation

URL : http// www.smcworld.com (Global) http// www.smc.eu (Europe)
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