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BEST AUTOMATION

Applicable Cylinder Series

Cylinder series		CDG1Y ø20 to ø63	MBY ø80, ø100	CDA2Y ø32 to ø100	CDS2Y ø40 to ø100	CDQSY ø125 to ø160	CDQ2Y ø12 to ø20	CDQ2Y ø25	CDJ2X ø32 to ø100	CDM2X ø10 to ø16	CDQSX ø20 to ø40	CDQ2X ø12 to ø20	CDQ2X ø25	CDUX ø32 to ø100	RHC ø10 to ø32	RZQ ø20 to ø63	ø80 to ø100	ø32 to ø63	ø12, ø16	MK ø20, ø25	MK2T ø32 to ø63	CKG1 ø20 to ø63	CKP1 ø40 to ø63	CLK2G ø40 to ø63	CLK2P ø40 to ø63	CKQG ø50	CKQG ø50	CKQP ø50	CLKQP ø50	RSDQ ø12	RSDQ ø16, ø20	RSDG ø32, ø40, ø50	RS2H ø40, ø50	RS2H ø50 to ø80	RSH ø20, ø32	MIS/MIW ø12, ø16, ø20, ø25, ø32	CDNG ø20 to ø40	MDWB ø20 to ø100	CDNA2 ø32 to ø100	ø40 to ø100			
Bore size		ø20 to ø63	ø80, ø100	ø32 to ø100	ø40 to ø100	ø125 to ø160	ø12 to ø20	ø25	ø32 to ø100	ø10 to ø16	ø20 to ø40	ø12 to ø20	ø25	ø32 to ø100	ø10 to ø32	ø20 to ø63	ø80 to ø100	ø32 to ø63	ø12, ø16	ø20, ø25	ø32 to ø63	ø20 to ø63	ø40 to ø63	ø40 to ø63	ø40 to ø63	ø40 to ø63	ø50	ø50	ø50	ø50	ø12	ø16, ø20	ø32, ø40, ø50	ø40, ø50	ø50 to ø80	ø20, ø32	ø12, ø16, ø20, ø25, ø32	ø20 to ø40	ø20 to ø100	ø32 to ø100	ø40 to ø100		
Solid state auto switches	D-H7																																										
	D-H7C																																										
	D-H7BA																																										
	D-H7NF																																										
	D-H7□W																																										
	D-G5/K5																																										
	D-G5BA																																										
	D-G59F																																										
	D-G5NT																																										
	D-G5□W/K59W																																										
	D-G39/K39																																										
	D-G39A/K39A																																										
	D-F7/J7																																										
	D-J79C																																										
	D-F79F																																										
	D-F7BA																																										
	D-F7BAV																																										
	D-F7□V																																										
	D-F7NT																																										
	D-F7□W(V)																																										
	D-F5/J5																																										
	D-F5BA																																										
	D-F5□W/J59W																																										
	D-F59F																																										
	D-F5NT																																										
	D-G39C/K39C																																										
	D-M9																																										
	D-M9□V																																										
	D-M9□W																																										
	D-M9□WV																																										
	D-M9□E(Normally closed)																																										
	D-M9□EV(Normally closed)																																										
	D-M9□A																																										
	D-M9□AV																																										
D-Y5/Y6/Y7□/Y7□V																																											
D-Y7BA																																											
D-Y7□W/Y7□WV																																											
D-P3DWA																																											
D-P4DW																																											
D-Y7G/H(Normally closed)																																											
D-M9□J																																											
D-F7NJ																																											
D-F6□																																											
D-F8□																																											
Reed auto switches	D-C7/C8																																										
	D-C73C/C80C																																										
	D-B5/B6																	</																									

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Auto Switch Variations

Auto Switch Variations 1

Function	Type	Auto switch mounting type	Electrical entry	Auto switch model	Page
General purpose auto switches	Solid state	Direct	Grommet	D-M9N/M9P/M9B*	1304
				D-M9NV/M9PV/M9BV*	1305
				D-M9N-5/M9P-5/M9B-5	1307
				D-F8N/F8P/F8B	1307
				D-M9NE/M9PE/M9BE (Normally closed)*	1308
				D-M9NEV/M9PEV/M9BEV (Normally closed)*	1308
				D-Y59A/Y59B/Y7P**	1309
				D-Y69A/Y69B/Y7PV**	1309
				D-Y7G/Y7H (Normally closed)**	1310
		Band	Grommet	D-H7A1/H7A2/H7B	1311
			Connector	D-G59/G5P/K59	1312
			Terminal conduit	D-H7C	1313
			Terminal conduit	D-G39/K39	1314
		Rail	Grommet	D-G39A/K39A	1315
			Connector	D-F79/F7P/J79	1316
		Tie-rod	Grommet	D-F7NV/F7PV/F7BV	1317
			Terminal conduit	D-J79C	1318
	Reed	Direct	Grommet	D-F59/F5P/J59	1319
				D-G39C/K39C	1320
				D-A90/A93/A96*	1362
		Band	Grommet	D-A90V/A93V/A96V*	1373
			Grommet	D-Z73/Z76/Z80**	1374
			Connector	D-E73A/E76A/E80A	1363
			Terminal conduit	D-C73/C76/C80	1364
			DIN terminal	D-B53/B54/B64	1365
			DIN terminal	D-C73C/C80C	1366
		Rail	Grommet	D-A33/A34	1367
			Connector	D-A33A/A34A	1368
		Tie-rod	Grommet	D-A44	1366
			Terminal conduit	D-A44A	1367
		Tie-rod	Grommet	D-A72/A73/A80	1368
			DIN terminal	D-A72H/A73H/A76H/A80H	1369
		Tie-rod	Grommet	D-A73C/A80C	1370
			DIN terminal	D-A53/A54/A56/A64/A67	1371
		Tie-rod	Grommet	D-A33C/A34C	1372
			DIN terminal	D-A44C	1372

* These auto switches can be mounted with a band, a rail, a tie-rod or a square groove when auto switch mounting brackets are used. Refer to pages 1386, 1390, 1394 and 1401 to 1403 for details.

** These auto switches can be mounted with a tie-rod when auto switch mounting brackets are used. Refer to page 1397 for details.

Direct mounting



Band mounting



Rail mounting



Tie-rod mounting



Auto Switch Variations

Auto Switch Variations 2

Function	Type	Auto switch mounting type	Electrical entry	Auto switch model	Page
2-color indicator	Solid state	Direct	Grommet	D-M9NW/M9PW/M9BW*	1321
				D-M9NWV/M9PWV/M9BWV*	
				D-Y7NW/Y7PW/Y7BW**	1322
				D-Y7NWV/Y7PWV/Y7BWV**	
		Band	Grommet	D-H7NW/H7PW/H7BW	1323
				D-G59W/G5PW/K59W	1324
		Rail	Grommet	D-F79W/F7PW/J79W	1325
				D-F79WV/F7BWV	1326
		Tie-rod	Grommet	D-F59W/F5PW/J59W	1327
	Reed	Band	Grommet	D-B59W	1375
		Rail	Grommet	D-A79W	1376
		Tie-rod	Grommet	D-A59W	1377

* These auto switches can be mounted with a band, a rail, a tie-rod or a square groove when auto switch mounting brackets are used. Refer to pages 1386, 1390, 1394 and 1401 to 1403 for details.
** These auto switches can be mounted with a tie-rod when auto switch mounting brackets are used. Refer to page 1397 for details.

2-color indicator

Easily identifiable, proper operating range

- Mounting positions can be set easily.**
Proper operating ranges can be set while watching the lights.
- Displacement of the detecting position can be visually checked.**
Trouble caused by incorrect detection can be prevented beforehand.

Operating range

ON

Red Green Red

OFF

Proper operating range

A green light lights up at the proper operating range.

Even if 2-color indicator solid state auto switches are fixed at the proper operating range (the green light lights up), the operation may become unstable depending on the installation environment or magnetic field disturbance. (Magnetic body, external magnetic field, proximal installation of cylinders with built-in magnet and actuators, temperature change, other factors for magnetic force fluctuation during operation, etc.)

With Pre-wired Connector Type

Less wiring work

- Cable with connector allows for reduced wiring hassle
- M8 and M12 connectors available

Related Products

Fieldbus System/Wireless System
EX600/EX600-W/EXW1 Series

- Wired/wireless signal transmission to the host system via M8/M12 connector connection

Function	Type	Auto switch mounting type	Electrical entry	Auto switch model	Page	
The diagnostic output signal can be detected in an unsteady detecting area.						
2-color indicator auto switch with diagnostic output	Solid state	Band	Grommet	D-H7NF	1328	
		Rail	Grommet	D-G59F	1329	
		Tie-rod	Grommet	D-F79F	1330	
			Grommet	D-F59F	1331	
Water resistant (coolant) type						
Water resistant 2-color indicator auto switch	Solid state	Direct	Grommet	D-M9□A* D-M9□AV*	1332	
		Band	Grommet	D-Y7BA** D-H7BA	1333 1334	
		Rail	Grommet	D-G5BA	1335	
		Tie-rod	Grommet	D-F7BA D-F7BAV	1336	
			Grommet	D-F5BA	1337	
Hygienic type						
Hygienic	Solid state	Direct	Grommet	D-F6N/F6P/F6B	1338	
With built-in OFF-delay timer (200 ms)						
Auto switch with timer	Solid state	Band	Grommet	D-G5NT	1339	
		Rail	Grommet	D-F7NT	1340	
		Tie-rod	Grommet	D-F5NT	1341	
Can be used in an environment where magnetic field disturbances are generated.						
Magnetic field resistant auto switch	Solid state	Rail, Tie-rod, Direct	Grommet	D-P3DWASC/P3DWASE D-P3DWA	1342 1343	
		Rail	Grommet	D-P4DWSC/P4DWSE/P4DW□DPC D-P4DW	1344 1345	
	Reed	Rod	Grommet	D-P79WSE D-P74	1378 1379	
Can be used in a high-temperature environment.						
Heat resistant auto switch	Solid state	Sensor unit: Rail Amplifier unit: DIN rail	Grommet	D-M9NJ/M9PJ D-F7NJ	1346 1347	
	Reed	Band	Terminal conduit Grommet	D-B30/31/35 D-B30J/31J/35J	1385	
Simple workpiece recognition is possible.						
Trimmer auto switch	Solid state	Rail Direct	Grommet	D-M9K/F7K/Y7K/RNK/RPK	1349	
The stroke position is output with an analog signal.						
Actuator position sensor	Solid state	Direct Tie-rod	Tie-rod	D-MP	1389	

* These auto switches can be mounted with a band, a rail, a tie-rod or a square groove when auto switch mounting brackets are used. Refer to pages 1386, 1390, 1394 and 1401 to 1403 for details.

