



# Installation & Maintenance Manual

## Heat Resistant Solid State Auto Switch

### Series D-M9NJL/D-M9PJL/D-M9NJZ/D-M9PJZ



### 1 Safety Instructions

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.

- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger", followed by important safety information which must be carefully followed.
- To ensure safety of personnel and equipment the safety instructions in this manual and the product catalogue must be observed, along with other relevant safety practices.

<b>Caution</b>	CAUTION indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
<b>Warning</b>	WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
<b>Danger</b>	DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

This product is class A equipment that is intended for use in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbances.

### Warning

- Do not disassemble, modify (including changing the printed circuit board) or repair. An injury or failure can result.
- Do not operate the product outside of the specifications. Do not use for flammable or harmful fluids. Fire, malfunction, or damage to the product can result. Verify the specifications before use.
- Do not operate in an atmosphere containing flammable or explosive gases. Fire or an explosion can result. This product is not designed to be explosion proof.
- If using the product in an interlocking circuit:
  - Provide a double interlocking system, for example a mechanical system.
  - Check the product regularly for proper operation. Otherwise malfunction can result, causing an accident.
- The following instructions must be followed during maintenance:
  - Turn off the power supply.
  - Stop the air supply, exhaust the residual pressure and verify that the air is released before performing maintenance work. Otherwise an injury can be caused.

### Caution

- Do not touch terminals and printed circuit board inside the product. Otherwise it can cause electric shock, malfunction or damage to the product can result.
- After maintenance is complete, perform appropriate functional inspections. Stop operation if the equipment does not function properly. Safety cannot be assured in the case of unexpected malfunction.

**NOTE**  
Refer to the operation manual on the SMC website (URL <http://www.smcworld.com>).

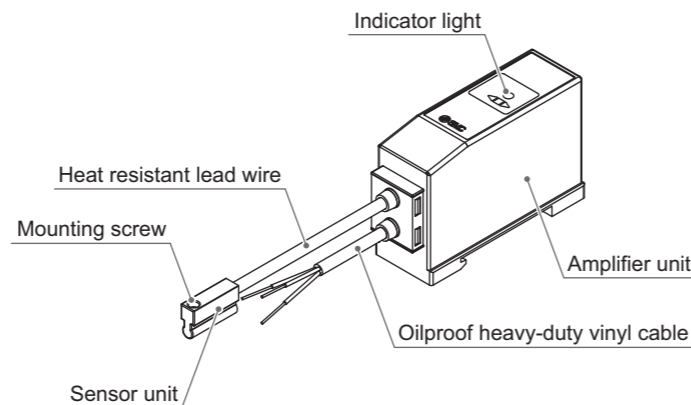
### 2 Specifications

Model	D-M9NJ	D-M9PJ
Output type	NPN type	PNP type
Power supply voltage	5/12/24 VDC (4.5 to 28 VDC)	
Current consumption	25 mA or less	
Load voltage	28 VDC or less	-
Load current	40 mA or less	
Internal voltage drop	0.8 V or less	
Leakage current	100 µA or less at 24 VDC	
Indicator light	Operating range: The red LED is ON. Proper operating range: The green LED is ON.	
Lead wire	Heat resistant lead wire (between sensor unit and amplifier unit) $\phi$ 3.4	
	Oilproof heavy-duty vinyl cable (amplifier unit grommet) $\phi$ 3.4, 0.2 mm <sup>2</sup> , 3-wire, 3 m	
Impact resistance	Sensor unit: 1000 m/s <sup>2</sup> , Amplifier unit: 300 m/s <sup>2</sup>	
Insulation resistance	50 MΩ or more under the test voltage 500 VDC (between lead wire and case)	
Withstand voltage	1000 VAC, 1 min. (between lead wire and case)	
Ambient temperature	Sensor unit: 0 to 150 °C, Amplifier unit: 0 to 60 °C	
Enclosure	Sensor unit: IP67, Amplifier unit: IP63 (IEC60529)	
Standards	CE, RoHS	

•Magnetic field resistance  
When the alternating (AC) welding current exceeds 16000 A, it is necessary to maintain a distance between the Auto switch and the welding conductor (gun and cable).

### 3 Summary of Product parts

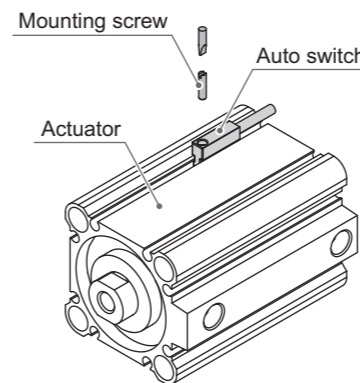
○Names of products



### 4 Installation

When mounting the Auto switch to the actuator, the appropriate mounting bracket should be used. "How to mount" depends on the actuator type and bore size. Please refer to the actuator catalogue. For new Auto switch applications, confirm that the actuator includes a magnet before assembling the Auto switch and bracket.

