Solid State Switch
Direct Mounting Style
D-M9N(V)/D-M9P(V)/D-M9B(V)

CE

For details about certified products conforming to international standards, visit us at www.smcworld.com.
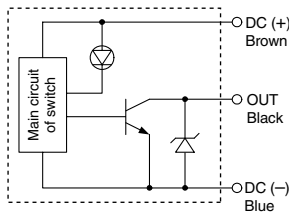
Grommet

- **Lower load current**
- **Lead free solder**
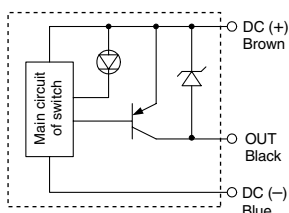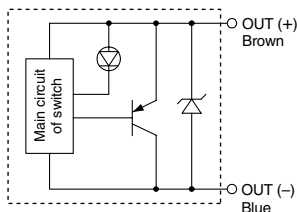- **Using UL certified (style 2844) lead wire**

Auto Switch Internal Circuit

D-M9N, D-M9NV

D-M9P, D-M9PV

D-M9B, D-M9BV

Operating range shortened, compared to conventional types.

When replacing conventional types, dependant upon application, the shortened operating range may cause auto switch imperceptive.
- When the range of stroke is wider than the operating range. Example) Stamping, press-fitting, clamping, etc.
- When used to detect intermediate position. (Detection output time is shortened.)
Note) Please consult with SMC regarding details of operation range by each actuator.

Since short circuit protection circuit is not built-in, the auto switch will be immediately damaged when the load is short-circuited. Be careful not to exchange the power cable (brown) with the output cable (black).

Auto Switch Specifications

PLC: Abbreviation of Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)

Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED lights when ON.					

- Lead wire — Oil resistant vinyl heavy-duty cord, ø2.7 x 3.2 ellipse 0.15 mm², 2 cores (D-M9B), 3 cores (D-M9N, D-M9P)
Note 1) Regarding the common specifications of the solid state switches, refer to page 8-30-7.
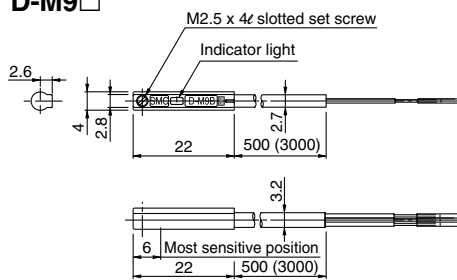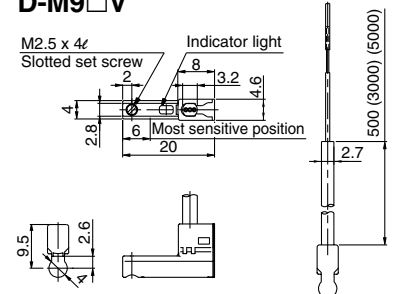Note 2) Regarding the lead wire length, refer to page 8-30-7.

Weight

(g)

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)	0.5	8	8	7
	3	41	41	38
	5	68	68	63

Dimensions

D-M9□

D-M9□V

⚠Precautions

Be sure to read before handling. Please contact SMC when using beyond specifications.

Caution on Handling

⚠ Caution

- Over-current protection is not equipped with this product series. When it is wired incorrectly or a load is short-circuited, a switch may be damaged or burned.
- In the event of stripping cable sheath, use caution for the stripping direction. Its insulation may be torn or damaged, depending on the direction.
- Below is given as the recommended tool.

Maker	Product's name	Part no.
VESSEL Co., Inc.	Wirestripper	No 3000G
Tokyo Ideal Co., Ltd.	Stripmaster	45-089

∗ As for 2-wire, a stripper for round shape cord (ø2.0) is usable.
- Fix the switch with appropriate screw installed on the switch body. If using other screws, switch may be damaged.

SMC
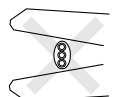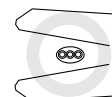
Made to Order Specifications: Solid State Switch
With Pre-wired Connector

CE

For details about certified products conforming to international standards, visit us at www.smcworld.com.

1 With Pre-wired Connector

- Eliminates the harnessing work by cable with connector specifications
- Adopts global standardized connector (IEC947-5-2)
- IP67 construction

How to Order

D—M9N S A PC

Solid state switch
Standard part no.
* For the applicable auto switch model, refer to the table below.

Cable length

S	0.5 m
M	1.0 m
L	3.0 m

Note) L is available for the D-P5DW type only.

Connector model

A	M8—3 pin
B	M8—4 pin
D	M12—4 pin

Note) Type D is available for the D-P5DW type only.