** These auto switches can be mounted with a tie-rod when auto switch mounting brackets are used. Refer to page 1397 for details.

2-color indicator with diagnostic output



Magnetic field resistant



Water resistant 2-color indicator



Heat resistant



Hygienic



With timer



Trimmer auto switch



Sensor unit



Amplifier unit

Prior to Use

Auto Switches Common Specifications 1

Refer to the Auto Switch Precautions on pages 14 to 18 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	1 ms 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 case)

*2 The terminal conduit type (D-A3/A3□A/A3□C/G39/G39A/G39C/K39/K39A/K39C), DIN terminal type (D-A44/A44A/A44C), and heat-resistant auto switch (D-F7NJ) are IEC60529 Standard IP63 compliant.

The trimmer type amplifier section (D-R□K) is compliant with IP40.

The enclosure IP rating does not include the switch lead wire end.

For switches with a connector, the enclosure IP requirements are satisfied when the connector is connected.

*3 Excludes solid state auto switches with a timer (G5NT/F7NT/F5NT types) and the magnetic field resistant 2-color indicator solid state auto switch (D-P3DW□/P4DW)

The operating time for the D-P3DW□/P4DW is 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
Nil	0.5 m	±15 mm	M8-3 pin Plug connector	●	●
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 Plug connector	○	○ *4
MAPC	1 m	±30 mm		○	○ *4
LAPC	3 m	±90 mm		○ *8	○ *4
ZAPC	5 m	±150 mm		○ *8	○ *4
SBPC	0.5 m	±15 mm	M8-4 pin Plug connector	○	—
MBPC	1 m	±30 mm		○	—
LBPC	3 m	±90 mm		○ *8	—
ZBPC	5 m	±150 mm		○ *8	—
SDPC	0.5 m	±15 mm	M12-4 pin A code (Normal key) Plug connector	○	○ *4
MDPC	1 m	±30 mm		○	○ *4
LDPC	3 m	±90 mm		○ *8	○ *4
ZDPC	5 m	±150 mm		○ *8	○ *4

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

*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-A9□(V) only

*3 Applicable to the D-B53/B54, D-C73(C)/C80C, D-A9□(V), D-A73(C)/A80C, D-A53/A54, D-Z73, and D-90/97/90A/93A only

*4 Applicable to the D-A9□(V) only

*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 a timer (with the exception of the D-P3DWA and D-M9□A(V)□), water-resistant 2-color indicator solid state auto switch, heat-resistant 2-color indicator solid state auto switch, and strong magnetic field resistant 2-color indicator solid state auto switch is 3 m or 5 m. (Product with a lead wire length of 0.5 m is not available.)

*7 Applicable to the D-P5DW only

*8 Applicable to the D-M9□(V), and D-M9□W(V) only

Lead wires with a connector indication

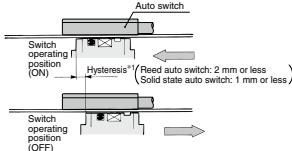
Part No. of Lead Wires with Connectors
(Applicable only for connector type)

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

Prior to Use

Auto Switches Common Specifications 2

Refer to the Auto Switch Precautions on pages 14 to 18 before using auto switches.

Term	Meaning
Hysteresis	 A deviation amount between the ON position and OFF position caused by auto switch characteristics (difference in sensitivity between ON and OFF). When the switch is turned ON once and the switch (or piston) is moved in the opposite direction, a symptom occurs that causes the switch's OFF position to deviate to a position where it is further returned from the ON position. This deviation amount is called "hysteresis." *1 Hysteresis may fluctuate due to the operating environment. Please contact SMC if hysteresis causes an operational problem.
Most sensitive position	A position (sensor layout position) where the sensitivity on the detection surface of the auto switch enclosure is highest. When the center of the magnet is aligned with this position, it is basically at the center of the operating range and stable operation can be obtained.
Programmable Logic Controller (PLC)	One of the elements that makes up the sequence control. The PLC is designed so that it can receive signals, such as the auto switch output signal, and output them to other devices in order to perform the electrical control according to the preset program.
Operating temperature	A temperature range in which the auto switch can be used. If significant temperature change or freezing occurs even within this temperature range, it may cause the auto switch to malfunction.
Operating voltage	A voltage at which the auto switch can be used. The operating voltage is indicated using generally used voltages (24 VDC, 100 VAC, etc.). For the 2-wire type, the operating voltage has the same meaning as the power supply voltage or load voltage.
Operating current range	A range of the current value that can be flowed to the output of the auto switch. If the operating current is lower than this range, the auto switch may not operate correctly. Conversely, if the operating current is higher than this range, the auto switch may break.
Current consumption	This current value is necessary for the 3-wire type auto switch to operate the circuit through the power cable. For the 2-wire type, as the current consumption is a part of the load current, it is not defined.
Insulation resistance	A resistance between the electric circuit and enclosure. Unless otherwise specified, 50 MΩ (Min) is used for auto switches.
Magnetic field resistant auto switch	An auto switch with protection against the effects of external (welding) magnetic fields generated in the spot welding process, etc. The solid state auto switch is able to function as it detects the frequency of the applied magnetic field. If an external magnetic field (AC) is applied, the last signal is retained and the product remains unaffected by the external magnetic field. This system can be used with cylinders with normal magnetic force. The reed auto switch features a built-in magnetic field shielded sensor with low sensitivity that reduces the effects of external magnetic fields (DC or AC magnetic fields). Therefore, a dedicated cylinder with a strong built-in magnet needs to be selected, and the operable range (conditions) need to be considered.
Impact resistance value	A minimum acceleration that may cause the auto switch to malfunction or break when the standard impact is applied.
Water-resistant auto switch	In contrast with the general (general purpose) product, structural measures have been taken in order to provide this model with long-term water resistance.
Withstand voltage	A tolerated dose of voltage that can be applied to the portion between the electrical circuit and enclosure. The withstand voltage shows the strength level of the product against the voltage. If a voltage exceeding the withstand voltage is applied, it may cause the product to break. (The voltage described here is different from the power supply voltage necessary to operate the product.)
Proper mounting position	A dimension that shows the mounting position when the position is detected at the stroke end of the cylinder. When this position is set, the maximum sensitivity position is aligned with the center of the magnet. However, make the necessary adjustments to the actual machine by considering the characteristic differences of the actual setting. When an adjustment allowance is needed for the detection before the stroke, set a value with an adjustment allowance added to the proper mounting position.
Applicable load	A device that is assumed as a target load of the auto switch.
Operating time	A period of time until the auto switch output becomes stable after the magnetic force to operate the auto switch has been received.
Operating range	An auto switch operating range in response to the cylinder piston movement (ON length in response to the stroke). The operating range is determined by the magnetic force of the magnet (range in which the magnetic force acts) and switch sensitivity. So, the operating range may vary as these conditions can change according to the ambient environment, etc. The operating range in the standard status (normal temperature, single cylinder, magnetic force, sensitivity, etc.) is described in the catalog.

Prior to Use

Auto Switches Common Specifications 3

Refer to the Auto Switch Precautions on pages 14 to 18 before using auto switches.

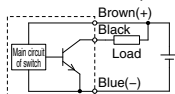
Term	Meaning																																
Minimum stroke for auto switch mounting	A minimum stroke value of the auto switch that can be mounted on the cylinder. The minimum stroke is determined by the specification limit (auto switch operation, position setting ability, etc.) and physical limit (mechanical interference associated with the auto switch mounting). Note that the catalog shows the value assuming that the position detection is performed at the stroke end and that this value does not consider the adjustment allowance. When an adjustment allowance is needed, such as for detection before the stroke, set the value so that this adjustment allowance is added to the minimum stroke.																																
Internal voltage drop	A voltage that is applied to the portion between the COM and signal line when the auto switch is ON. As only the value of the power supply voltage subtracted by the internal voltage drop is applied to the input side of the PLC, a detection fault (incorrect input) may occur if this value is lower than the minimum operating voltage. So, take great care when selecting a device.																																
2-color indicator	As the end part of the auto switch operating range (boundary between ON and OFF) is an area that is susceptible to external disturbances or stroke changes during cylinder operation, this function is intended to quickly and properly make the setting at the center of the operating range where stable operation can be obtained by changing the operation indication color of the auto switch.																																
Load	A device that is connected to the output of the auto switch in order to do any work is called a "load." For example, the load may be a relay, PLC, etc. To check the operation of the auto switch, a device equivalent to a load (such as a resistor, etc.) must be connected.																																
Load current	A current that flows to the load when the ON-OFF output is ON.																																
Enclosure	A class of protection against the entry of water or solids for electrical machinery and apparatus as specified in the IEC60529 Standard. IP— ●First Characteristic: Degree of protection against solid foreign objects <table border="1"> <tr><td>0</td><td>Non-protected</td></tr> <tr><td>1</td><td>Protected against solid foreign objects of 50 mm ø and greater</td></tr> <tr><td>2</td><td>Protected against solid foreign objects of 12 mm ø and greater</td></tr> <tr><td>3</td><td>Protected against solid foreign objects of 2.5 mm ø and greater</td></tr> <tr><td>4</td><td>Protected against solid foreign objects of 1.0 mm ø and greater</td></tr> <tr><td>5</td><td>Dust-protected</td></tr> <tr><td>6</td><td>Dust-tight</td></tr> </table> ●Second Characteristic: Degree of protection against water <table border="1"> <tr><td>0</td><td>Non-protected</td></tr> <tr><td>1</td><td>Protected against vertically falling water drops</td></tr> <tr><td>2</td><td>Protected against vertically falling water drops when enclosure is tilted 15°</td></tr> <tr><td>3</td><td>Protected against rainfall when enclosure is tilted up to 60°</td></tr> <tr><td>4</td><td>Protected against splashing water</td></tr> <tr><td>5</td><td>Protected against water jets</td></tr> <tr><td>6</td><td>Protected against powerful water jets</td></tr> <tr><td>7</td><td>Protected against the effects of temporary immersion in water</td></tr> <tr><td>8</td><td>Protected against the effects of continuous immersion in water</td></tr> </table> Example) In the case of products stipulated as IP65, we can know the degree of protection is dust-tight and water jetproof on the grounds that the first characteristic numeral is 6 and the second characteristic numeral is 5. Therefore, we can assume it will not be adversely affected by direct water jets from any direction.	0	Non-protected	1	Protected against solid foreign objects of 50 mm ø and greater	2	Protected against solid foreign objects of 12 mm ø and greater	3	Protected against solid foreign objects of 2.5 mm ø and greater	4	Protected against solid foreign objects of 1.0 mm ø and greater	5	Dust-protected	6	Dust-tight	0	Non-protected	1	Protected against vertically falling water drops	2	Protected against vertically falling water drops when enclosure is tilted 15°	3	Protected against rainfall when enclosure is tilted up to 60°	4	Protected against splashing water	5	Protected against water jets	6	Protected against powerful water jets	7	Protected against the effects of temporary immersion in water	8	Protected against the effects of continuous immersion in water
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Solid state auto switch	A switch that uses an MR element to detect magnetic fields and possesses an internal judgement circuit that is able to output an ON/OFF signal like a transistor regardless of mechanical contact or non-contact (such as when there is no point of contact).																																
Leak current	A current that flows to operate the internal circuit when the ON-OFF output is OFF. In particular, if the leak current exceeds the detection current in the 2-wire type auto switch or PLC, it may cause a reset failure. So, take great care when selecting a device.																																
Reed auto switch	A switch that uses a reed switch to detect magnetic fields and output an ON/OFF signal when there is mechanical contact or non-contact (when there is a point of contact, such as with a relay or limit switch).																																
Induction load	A load that has a coil. The connection target of the auto switch is a relay.																																
Recommended lead wire bending radius	A minimum bending radius (reference value) of the lead wire when the lead wire is secured and constructed (oscillation or rotation is not considered). (As the temperature and current value conforms to the auto switch specifications, this lead wire bending radius differs from the value disclosed by the electric wire manufacturer.)																																
Electrical entry	A structure in which the lead wire of the auto switch is taken out in the horizontal direction when the cylinder is laid out horizontally (cylinder rod is horizontal) is called an "in-line entry." A structure in which the lead wire is taken out in a direction perpendicular to the cylinder axis center is called a "perpendicular entry."																																