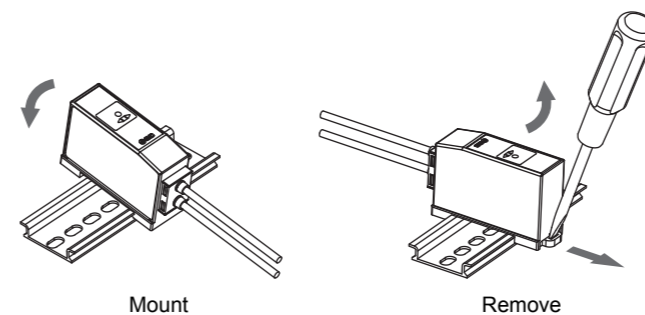
- Sensor unit
  - Tightening torque  
Use a small flat blade screwdriver whose grip diameter is 5 to 6 mm when tightening the mounting screw.  
M2.5 mounting screw tightening torque shall be 0.05 to 0.15 Nm.



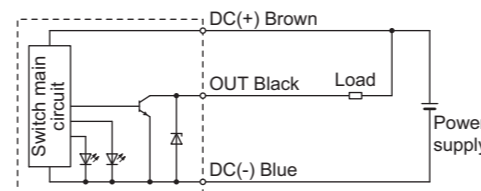
- Setting the detection position  
Position the actuator at the end of the stroke. Set the Auto switch in the centre of the position where the Auto switch green light is ON.  
(Detecting the actuator end position)  
Set the Auto switch position based on dimensions A and B given in the actuator catalogue. During installation, perform adjustment while checking the operating conditions of the Auto switch.

- Amplifier unit  
The amplifier unit should be mounted on DIN rail.

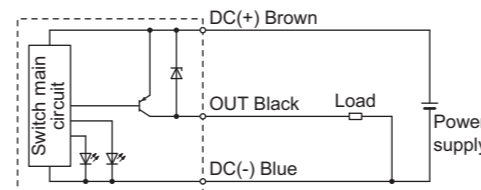
- How to mount on DIN rail  
Hook the bottom of the amplifier unit on to the DIN rail, and push down on to the DIN rail in the direction of the arrow shown below. To remove, use a screwdriver to release the latch as shown below.



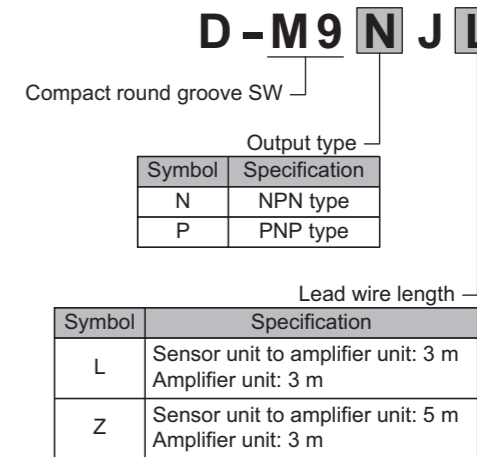
•Internal circuit  
D-M9NJ#



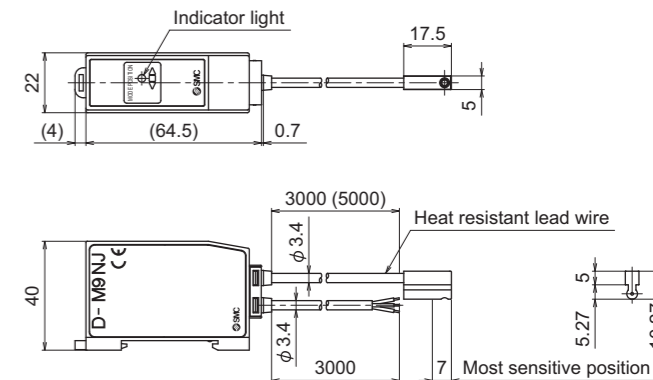
D-M9PJ#



### 5 How to Order



### 6 Outline Dimensions (mm)



### 7 Maintenance

How to reset the product for power loss or forcible de-energizing  
Regarding set up, contents of the program may be maintained by customer's application systems. Be sure to confirm safety when returning operation of the actuator because it could have been stopped in an unstable condition.

### 8 Troubleshooting

Refer to the operation manual on the SMC website (URL <http://www.smcworld.com>).

### 9 Contacts

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BULGARIA	(359) 2 974 4492	NETHERLANDS	(31) 20 531 8888
CZECH REP.	(420) 541 424 611	NORWAY	(47) 67 12 90 20
DENMARK	(45) 7025 2900	POLAND	(48) 22 211 9600
ESTONIA	(372) 651 0370	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	ROMANIA	(40) 21 320 5111
FRANCE	(33) 1 6476 1000	SLOVAKIA	(421) 2 444 56725
GERMANY	(49) 6103 4020	SLOVENIA	(386) 73 885 412
GREECE	(30) 210 271 7265	SPAIN	(34) 945 184 100
HUNGARY	(36) 23 511 390	SWEDEN	(46) 8 603 1200
IRELAND	(353) 1 403 9000	SWITZERLAND	(41) 52 396 3131
ITALY	(39) 02 92711	UNITED KINGDOM	(44) 1908 563888

### SMC Corporation

URL <http://www.smcworld.com> (Global) <http://www.smceu.com> (Europe)  
Specifications are subject to change without prior notice from the manufacturer.  
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