Connector Specifications

Connector model	M8—3 pin	M8—4 pin	M12—4 pin
Pin arrangement	1 4 3	1 2 3 4	② ① ③ ④
Conformed standard	JIS C 4524, JIS C 4525, IEC 947-5-2, NECA 0402		
Impact resistance	300 m/s²		
Enclosure	IP-67 (IEC529 standard)		
Insulation resistance	100 MΩ or more at 500 M VDC		
Withstand voltage	1500 VAC 1 minute (between contacts), Leak current 1 mA or less		

Applicable Auto Switch

Mounting	Function	Electrical entry	Applicable model	Lead wire length 0.5	1.0	3.0
Rail mounting style	—	Grommet (In-line)	F79, F7P, J79	●	●	—
		Grommet (Perpendicular)	F7NV, F7PV, F7BV	●	●	—
	2-color indication	Grommet (In-line)	F79W, F7PW, J79W	●	●	—
		Grommet (Perpendicular)	F7NWV, F7BWV	●	●	—
	With diagnostic		F79F	●	●	—
	Water resistant		F7BA	●	●	—
	With timer		F7NT	●	●	—
	Magnetic field		P5DW	●	●	●
Band mounting style	—	Grommet (In-line)	H7A1, H7A2, H7B	●	●	—
			G59, G5P, K59	●	●	—
	2-color indication		H7NW, H7PW, H7BW	●	●	—
			G59W, G5PW, K59W	●	●	—
	Diagnostic output		H7NF, G59F	●	●	—
	Water resistant		H7BA, G5BA	●	●	—
	With timer		G5NT	●	●	—
	Wide detection		G5NB	●	●	—
Tie-rod mounting style	—		F59, F5P, J59	●	●	—
	2-color indication		F59W, F5PW, J59W	●	●	—
	Diagnostic output		F59F	●	●	—
	Water resistant		F5BA	●	●	—
	With timer		F5NT	●	●	—

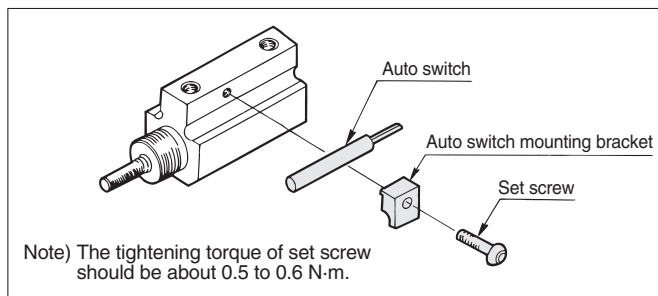| Mounting	Function	Electrical entry	Applicable model	Lead wire length 0.5	1.0	3.0
Direct mounting style	—	Grommet (In-line)	M5N, M5P, M5B	●	●	—
			Y59A, Y7P, Y59B	●	●	—
		Grommet (Perpendicular)	Y69A, Y7PV, Y69B	●	●	—
		Grommet (In-line)	M9N, M9P, M9B	●	●	—
		Grommet (Perpendicular)	M9NV, M9PV, M9BV	●	●	—
	2-color indication	Grommet (In-line)	M5NW, M5PW, M5BW	●	●	—
			Y7NW, Y7PW, Y7BW	●	●	—
		Grommet (Perpendicular)	Y7NWV, Y7PWV, Y7BWV	●	●	—
		Grommet (In-line)	F9NW, F9PW, F9BW	●	●	—
		Grommet (Perpendicular)	F9NWV, F9PWV, F9BWV	●	●	—
	Water resistant	Grommet (In-line)	Y7BA, F9BA	●	●	—
	With timer		M5NT, M5PT	●	●	—
Rotary actuator	—	Grommet (In-line)	S791/2, S7P1/2, T791/2	●	●	—
			S991/2, S9P1/2, T991/2	●	●	—
		Grommet (Perpendicular)	S99V1/2, T99V1/2	●	●	—

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Technical Data 2:
How to Mount and Move the Auto Switch

Mounting Bracket | Tie-rod Mounting Style

<Applicable auto switch>
Reed switch·······D-90/97, D-90A/93A
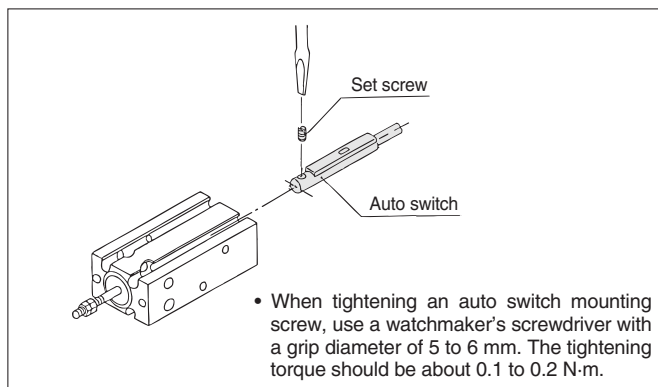
How to Mount and Move the Auto Switch

Auto switch

Auto switch mounting bracket

Set screw

Note) The tightening torque of set screw should be about 0.5 to 0.6 N·m.