Prior to Use

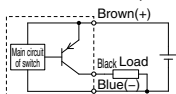
Auto Switches/Internal Circuits

Solid State Auto Switches

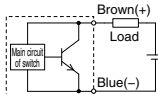
Solid state 3-wire, NPN



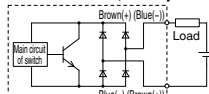
Solid state 3-wire, PNP



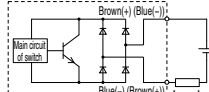
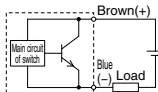
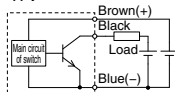
Solid state 2-wire



Solid state 2-wire, Non-polar type



(Power supply for switch and load are separate)



Reed Auto Switches

No.	①	②	③	④
Circuit diagram	2-wire (Reed switch) 	2-wire (Reed switch) 	2-wire (Reed switch) 	2-wire (Reed switch)
Circuit diagram	3-wire (Reed switch, NPN) 	2-wire (Reed switch) 	2-wire (Reed switch) 	

Contact Protection Box/CD-P11, CD-P12

<Applicable switch models>

D-A7/A8, D-A7□H/A80H, D-A73C, A80C, D-C7/C8, D-C73C/C80C, D-E7□A, E80A, D-Z7/Z8, D-9/9□A, D-A9/A9□V, D-A79W

The auto switches above do not have a built-in contact protection circuit.

A contact protection box is not required for solid state auto switches due to their construction.

1. Where the operation load is an inductive load

2. Where the wiring length to the load is 5 m or more

3. Where the load voltage is 100/200 VAC

Use a contact protection box with the switch for any of the above cases.

The contact life may be shortened (due to permanent energizing conditions).

D-A72(H) must be used with the contact protection box regardless of load types and lead wire length since it is greatly affected by loads.

(Where the load voltage is 110 VAC)

When the load voltage is increased by more than 10% of the rating of the applicable auto switches (Exceptions: D-A73C/A80C/C73C/C80C/90/97/A79W) above, use a contact protection box (CD-P11) to reduce the upper limit of the load current by 10% so that it can be set within the range of the load current range, 110 VAC.

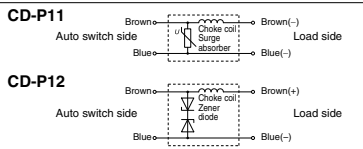
Even for the built-in contact protection circuit type (D-A34A[C], D-A44A[C], D-A54/A64, D-A59W, D-B59W), use the contact protection box when the wiring length to the load is very long (30 m or more) and when a PLC (Programmable Logic Controller) with a large inrush current is used.

Contact Protection Box Specifications

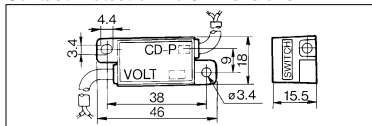
Part no.	CD-P11	CD-P12
Load voltage	100 VAC or less	200 VAC 24 VDC
Max. load current	25 mA	12.5 mA 50 mA

* Lead wire length — Auto switch connection side 0.5 m
Load connection side 0.5 m

Contact Protection Box Internal Circuit

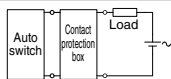


Contact Protection Box/Dimensions



Contact Protection Box Connection

To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Keep the switch as close as possible to the contact protection box, with a lead wire length of no more than 1 meter.

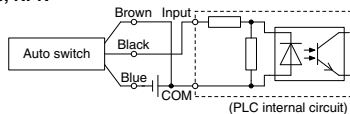


Prior to Use

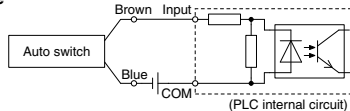
Auto Switch Connections and Examples

Sink Input Specifications

3-wire, NPN



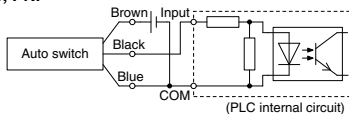
2-wire



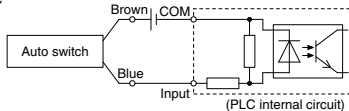
Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

Source Input Specifications

3-wire, PNP



2-wire

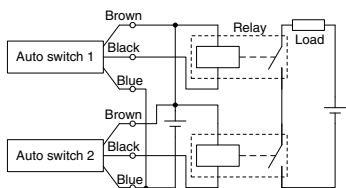


Examples of AND (Series) and OR (Parallel) Connections

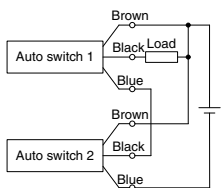
* When using solid state auto switches, ensure the application is set up so the signals for the first 50 ms are invalid. Depending on the operating environment, the product may not operate properly.

3-wire AND connection for NPN output

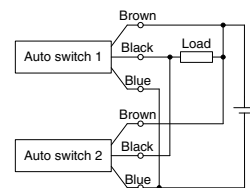
(Using relays)



(Performed with auto switches only)

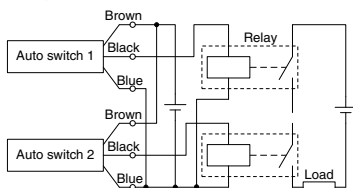


3-wire OR connection for NPN output

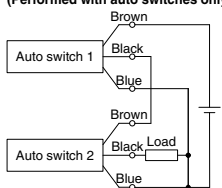


3-wire AND connection for PNP output

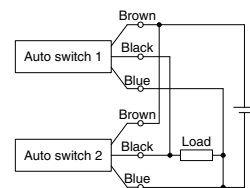
(Using relays)



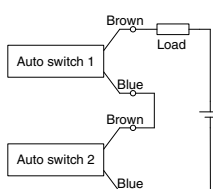
(Performed with auto switches only)



3-wire OR connection for PNP output



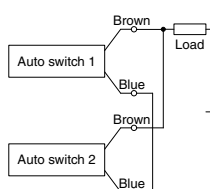
2-wire AND connection



When two auto switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state. The indicator lights will light up when both of the auto switches are in the ON state. Auto switches with a load voltage less than 20 V cannot be used. Please contact SMC if using AND connection for a heat-resistant solid state auto switch or a trimmer switch.

Example) Load voltage at ON
Power supply voltage: 24 VDC
Internal voltage drop: 4 V
Load voltage at ON = Power supply voltage –
Auto switch internal voltage drop x 2 pcs.
= 24 V – 4 V x 2 pcs.
= 16 V

2-wire OR connection



Example) Load voltage at OFF
Leakage current: 1 mA
Load impedance: 3 kΩ
Load voltage at OFF = Leakage current x 2 pcs. x
Load impedance
= 1 mA x 2 pcs. x 3 kΩ
= 6 V

(Solid state)
When two auto switches are connected in parallel, malfunction may occur because the load voltage will increase when in the OFF state.

(Reed)
Because there is no current leakage, the load voltage will not increase when turned OFF. However, depending on the number of auto switches in the ON state, the indicator lights may sometimes grow dim or not light up, due to the dispersion and reduction of the current flowing to the auto switches.

Solid State Auto Switches

General Purpose Type, 2-color Indicator, 2-color Indicator with Diagnostic Output, Water Resistant 2-color Indicator, Hygienic Type, Timer Equipped Type, Magnetic Field Resistant Type, Heat Resistant Type, Trimmer Auto Switch

Solid State Auto Switch Variations

Type	Function	Auto switch mounting type	Electrical entry	Auto switch model	Page
Solid State Auto Switch	General purpose	Direct	Grommet	D-M9N/M9P/M9B	1304
				D-M9NV/M9PV/M9BV	
				D-M9N-5/D-M9P-5/D-M9B-5	1305
				D-F8N/F8P/F8B	1307
		Band	Grommet	D-M9NE/M9PE/M9BE (Normally closed)	1308
				D-M9NEV/M9PEV/M9BEV (Normally closed)	
				D-Y59A/Y59B/Y7P	1309
				D-Y69A/Y69B /Y7PV	
		Rail	Grommet	D-Y7G/Y7H (Normally closed)	1310
				D-H7A1/H7A2/H7B	1311
				D-G59/G5P/K59	1312
				D-H7C	1313
	2-color indicator	Tie-rod	Terminal conduit	D-G39/K39	1314
				D-G39A/K39A	1315
				D-F79/F7P/J79	1316
				D-F7NV/F7PV/F7BV	1317
		Direct	Grommet	D-J79C	1318
				D-F59/F5P/J59	1319
				D-G39C/K39C	1320
		Band	Grommet	D-M9NW/M9PW/M9BW	1321
				D-M9NWV/M9PWV/M9BWV	
				D-Y7NW/Y7PW/Y7BW	1322
				D-Y7NWV/Y7PWV/Y7BWV	
	2-color indicator with diagnostic output	Rail	Grommet	D-H7NW/H7PW/H7BW	1323
				D-G59W/G5PW/K59W	1324
				D-F79W/F7PW/J79W	1325
				D-F7NWV/F7BWV	1326
		Tie-rod	Grommet	D-F59W/F5PW/J59W	1327
				D-H7NF	1328
	Water resistant 2-color indicator	Band	Grommet	D-G59F	1329
				D-F79F	1330
				D-F59F	1331
		Direct	Grommet	D-M9PA/M9NA/M9BA	1332
				D-M9PAV/M9NAV/M9BAV	
	Hygienic	Band	Grommet	D-Y7BA	1333
				D-H7BA	1334
				D-G5BA	1335
				D-F7BA	1336
		Tie-rod	Grommet	D-F7BAV	1337
				D-F5BA	
	With timer	Direct	Grommet	D-F6N/F6P/F6B	1338
				D-G5NT	1339
				D-F7NT	1340
				D-F5NT	1341
	Magnetic field resistance	Rail, Tie-rod, Direct	Grommet	D-P3DWASC/P3DWASE	1342
				D-P3DWA	1343
				D-P4DWSC/P4DWSE/P4DW□DPC	1344
				D-P4DW	1345
	Heat resistant	Sensor section: Rail Amplifier section: DIN rail	Grommet	D-M9NJ/M9PJ	1346
				D-F7NJ	1347
	Trimmer Auto Switch	Rail	Grommet	D-M9KF/7K/Y7K/RNK/RPK	1349
		Direct			

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



Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- 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.

Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: 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 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	Red LED illuminates when turned ON.					
Standard	CE/UKCA marking					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
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] (Reference values)		17		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

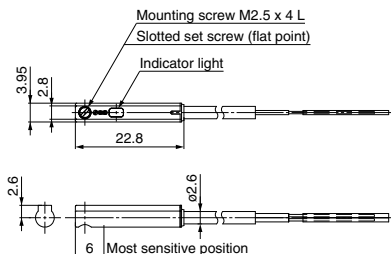
(g)

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length	0.5 m (Nil)	8	7	7
	1 m (M)	14	13	13
	3 m (L)	41	38	38
	5 m (Z)	68	63	63

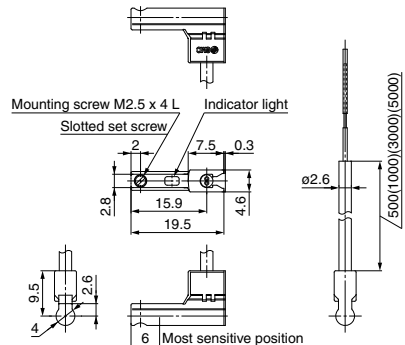
Dimensions

(mm)

D-M9□



D-M9□V



Solid State Auto Switch Direct Mounting Type D-F8N/D-F8P/D-F8B



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F8□ (With indicator light)			
Auto switch model	D-F8N	D-F8P	D-F8B
Electrical entry direction	Perpendicular	Perpendicular	Perpendicular
Wiring type	3-wire		2-wire
Output type	NPN	PNP	—
Applicable load	IC circuit, 24 VDC Relay, PLC		24 VDC relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	2.5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F8N	D-F8P	D-F8B
Sheath	Outside diameter [mm]	ϕ 2.7		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Conductor	Outside diameter [mm]	ϕ 0.91		ϕ 0.96
	Effective area [mm ²]	0.15		0.18
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

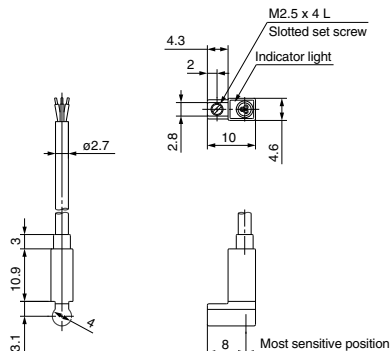
(g)

Auto switch model		D-F8N	D-F8P	D-F8B
Lead wire length	0.5 m (NII)	7		
	3 m (L)	32		
	5 m (Z)	52		

Dimensions

(mm)

D-F8N/D-F8P/D-F8B

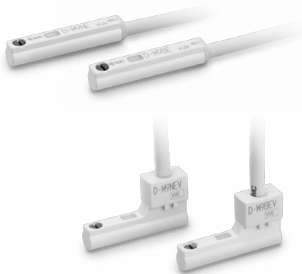


Normally Closed Solid State Auto Switch Direct Mounting Type D-M9NE(V)/D-M9PE(V)/D-M9BE(V)



Grommet

- Output signal turns on when no magnetic force is detected.
- Can be used for the actuator adopted by the solid state auto switch D-M9 series (excluding special order products)



⚠ 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.

Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-M9□E, D-M9□EV (With indicator light)						
Auto switch model	D-M9NE	D-M9NEV	D-M9PE	D-M9PEV	D-M9BE	D-M9BEV
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	Red LED illuminates when turned ON.					
Standard	CE/UKCA marking					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(V)
Sheath	Outside diameter [mm]	2.6		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	0.88		
	Effective area [mm ²]	0.15		
Conductor	Strand diameter [mm]	0.05		
	Minimum bending radius [mm] (Reference values)	17		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

(g)

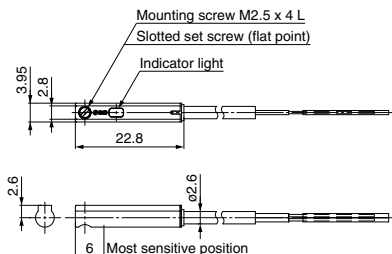
Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(V)
Lead wire length	0.5 m (Nil)	8	7	7
	1 m (M)*	14	13	13
	3 m (L)	41	38	38
	5 m (Z)*	68	63	63

* The 1 m and 5 m options are produced upon receipt of order.

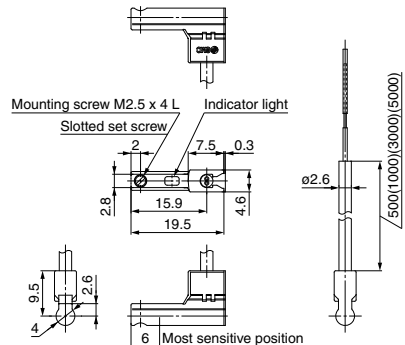
Dimensions

(mm)

D-M9□E



D-M9□EV



Solid State Auto Switch Direct Mounting Type D-Y59^A_B/D-Y69^A_B/D-Y7P(V)



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-Y5□, D-Y6□, D-Y7P, D-Y7PV (With indicator light)						
Auto switch model	D-Y59A	D-Y69A	D-Y7P	D-Y7PV	D-Y59B	D-Y69B
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 VDC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less		80 mA or less		2.5 to 40 mA	
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)		0.8 V or less		4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less at 24 VDC	
Indicator light	Red LED illuminates when turned ON.					
Standard	CE/UKCA marking					

Grommet
Using flexible cable as standard spec.



Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-Y□9A	D-Y7P□	D-Y□9B
Sheath	Outside diameter [mm]	ø3.4		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Conductor	Outside diameter [mm]	ø1.0		
	Effective area [mm ²]	0.15		
	Strand diameter [mm]	ø0.05		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.
Note 2) Refer to page 1298 for lead wire lengths.

Weight

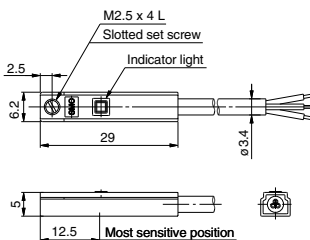
(g)

Auto switch model		D-Y59A	D-Y69A	D-Y7P(V)	D-Y59B	D-Y69B
Lead wire length	0.5 m (NII)	10		9		
	3 m (L)	53		50		
	5 m (Z)	87		83		

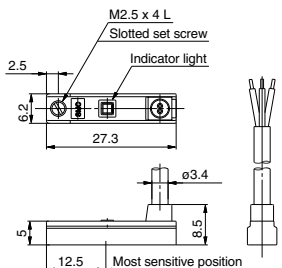
Dimensions

(mm)

D-Y59A/D-Y7P/D-Y59B



D-Y69A/D-Y7PV/D-Y69B



Normally Closed Solid State Auto Switch Direct Mounting Type D-Y7G/D-Y7H



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Output signal turns on when no magnetic force is detected.
- Using flexible cable as standard spec.



Auto Switch Specifications

PLC: Programmable Logic Controller

D-Y7G, D-Y7H (With indicator light)		
Auto switch model	D-Y7G	D-Y7H
Wiring type	3-wire	
Output type	NPN	PNP
Applicable load	IC circuit, Relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)	
Current consumption	10 mA or less	
Load voltage	28 VDC or less	—
Load current	40 mA or less	80 mA or less
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less
Leakage current	100 μ A or less at 24 VDC	
Indicator light	Red LED illuminates when detecting nothing.	
Standard	CE/UKCA marking	

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7G	D-Y7H
Sheath	Outside diameter [mm]	ϕ 3.4	
Insulator	Number of cores	3 cores (Brown/Blue/Black)	
	Outside diameter [mm]	ϕ 1.0	
Conductor	Effective area [mm ²]	0.15	
	Strand diameter [mm]	ϕ 0.05	
Minimum bending radius [mm] (Reference values)		21	

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

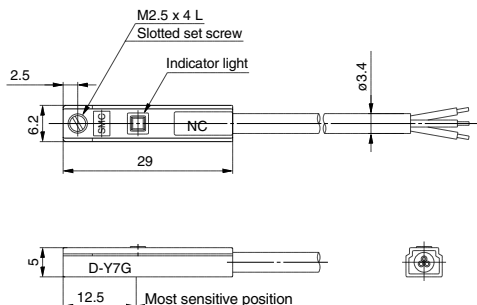
Weight

(g)

Auto switch model		D-Y7G	D-Y7H
Lead wire length	0.5 m (Nil)	10	
	3 m (L)	53	
	5 m (Z)	87	

Dimensions

(mm)



Solid State Auto Switch Band Mounting Type D-H7A1/D-H7A2/D-H7B



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-H7□ (With indicator light)			
Auto switch model	D-H7A1	D-H7A2	D-H7B
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-H7A1	D-H7A2	D-H7B
Sheath	Outside diameter [mm]	ϕ 3.4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ϕ 1.1		
Conductor	Effective area [mm ²]	0.2		
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

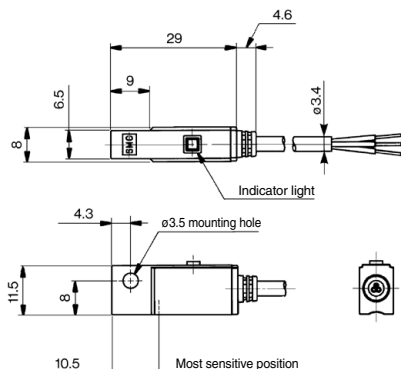
Weight

(g)

