

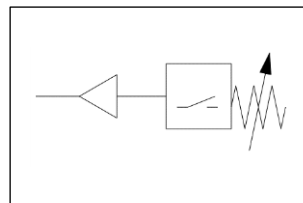


ORIGINAL INSTRUCTIONS



Refer to Declaration of Conformity for relevant Directives

Instruction Manual
Vacuum Switch
Series ZSM1 – 115/121



The intended use of vacuum switch is to control the source pressure of the vacuum line and the pressure of each line by electric signals.

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^{*)}, and other safety regulations.
^{*)} 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

2.1 Specifications

Model	ZSM1-115	ZSM1-121
Switch specifications	Solid State	Contact (reed switch)
Fluid	Air/Inert Gas	
Max. operating pressure	0.5 MPa	
Regulating pressure range	-27 to -80 kPa	
Hysteresis	Max. 15 kPa	Max. 20 kPa
Repeatability	±10% or less	
Ambient and fluid temperature	-5 to 60°C (no freezing)	
Supply Voltage	4.5 to 28 VDC	100 VAC/DC (or less)
Indicator Light	ON: When output is ON	
Lead Wires	3	2
Port size	R1/8	
Weight	65g	

2 Specifications- continued

2.2 Electrical Specifications

ZSM1-115

Supply Voltage	4.5 to 28VDC
Output (open collector)	28 V: Max. 40 mA
Current consumption	10 mA or less (24 VDC)

ZSM1-121

Supply Voltage	100 VAC/DC
Maximum operating current	24 V or less: Max. 50 mA 48 V: Max. 40 mA 100 V: Max. 20 mA
Max. contact capacity	AC 2 VA, DC 2 W

Warning

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

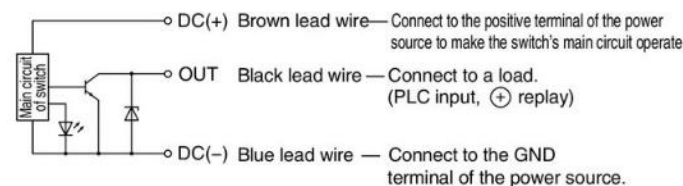
3 Installation

3.1 Installation

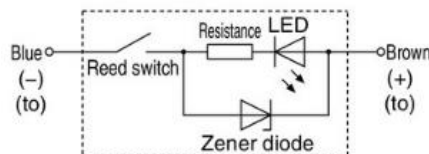
Warning

- Do not install the product unless the safety instructions have been read and understood.

ZSM1-115



ZSM1-121



3.2 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not use within proximity of a magnetic field as this will cause disruption to switch and result in malfunction.
- 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.

3.3 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.

3.4 Piping

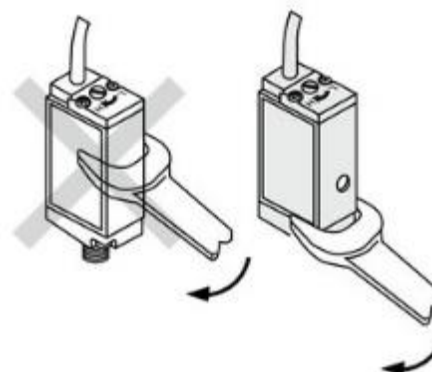
Caution

- 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 thread exposed on the end of the pipe/fitting.
- Tighten to the specified tightening torque.

Specified tightening torque R1/8	3-5 N•m
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3 Installation- continued

- When piping switch by hand, hold the body. Do not subject the electrical wire to excessive force.
- Do not drop or apply excessive force. It may cause damage and result in product malfunction
- Tighten switch by applying wrench on the fitting part. Do not apply wrench on main body as it may cause damage.
- Mounting is possible in either horizontal or vertical orientation.



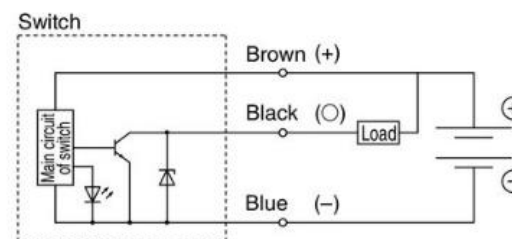
4 Settings

4.1 Wiring

Caution

- Do not apply excessive pulling force on lead wire. It may cause damage and result in product malfunction.

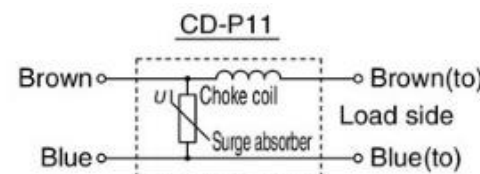
ZSM1-115



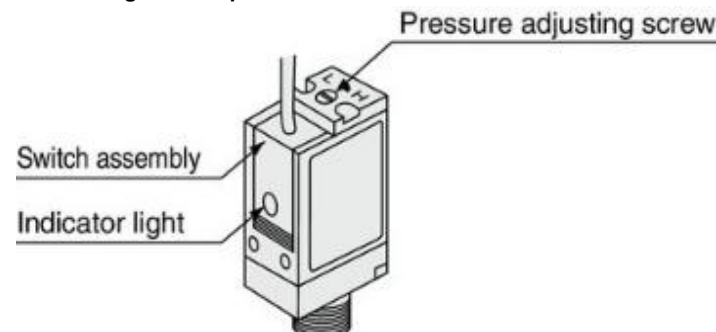
ZSM1-121

- Switches may be connected in series, voltage drop will be increased by LED's internal resistance (2 V drop per each switch). Use switches within the specified range of operating voltage.
- Switches do not have built-in contact protection circuits. Use switches with contact protection box (part number CD-P11) with inductive loads or 5 m (or more) lead wire length.

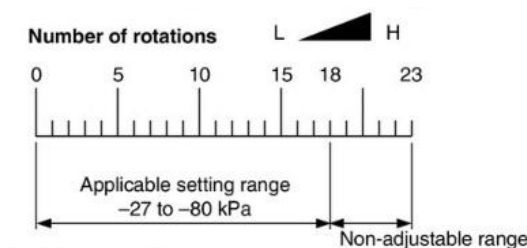
Internal circuit contact protection box



4.2 Setting vacuum pressure



4 Settings- continued



Max. number of rotations are 18.

- Turn the screw clockwise to set the high vacuum.
- No. of turns for pressure setting adjustment is between 0 and 18 turns.

5 Outline Dimensions (mm)

Refer to catalogue for outline dimensions.

6 How to Order

Refer to catalogue for 'How to Order'.

7 Maintenance

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 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

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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 Specifications are subject to change without prior notice from the manufacturer.
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