

Prior to Use

Auto Switches Common Specifications 1

Refer to the Auto Switch Precautions on pages 8 to 12 before using auto switches.

Auto Switches Common Specifications

Type	Reed auto switch	Solid state auto switch
Leakage current	None	3-wire: 100 μ A or less, 2-wire: 0.8 mA or less
Operating time	1.2 ms	1ms or less ^{*3)}
Impact resistance	300 m/s ²	1000 m/s ² ^{*4)}
Insulation resistance	50 M Ω or more (500 VDC measured via megohmmeter) (Between lead wire and case)	
Withstand voltage	1500 VAC for 1 minute ^{*1)} (Between lead wire and case)	1000 VAC for 1 minute (Between lead wire and case)
Ambient temperature	-10 to 60°C	
Enclosure	IEC60529 Standard IP67 ^{*2)}	

- * 1) Electrical entry: Connector type (A73C/A80C/C73C/C80C): 1000 VAC/min.
(Between lead wire and the case)
- * 2) The terminal conduit type (D-A3/A3□/A3□C/G39/G39A/G39C/K39/K39A/K39C), DIN terminal type (D-A44/A44A/A44C) and heat resistant auto switch (D-F7NJ) conform to IEC60529 Standard IP63.
The trimmer type amplifier section (D-R□K) conforms to IP40.
- * 3) Excluding the solid state auto switches with a timer (G5NT/F7NT/F5NT types) and magnetic field resistant 2-color indicator solid state auto switch (D-P3DW□/P4DW).
The operating time for D-J51 is 2 ms or less and for D-P3DW□/P4DW are 40 ms or less.
- * 4) 980 m/s² for the trimmer type sensor section, 98 m/s² for the amplifier section.

Lead Wire

Lead wire length indication

(Example)

D-M9BW L

Auto switch
model

Lead wire length

Symbol	Length	Tolerance	Connector specifications	Solid state	Reed
Nll	0.5 m	±15 mm		●	●
M	1 m	±30 mm		● ^{*2)}	● ^{*2)}
L	3 m	±90 mm		●	●
Z	5 m	±150 mm		●	● ^{*3)}
N ^{*1)}	None	—		●	●
SAPC	0.5 m	±15 mm	M8-3 pin	○	—
MAPC	1 m	±30 mm	Plug connector	○	—
SBPC	0.5 m	±15 mm	M8-4 pin	○	—
MBPC	1 m	±30 mm	Plug connector	○	—
SDPC	0.5 m	±15 mm	M12-4 pin A code (Normal key) Plug connector	○	—
MDPC	1 m	±30 mm		○	—
LDPC	3 m	±90 mm		○	—

●: Standard ○: Produced upon receipt of order (Standard)

- * 1) Applicable to the connector type (D-□□C) only.
- * 2) Applicable to the D-M9□ (V), D-M9□W (V), D-M9□A (V), and D-A93 only.
- * 3) Applicable to the D-B53/B54, D-C73(C)/C80C, D-A93(V), D-A73(C)/A80C, D-A53/A54, D-Z73, and D-90/97/90A/93A only.
- * 4) For reed auto switches M8 and M12 type with connector, please contact SMC.
- * 5) The standard lead wire length of the trimmer auto switch is 3 m.
- * 6) The standard lead wire length of the solid state auto switch with the timer except for the D-P3DW and D-M9□A (V)□, water-resistant 2-color display solid state auto switch, wide range detection auto switch, heat resistant 2-color display solid state auto switch, and strong magnetic field resistant 2-color display solid state auto switch is 3 m or 5 m. (Product with a lead wire length of 0.5 m is not available.)

Lead wires with a connector indication

Part No. of Lead Wires with Connectors
(Applicable only for connector type)

Model	Lead wire length
D-LC05	0.5 m
D-LC30	3 m
D-LC50	5 m

Water Resistant 2-Color Indicator Solid State Auto Switch: Direct Mounting Type D-M9NA(V)/D-M9PA(V)/D-M9BA(V)

Grommet

- Water (coolant) resistant type
- 2-wire load current is reduced (2.5 to 40 mA).
- The proper operating range can be determined by the color of the light. (Red → Green ← Red)
- Using flexible cable as standard spec.



⚠ Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.
Please consult with SMC if using coolant liquid other than water based solution.

Weight

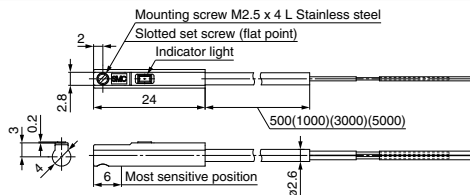
(g)

Auto switch model	D-M9NA(V)	D-M9PA(V)	D-M9BA(V)
Lead wire length			
0.5 m (Nil)	8	7	
1 m (M)	14	13	
3 m (L)	41	38	
5 m (Z)	68	63	

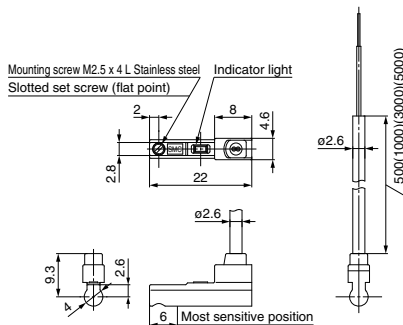
Dimensions

(mm)

D-M9□A



D-M9□AV



Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□A, D-M9□AV (With indicator light)												
Auto switch model	D-M9NA		D-M9NAV		D-M9PA		D-M9PAV		D-M9BA		D-M9BAV	
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 at 10 mA (2 V or less at 40 mA)								4 V or less			
Leakage current	100 μA or less at 24 VDC								0.8 mA or less			
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.											
Standard	CE marking (EMC directive/RoHS directive)											

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NA	D-M9NAV	D-M9PA	D-M9PAV	D-M9BA	D-M9BAV
Sheath	Outside diameter [mm]	2.6					
Insulator	Number of cores	3 cores (Brown/Blue/Black)				2 cores (Brown/Blue)	
	Outside diameter [mm]	0.88					
Conductor	Effective area [mm ²]	0.15					
	Strand diameter [mm]	0.05					
Minimum bending radius [mm]		17					

Note 1) Refer to page 1584 for solid state auto switch common specifications.

Note 2) Refer to page 1584 for lead wire lengths.