Auto switch model		D-H7A1	D-H7A2	D-H7B
Lead wire length	0.5 m (Nil)	13		11
	3 m (L)	57		50
	5 m (Z)	92		81

Dimensions

(mm)



Solid State Auto Switch Band Mounting Type D-G59/D-G5P/D-K59



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-G5□, D-K59 (With indicator light)			
Auto switch model	D-G59	D-G5P	D-K59
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-G59	D-G5P	D-K59
Sheath	Outside diameter [mm]	ϕ 4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ϕ 1.22		
Conductor	Effective area [mm ²]	0.3		
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		24		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

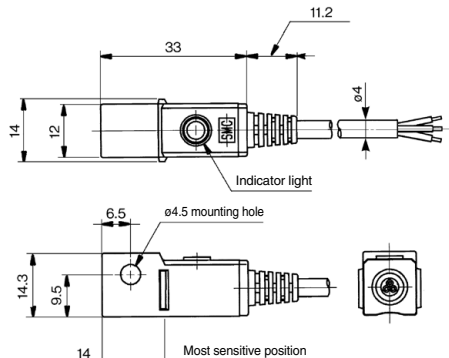
Weight

(g)

Auto switch model		D-G59	D-G5P	D-K59
Lead wire length	0.5 m (Nil)	20		18
	3 m (L)	78		68
	5 m (Z)	124		108

Dimensions

(mm)

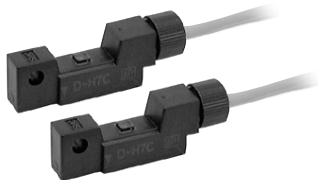


Solid State Auto Switch Band Mounting Type D-H7C



Refer to SMC website for the details of the products conforming to the international standards.

Connector



Caution

Precautions

1. Confirm that the connector is appropriately tightened. If tightened insufficiently, the waterproof performance will deteriorate.
2. Refer to page 1385 for the details.

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

Auto Switch Specifications

PLC: Programmable Logic Controller

D-H7C (With indicator light)	
Auto switch model	D-H7C
Wiring type	2-wire
Output type	—
Applicable load	24 VDC Relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	24 VDC (10 to 28 VDC)
Load current	5 to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Lead wires with a connector may be shipped with switches.

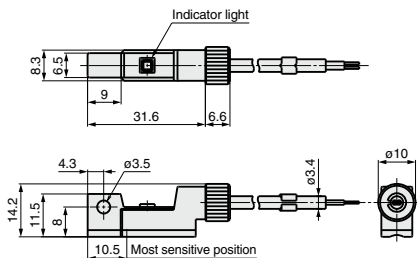
Weight

(g)

Auto switch model	D-H7C	
Lead wire length	0.5 m (Nil)	15
	3 m (L)	54
	5 m (Z)	85

Dimensions

(mm)



Solid State Auto Switch Band Mounting Type D-G39/D-K39



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-G39, D-K39 (With indicator light)		
Auto switch model	D-G39	D-K39
Wiring type	3-wire	2-wire
Output type	NPN	—
Applicable load	IC circuit, Relay, PLC	24 VDC Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)	—
Current consumption	10 mA or less	—
Load voltage	28 VDC or less	24 VDC (10 to 28 VDC)
Load current	40 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA of load current)	4 V or less
Leakage current	100 μ A or less at 24 VDC	0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.	
Standard	CE/UKCA marking	

(Note) Refer to page 1298 for solid state auto switch common specifications.

Terminal conduit



Caution

Precautions

1. Use cable whose O.D. is within the size in the figure to maintain water resistant performance.
2. After wiring, confirm that tightening gland and all screws are tightened.

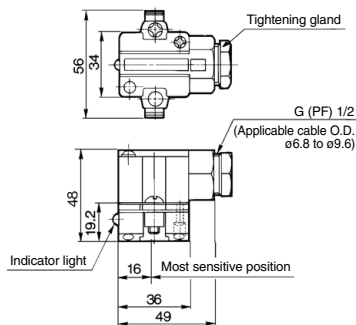
Weight

(g)

Auto switch model		D-G39	D-K39
Lead wire	None	116	

Dimensions

(mm)



Solid State Auto Switch Band Mounting Type D-G39A/D-K39A



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

Terminal conduit



Caution

Precautions

1. Use cable whose O.D. is within the size in the figure to maintain water resistant performance.
2. After wiring, confirm that tightening gland and all screws are tightened.

D-G39A, D-K39A (With indicator light)		
Auto switch model	D-G39A	D-K39A
Wiring type	3-wire	2-wire
Output type	NPN	—
Applicable load	IC circuit, Relay, PLC	24 VDC Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)	—
Current consumption	10 mA or less	—
Load voltage	28 VDC or less	24 VDC (10 to 28 VDC)
Load current	40 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA of load current)	4 V or less
Leakage current	100 μ A or less at 24 VDC	0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.	
Standard	CE/UKCA marking	

Note) Refer to page 1298 for solid state auto switch common specifications.

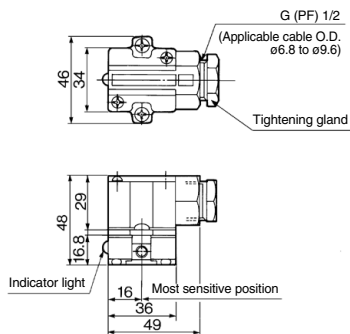
Weight

(g)

Auto switch model		D-G39A	D-K39A
Lead wire	None	110	

Dimensions

(mm)



Solid State Auto Switch Rail Mounting Type D-F79/D-F7P/D-J79



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F7□, D-J79 (With indicator light)			
Auto switch model	D-F79	D-F7P	D-J79
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F79	D-F7P	D-J79
Sheath	Outside diameter [mm]	ϕ 3.4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ϕ 1.1		
Conductor	Effective area [mm ²]	0.2		
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

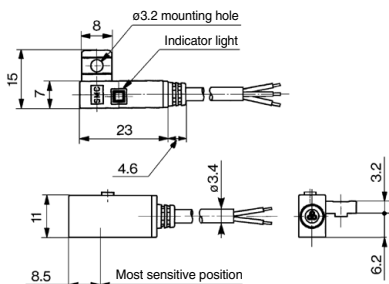
Weight

(g)

Auto switch model		D-F79	D-F7P	D-J79
Lead wire length	0.5 m (Nil)	13		11
	3 m (L)	57		50
	5 m (Z)	92		81

Dimensions

(mm)



Solid State Auto Switch Rail Mounting Type D-F7NV/D-F7PV/D-F7BV



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F7□V (With indicator light)			
Auto switch model	D-F7NV	D-F7PV	D-F7BV
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F7NV	D-F7PV	D-F7BV
Sheath	Outside diameter [mm]	ϕ 3.4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ϕ 1.1		
Conductor	Effective area [mm ²]	0.2		
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

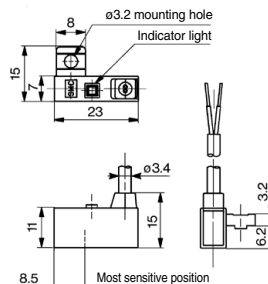
Weight

(g)

Auto switch model		D-F7NV	D-F7PV	D-F7BV
Lead wire length	0.5 m (Nil)	13		11
	3 m (L)	57		50
	5 m (Z)	92		81

Dimensions

(mm)



Solid State Auto Switch Rail Mounting Type D-J79C



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-J79C (With indicator light)	
Auto switch model	D-J79C
Wiring type	2-wire
Output type	—
Applicable load	24 VDC Relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	24 VDC (10 to 28 VDC)
Load current	5 to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Lead wires with a connector may be shipped with auto switches.

Weight

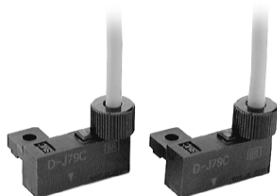
(g)

Auto switch model		D-J79C
Lead wire length	0.5 m (Nil)	13
	3 m (L)	52
	5 m (Z)	83

Dimensions

(mm)

Connector



Caution

Precautions

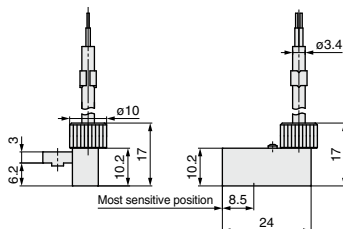
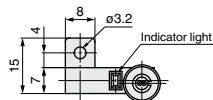
1. Confirm that the connector is appropriately tightened. If tightened insufficiently, the waterproof performance will deteriorate.
2. Refer to page 1385 for the details.

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



Solid State Auto Switch Tie-rod Mounting Type D-F59/D-F5P/D-J59



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F5□, D-J59 (With indicator light)			
Auto switch model	D-F59	D-F5P	D-J59
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F59	D-F5P	D-J59
Sheath	Outside diameter [mm]	$\phi 4$		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Conductor	Outside diameter [mm]	$\phi 1.22$		
	Effective area [mm ²]	0.3		
	Strand diameter [mm]	$\phi 0.08$		
Minimum bending radius [mm] (Reference values)		24		

Note 1) Refer to page 1298 for solid state auto switch common specifications.
Note 2) Refer to page 1298 for lead wire lengths.

Weight

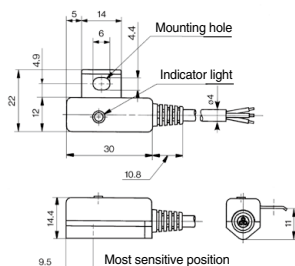
(g)

Auto switch model		D-F59	D-F5P	D-J59
Lead wire length	0.5 m (Nil)	23		21
	3 m (L)	81		71
	5 m (Z)	127		111

Dimensions

(mm)

D-F59/D-F5P/D-J59



Solid State Auto Switch Tie-rod Mounting Type D-G39C/D-K39C



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-G39C, D-K39C (With indicator light)		
Auto switch model	D-G39C	D-K39C
Wiring type	3-wire	2-wire
Output type	NPN	—
Applicable load	IC circuit, Relay, PLC	24 VDC Relay, PLC
Power voltage	5, 12, 24 VDC (4.5 to 28 VDC)	—
Current consumption	10 mA or less	—
Load voltage	28 VDC or less	24 VDC (10 to 28 VDC)
Load current	40 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA of load current)	4 V or less
Current leakage	100 μ A or less at 24 VDC	0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.	
Standard	CE/UKCA marking	

Note) Refer to page 1298 for solid state auto switch common specifications.