Auto Switch Mounting Bracket Part No. (Including bracket, screw)

Cylinder series	Applicable bore size (mm)		
	6	**10**	**15**
CDJP-□D	BP-1	BP-1	BP-1

<Applicable auto switch>
Reed switch················D-A90(V)/A93(V)/A96(V)
Solid state switch········D-M9N(V)/M9P(V)/M9B(V)
　　　　　　　　　　　F9NW(V)/F59W/F9BW(V)
　　　　　　　　　　　F9BAL

How to Mount and Move the Auto Switch

Set screw

Auto switch

• When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm. The tightening torque should be about 0.1 to 0.2 N·m.

<Applicable auto switch>
Reed switch···············D-E73A/E76A/E80A
Solid state switch······D-M5N/M5P/M5B
　　　　　　　　　　D-M5NW/M5PW/M5BW
　　　　　　　　　　D-M5NTL/M5PTL

How to Mount and Move the Auto Switch

Auto switch mounting nut

Auto switch mounting screw
M2.5 x 10ℓ (D-E7□A/E8□A)
M2.5 x 12ℓ (D-M5□/M5□W/M5□T)
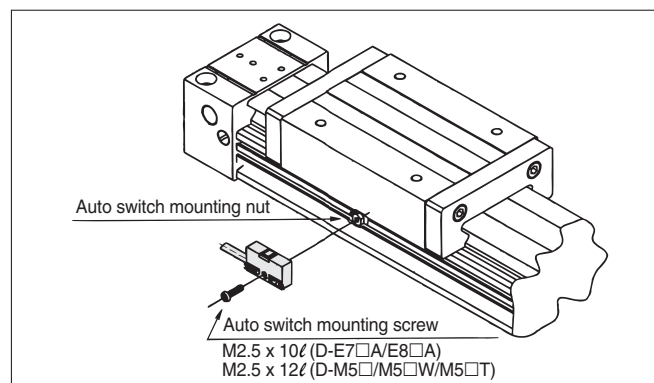
1. Insert the auto switch mounting nut into the auto switch mounting groove and then set the switch at the mounting position by sliding.
2. Put the convex part of auto switch into the mounting groove and slide it over the nut.
3. Push the auto switch mounting screw lightly into the mounting nut through the mounting hole.
4. After reconfirming the detecting position, tighten the mounting screw to secure the auto switch. (Tightening torque of M2.5 screw should be 0.1 to 0.2 N·m.)
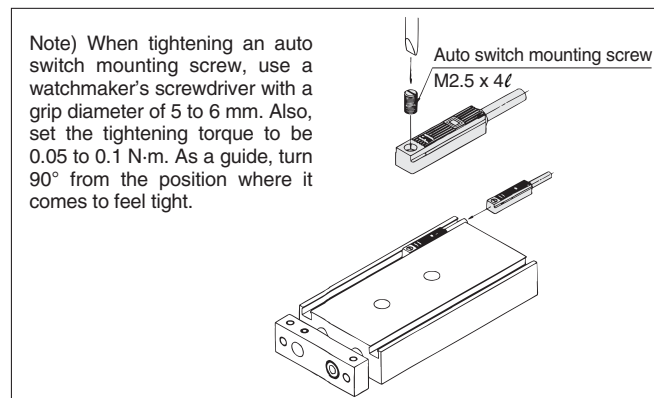
Auto Switch Mounting Bracket Part No. (Including nut, screw)

Cylinder series		Applicable bore size (mm)		
		25	**32**	**40**
ML1	M2.5 x 12ℓ	BMY2-025	BMY2-025	BMY2-025
	M2.5 x 10ℓ	BMY1-025	BMY1-025	BMY1-025

<Applicable auto switch>
Reed switch···············D-Z73/Z76/Z80
Solid state switch······D-Y59^A_B/Y69^A_B , D-Y7P(V)
　　　　　　　　　　D-Y7NW(V)/Y7PW(V)/Y7BW(V)
　　　　　　　　　　D-Y7BAL

How to Mount and Move the Auto Switch

Note) When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm. Also, set the tightening torque to be 0.05 to 0.1 N·m. As a guide, turn 90° from the position where it comes to feel tight.

Auto switch mounting screw
M2.5 x 4ℓ

1. Insert the auto switch into the mounting groove and set it at the auto switch mounting position.
2. After reconfirming the detecting position, tighten the mounting screw to secure the auto switch.
3. Modification of the detecting position should be made in the condition of 1.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data