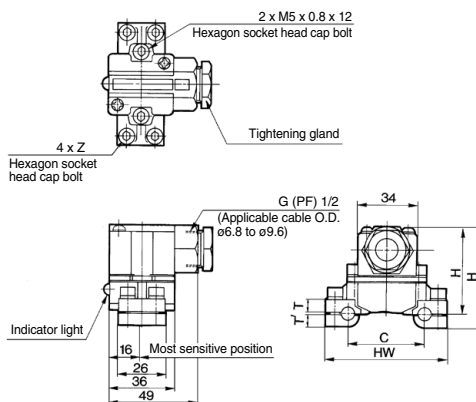
Weight

(g)

Auto switch model	Applicable bore size (mm)	Weight
D-G39C-4, K39C-4	40	162
D-G39C-5, K39C-5	50	166
D-G39C-6, K39C-6	63	184
D-G39C-8, K39C-8	80	210
D-G39C-10, K39C-10	100	232

Dimensions

(mm)



Dimensions

Auto switch model	Applicable bore size (mm)	C	HW	H	H'	T	T'	Z
D-G39C-4, D-K39C-4	40	44	69	57	49.5	7.5	6.5	M5 x 0.8 x 16
D-G39C-5, D-K39C-5	50	52	77	58	50.5	8.5	6.5	
D-G39C-6, D-K39C-6	63	64	91	60.5	52	10.5	7.5	M5 x 0.8 x 20
D-G39C-8, D-K39C-8	80	78	107	64	53.5	12.5	9.5	
D-G39C-10, D-K39C-10	100	92	121	67	56.5	15.5	9.5	M5 x 0.8 x 25

Terminal conduit



Caution

Precautions

1. Use cable whose O.D. is within the size in the figure to maintain water resistant performance.
2. After wiring, confirm that tightening gland and all screws are tightened.

2-Color Indicator Solid State Auto Switch Direct Mounting Type D-M9NW(V)/D-M9PW(V)/D-M9BW(V)



Grommet

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



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.

Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
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/UKCA marking					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
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] (Reference values)		17		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

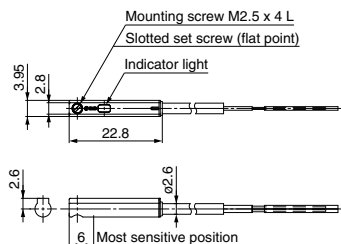
(g)

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(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	

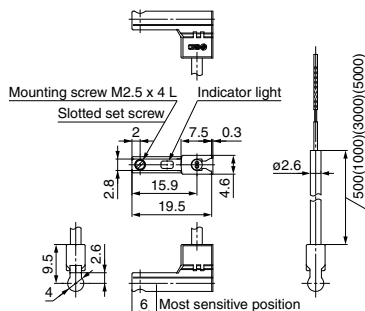
Dimensions

(mm)

D-M9□W



D-M9□WV



2-Color Indicator Solid State Auto Switch Direct Mounting Type D-Y7NW(V)/D-Y7PW(V)/D-Y7BW(V)



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-Y7□W, D-Y7□WV (With indicator light)						
Auto switch model	D-Y7NW	D-Y7NWV	D-Y7PW	D-Y7PWV	D-Y7BW	D-Y7BWV
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 VDC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less		80 mA or less		2.5 to 40 mA	
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)		0.8 V or less		4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less at 24 VDC	
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.					
Standard	CE/UKCA marking					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7NW□	D-Y7PW□	D-Y7BW□
Sheath	Outside diameter [mm]	ø3.4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø1.0		
Conductor	Effective area [mm ²]	0.15		
	Strand diameter [mm]	ø0.05		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

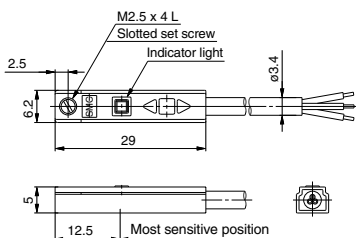
(g)

Auto switch model		D-Y7NW(V)	D-Y7PW(V)	D-Y7BW(V)
Lead wire length	0.5 m (Nil)	11		
	3 m (L)	54		
	5 m (Z)	88		

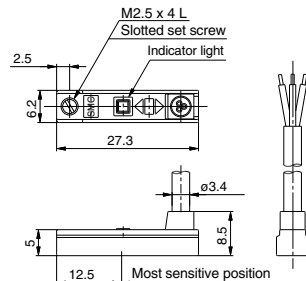
Dimensions

(mm)

D-Y7□W



D-Y7□WV



2-Color Indicator Solid State Auto Switch Band Mounting Type D-H7NW/D-H7PW/D-H7BW



Grommet

The proper operating range can be determined by the color of the light.

(Red → Green ← Red)



Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-H7□W (With indicator light)			
Auto switch model	D-H7NW	D-H7PW	D-H7BW
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-H7NW	D-H7PW	D-H7BW
Sheath	Outside diameter [mm]	ϕ 3.4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ϕ 1.1		
Conductor	Effective area [mm ²]	0.2		
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

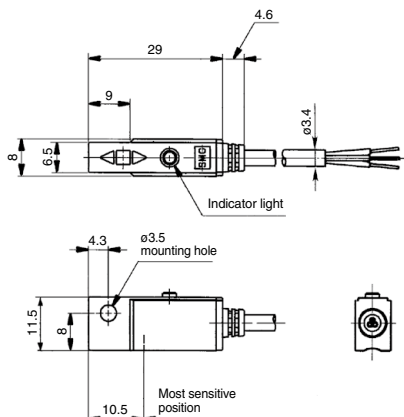
Weight

(g)

Auto switch model		D-H7NW	D-H7PW	D-H7BW
Lead wire length	0.5 m (NII)	13		11
	3 m (L)	57		50
	5 m (Z)	92		81

Dimensions

(mm)



2-Color Indicator Solid State Auto Switch Band Mounting Type D-G59W/D-G5PW/D-K59W



Grommet

The proper operating range can be determined by the color of the light.

(Red → Green ← Red)



Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-G5□W, D-K59W (With indicator light)			
Auto switch model	D-G59W	D-G5PW	D-K59W
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μA or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-G59W	D-G5PW	D-K59W
Sheath	Outside diameter [mm]	ø4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø1.22		
Conductor	Effective area [mm ²]	0.3		
	Strand diameter [mm]	ø0.08		
Minimum bending radius [mm] (Reference values)		24		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

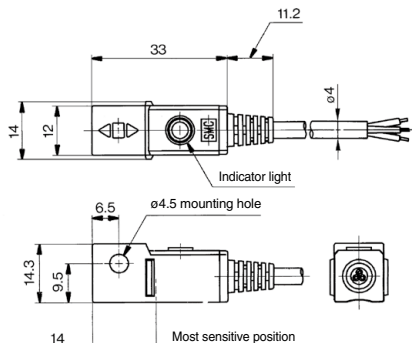
Weight

(g)

Auto switch model		D-G59W	D-G5PW	D-K59W
Lead wire length	0.5 m (Nil)	20	18	18
	3 m (L)	78	68	68
	5 m (Z)	124	108	108

Dimensions

(mm)



2-Color Indicator Solid State Auto Switch Rail Mounting Type D-F79W/D-F7PW/D-J79W



Grommet

The proper operating range can be determined by the color of the light.

(Red → Green ← Red)



Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-F79W, D-J79W (With indicator light)			
Auto switch model	D-F79W	D-F7PW	D-J79W
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F79W	D-F7PW	D-J79W
Sheath	Outside diameter [mm]	ϕ 3.4		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ϕ 1.1		
Conductor	Effective area [mm ²]	0.2		
	Strand diameter [mm]	ϕ 0.08		
Minimum bending radius [mm] (Reference values)		21		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

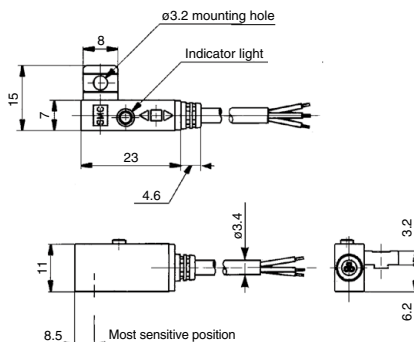
Weight

(g)

Auto switch model		D-F79W	D-F7PW	D-J79W
Lead wire length	0.5 m (Nil)	13		11
	3 m (L)	57		50
	5 m (Z)	92		81

Dimensions

(mm)



2-Color Indicator Solid State Auto Switch Rail Mounting Type D-F7N WV/D-F7B WV



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F7□ WV (With indicator light)		
Auto switch model	D-F7N WV	D-F7B WV
Wiring type	3-wire	2-wire
Output type	NPN	—
Applicable load	IC circuit, Relay, PLC	24 VDC Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)	—
Current consumption	10 mA or less	—
Load voltage	28 VDC or less	24 VDC (10 to 28 VDC)
Load current	40 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	4 V or less
Leakage current	100 μ A or less at 24 VDC	0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.	
Standard	CE/UKCA marking	

Grommet Electrical entry: Perpendicular

The proper operating range can be determined by the color of the light.

(Red → Green ← Red)



Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F7N WV	D-F7B WV
Sheath	Outside diameter [mm]	ϕ 3.4	
	Number of cores	3 cores (Brown/Blue/Black)	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ϕ 1.1	
	Effective area [mm ²]	0.2	
	Strand diameter [mm]	ϕ 0.08	
Minimum bending radius [mm] (Reference values)		21	

Note 1) Refer to page 1298 for solid state auto switch common specifications.
Note 2) Refer to page 1298 for lead wire lengths.

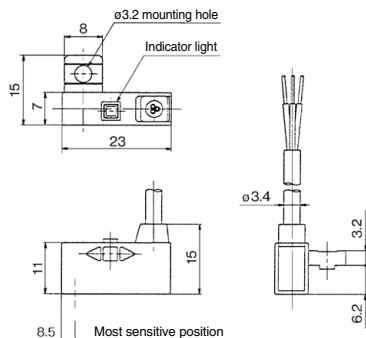
Weight

(g)

Auto switch model		D-F7N WV	D-F7B WV
Lead wire length	0.5 m (Nil)	13	11
	3 m (L)	57	50
	5 m (Z)	92	81

Dimensions

(mm)



2-Color Indicator Solid State Auto Switch Tie-rod Mounting Type D-F59W/D-F5PW/D-J59W



Grommet

The proper operating range can be determined by the color of the light.

(Red → Green ← Red)



Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-F5□W, D-J59W (With indicator light)			
Auto switch model	D-F59W	D-F5PW	D-J59W
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 VDC)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F59W	D-F5PW	D-J59W
Sheath	Outside diameter [mm]	$\phi 4$		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Conductor	Outside diameter [mm]	$\phi 1.22$		
	Effective area [mm ²]	0.3		
	Strand diameter [mm]	$\phi 0.08$		
Minimum bending radius [mm] (Reference values)		24		

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

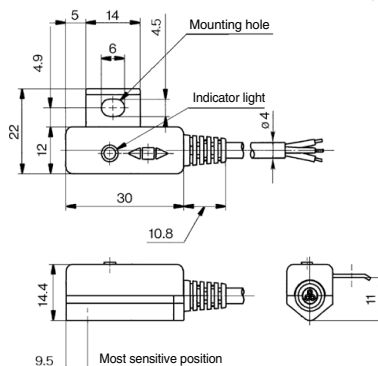
Weight

(g)

Auto switch model		D-F59W	D-F5PW	D-J59W
Lead wire length	0.5 m (Nil)	23		21
	3 m (L)	81		71
	5 m (Z)	127		111

Dimensions

(mm)



2-Color Indicator with Diagnostic Output Solid State Auto Switch: Band Mounting Type D-H7NF



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

Since the diagnostic output signal can be detected in the red display area, the difference of detecting position can be confirmed by the side of PLC (Programmable Logic Controller).



Auto Switch Specifications

PLC: Programmable Logic Controller

D-H7NF (With indicator light)	
Auto switch model	D-H7NF
Wiring type	4-wire
Output type	NPN
Diagnostic output	Normal operation
Applicable load	IC circuit, Relay, PLC
Power voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	50 mA or less at the total amount of normal output and diagnostic output
Internal voltage drop	1.5 V or less (0.8 V or less at each output 5 mA)
Current leakage	100 μ A or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-H7NF
Sheath	Outside diameter [mm]	ϕ 3.4
	Number of cores	4 cores (Brown/Blue/Black/Orange)
Insulator	Outside diameter [mm]	ϕ 0.98
	Effective area [mm ²]	0.2
Conductor	Strand diameter [mm]	ϕ 0.08
	Minimum bending radius [mm] (Reference values)	21

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

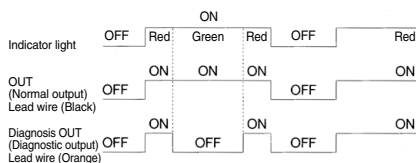
Weight

(g)

Auto switch model		D-H7NF
Lead wire length	0.5 m (Nil)	13
	3 m (L)	56
	5 m (Z)	90

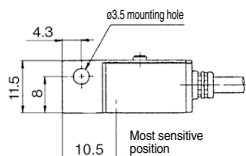
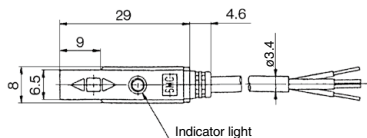
Diagnostic Output Operation

The diagnostic output signal is output within the red display area (where indicator light is Red), and the diagnostic output becomes OFF when the detecting position remains within the proper operating range (where indicator is Green). When the detecting position is not adjusted, the diagnostic output becomes ON.



Dimensions

(mm)



2-Color Indicator with Diagnostic Output Solid State Auto Switch: Band Mounting Type D-G59F



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

Since the diagnostic output signal can be detected in the red display area, the difference of detecting position can be confirmed by the side of PLC (Programmable Logic Controller).



Auto Switch Specifications

PLC: Programmable Logic Controller

D-G59F (With indicator light)	
Auto switch model	D-G59F
Wiring type	4-wire
Output type	NPN
Diagnostic output	Normal operation
Applicable load	IC circuit, Relay, PLC
Power voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	50 mA or less at the total amount of normal output and diagnostic output
Internal voltage drop	1.5 V or less (0.8 V or less at 5 mA)
Current leakage	100 μ A or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-G59F
Sheath	Outside diameter [mm]	$\phi 4$
	Number of cores	4 cores (Brown/Blue/Black/Orange)
Insulator	Outside diameter [mm]	$\phi 1.29$
	Effective area [mm ²]	0.3
Conductor	Strand diameter [mm]	$\phi 0.08$
	Minimum bending radius [mm] (Reference values)	24

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

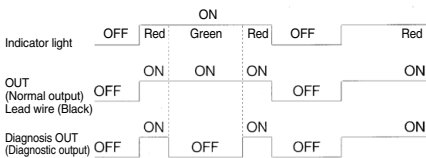
Weight

(g)

Auto switch model		D-G59F
Lead wire length	0.5 m (N il)	20
	3 m (L)	74
	5 m (Z)	117

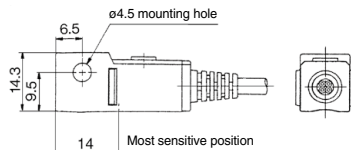
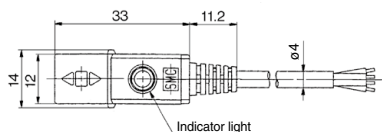
Diagnostic Output Operation

The diagnostic output signal is output within the red display area (where indicator light is Red), and the diagnostic output becomes OFF when the detecting position remains within the proper operating range (where indicator is Green). When the detecting position is not adjusted, the diagnostic output becomes ON.



Dimensions

(mm)



2-Color Indicator with Diagnostic Output Solid State Auto Switch: Rail Mounting Type D-F79F



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

Since the diagnostic output signal can be detected in the red display area, the difference of detecting position can be confirmed by the side of PLC (Programmable Logic Controller).



Auto Switch Specifications

PLC: Programmable Logic Controller

D-F79F (With indicator light)	
Auto switch model	D-F79F
Wiring type	4-wire
Output type	NPN
Diagnostic output	Normal operation
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	50 mA or less at the total amount of normal output and diagnostic output
Internal voltage drop	1.5 V or less (0.8 V or less at 5 mA)
Leakage current	100 μ A or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F79F
Sheath	Outside diameter [mm]	ϕ 3.4
	Number of cores	4 cores (Brown/Blue/Black/Orange)
Insulator	Outside diameter [mm]	ϕ 0.98
	Effective area [mm ²]	0.2
Conductor	Strand diameter [mm]	ϕ 0.08
	Minimum bending radius [mm] (Reference values)	21

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

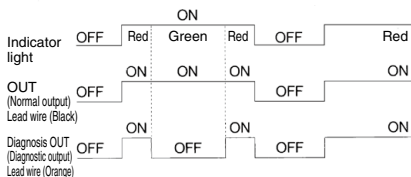
Weight

(g)

Auto switch model		D-F79F
Lead wire length	0.5 m (N il)	13
	3 m (L)	56
	5 m (Z)	90

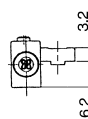
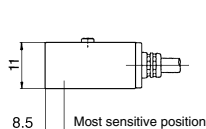
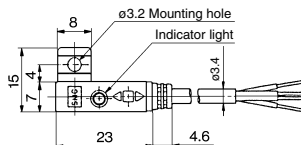
Diagnostic Output Operation

The diagnostic output signal is output within the red display area (where indicator light is Red), and it is not output within the proper operating range (where indicator light is Green). When the auto switch detecting position is not adjusted, the diagnostic output becomes activated.



Dimensions

(mm)



2-Color Indicator with Diagnostic Output Solid State Auto Switch: Tie-rod Mounting Type D-F59F



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

Since the diagnostic output signal can be detected in the red display area, the difference of detecting position can be confirmed by the side of PLC (Programmable Logic Controller).



Auto Switch Specifications

PLC: Programmable Logic Controller

D-F59F (With indicator light)	
Auto switch model	D-F59F
Wiring type	4-wire
Output type	NPN
Diagnostic output	Normal operation
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	50 mA or less at the total amount of normal output and diagnostic output
Internal voltage drop	1.5 V or less (0.8 V or less at 5 mA)
Leakage current	100 μ A or less at 28 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F59F
Sheath	Outside diameter [mm]	$\phi 4$
	Number of cores	4 cores (Brown/Blue/Black/Orange)
Insulator	Outside diameter [mm]	$\phi 1.29$
	Effective area [mm ²]	0.3
	Strand diameter [mm]	$\phi 0.08$
Minimum bending radius [mm] (Reference values)		24

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

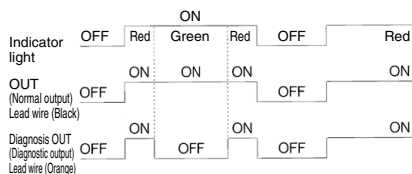
Weight

(g)

Auto switch model		D-F59F
Lead wire length	0.5 m (Nil)	22
	3 m (L)	77
	5 m (Z)	121

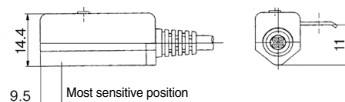
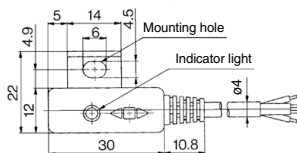
Diagnostic Output Operation

The diagnostic output signal is output within the red display area (where indicator light is Red), and it is not output within the proper operating range (where indicator light is Green). When the auto switch detecting position is not adjusted, the diagnostic output becomes activated.



Dimensions

(mm)



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

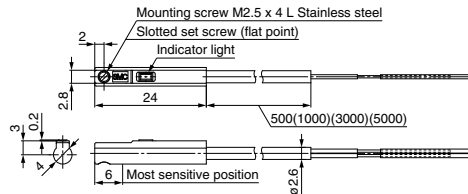
(g)

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	

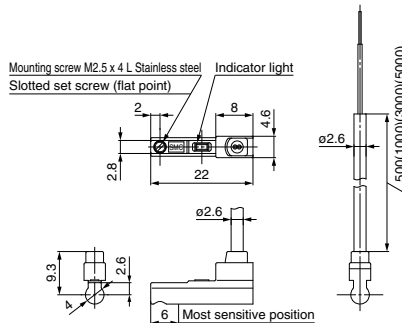
Dimensions

(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/UKCA marking					

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)					
Conductor	Outside diameter [mm] 0.88					
	Effective area [mm ²] 0.15					
	Strand diameter [mm] 0.05					
Minimum bending radius [mm]	17					

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Water Resistant 2-Color Indicator Solid State Auto Switch: Direct Mounting Type D-Y7BA



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Water (coolant) resistant type
- Using flexible cable as standard spec.
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Please consult with SMC if using coolant liquid other than water based solution. Detection characteristics (operating range) are the same as D-Y5□ and D-Y7□W, but the detection area length is different.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-Y7BA (With indicator light)	
Auto switch model	D-Y7BA
Wiring type	2-wire
Applicable load	24 VDC Relay, PLC
Load voltage	24 VDC (10 to 28 VDC)
Load current	2.5 to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7BA
Sheath	Outside diameter [mm]	ø3.4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1
	Effective area [mm ²]	0.15
Conductor	Strand diameter [mm]	ø0.05
	Minimum bending radius [mm] (Reference values)	21

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

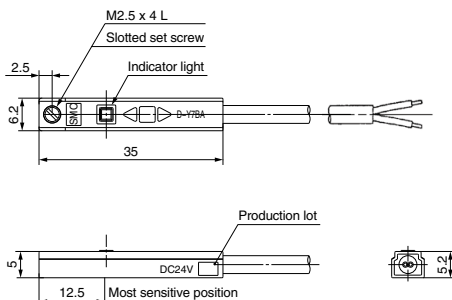
Weight

(g)

Auto switch model		D-Y7BA
Lead wire length	3 m (L)	54
	5 m (Z)	88

Dimensions

(mm)



Water Resistant 2-Color Indicator Solid State Auto Switch: Band Mounting Type D-H7BA



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Water (coolant) resistant type
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Please consult with SMC if using coolant liquid other than water based solution.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-H7BA (With indicator light)	
Auto switch model	D-H7BA
Wiring type	2-wire
Output type	—
Applicable load	24 VDC Relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	24 VDC (10 to 28 VDC)
Load current	5 to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-H7BA
Sheath	Outside diameter [mm]	ø3.4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.1
	Effective area [mm ²]	0.2
Conductor	Strand diameter [mm]	ø0.08
	Minimum bending radius [mm] (Reference values)	21

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

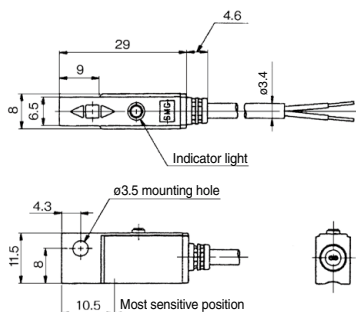
Weight

(g)

Auto switch model		D-H7BA
Lead wire length	3 m (L)	50
	5 m (Z)	81

Dimensions

(mm)



Water Resistant 2-Color Indicator Solid State Auto Switch: Band Mounting Type D-G5BA



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Water (coolant) resistant type
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Please consult with SMC if using coolant liquid other than water based solution.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-G5BA (With indicator light)	
Auto switch model	D-G5BA
Wiring type	2-wire
Output type	—
Applicable load	24 VDC Relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	24 VDC (10 to 28 VDC)
Load current	5 to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-G5BA
Sheath	Outside diameter [mm]	ø4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.22
	Effective area [mm ²]	0.3
Conductor	Strand diameter [mm]	ø0.08
	Minimum bending radius [mm] (Reference values)	24

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

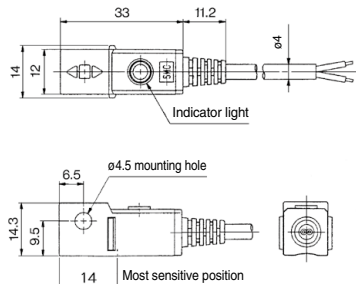
Weight

(g)

Auto switch model		D-G5BA
Lead wire length	3 m (L)	68
	5 m (Z)	108

Dimensions

(mm)



Water Resistant 2-Color Indicator Solid State Auto Switch: Rail Mounting Type D-F7BA(V)



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Water (coolant) resistant type
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Please consult with SMC if using coolant liquid other than water based solution.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F7BA(V) (With indicator light)

Auto switch model	D-F7BA	D-F7BAV
Electrical entry direction	In-line	Perpendicular
Wiring type	2-wire	
Output type	—	
Applicable load	24 VDC Relay, PLC	
Power supply voltage	—	
Current consumption	—	
Load voltage	24 VDC (10 to 28 VDC)	
Load current	5 to 40 mA	
Internal voltage drop	4 V or less	
Leakage current	0.8 mA or less at 24 VDC	
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.	
Standard	CE/UKCA marking	

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model	D-F7BA
Sheath	Outside diameter [mm] ø3.4
Insulator	Number of cores 2 cores (Brown/Blue)
	Outside diameter [mm] ø1.1
Conductor	Effective area [mm ²] 0.2
	Strand diameter [mm] ø0.08
Minimum bending radius [mm] (Reference values)	

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

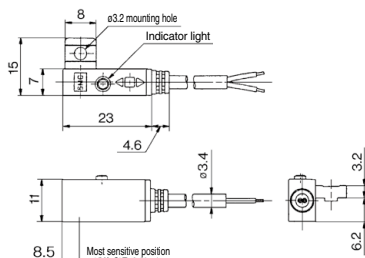
(g)

Auto switch model	D-F7BA	D-F7BAV
Lead wire length	3 m (L)	50
	5 m (Z)	81

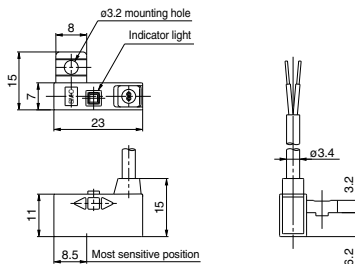
Dimensions

(mm)

D-F7BA



D-F7BAV



Water Resistant 2-Color Indicator Solid State Auto Switch: Tie-rod Mounting Type D-F5BA



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Water (coolant) resistant type
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Please consult with SMC if using coolant liquid other than water based solution.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F5BA (With indicator light)	
Auto switch model	D-F5BA
Wiring type	2-wire
Output type	—
Applicable load	24 VDC Relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	24 VDC (10 to 28 VDC)
Load current	5 to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F5BA
Sheath	Outside diameter [mm]	ø4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.22
	Effective area [mm ²]	0.3
	Strand diameter [mm]	ø0.08
Minimum bending radius [mm] (Reference values)		24

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

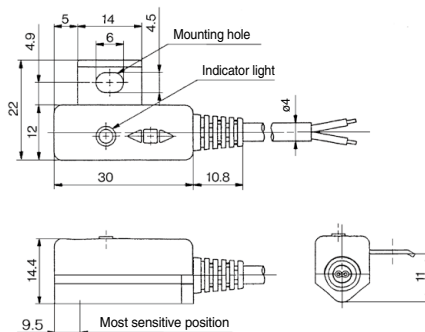
Weight

(g)

Auto switch model		D-F5BA
Lead wire length	3 m (L)	71
	5 m (Z)	111

Dimensions

(mm)



For Hygienic Design Cylinders

Solid State Auto Switch: Direct Mounting Type

D-F6N/D-F6P/D-F6B



Grommet

- 2-wire load current is reduced (2.5 to 40 mA)
- 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.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-F6□ (With indicator light)			
Auto switch part no.	D-F6N	D-F6P	D-F6B
Electrical entry direction	In-line		
Wiring type	3-wire		2-wire
Output type	NPN	PNP	—
Applicable load	IC circuit, relay, and 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 (2V or less at 40 mA)		4 V or less
Leakage current	100 μ A or less at 24 V DC		0.8 mA or less
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-F6N□	D-F6P□	D-F6B□
Sheath	Outside diameter [mm]	ϕ 2.6		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ϕ 0.88		
	Effective area [mm ²]	0.15		
Conductor	Strand diameter [mm]	ϕ 0.05		
	Minimum bending radius [mm] (Reference values)	17		

Note 1) Refer to page 1298 for solid state auto switch common specifications.
Note 2) Refer to page 1298 for lead wire lengths.

Weight

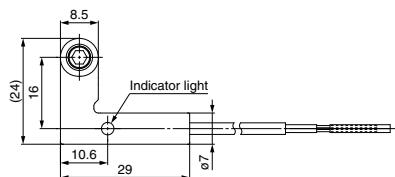
(g)

Auto switch model		D-F6N	D-F6P	D-F6B
Lead wire length	0.5 m (Nil)	20	—	19
	3 m (L)	53	—	50
	5 m (Z)	80	—	75

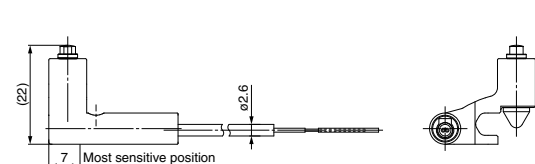
Dimensions

(mm)

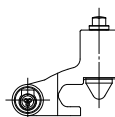
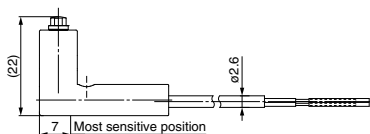
D-F6□



D-F6B



D-F6N/F6P



Solid State Auto Switch with Timer Band Mounting Type D-G5NT



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- With built-in OFF-delay timer (approx. 200 ms)
- Easy intermediate detection



Auto Switch Specifications

PLC: Programmable Logic Controller

D-G5NT (With indicator light)	
Auto switch model	D-G5NT
Wiring type	3-wire
Output type	NPN
Output operation	Off-delay
Operating time	1 ms or less
Off-delay time	200 ± 50 ms
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	40 mA or less
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA)
Leakage current	100 µA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-G5NT
Sheath	Outside diameter [mm]	ø4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	ø1.22
Conductor	Effective area [mm ²]	0.3
	Strand diameter [mm]	ø0.08
Minimum bending radius [mm] (Reference values)		24

Note 1) Refer to page 1298 for solid state auto switch common specifications.
Note 2) Refer to page 1298 for lead wire lengths.

Weight

(g)

Auto switch model		D-G5NT
Lead wire length	3 m (L)	78
	5 m (Z)	124

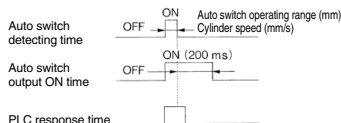
Timer Operation

Detection of intermediate positioning for high-speed cylinder

Detecting point dispersion occurs due to response time of PLC (sequencer); e.g. scanning.

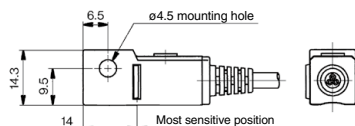
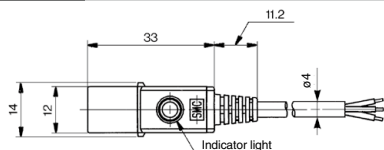
Ex.) Cylinder speed — 1000 mm/sec.
PLC response time — 0.1 sec.
Detecting point dispersion — Within 100 mm (= 1000 mm/sec. x 0.1 sec.)

Take PLC response time into consideration when using.



Dimensions

(mm)



Solid State Auto Switch with Timer Rail Mounting Type D-F7NT



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- With built-in OFF-delay timer (approx. 200 ms)
- Easy intermediate detection



Auto Switch Specifications

PLC: Programmable Logic Controller

D-F7NT (With indicator light)	
Auto switch model	D-F7NT
Wiring type	3-wire
Output type	NPN
Output operation	Off-delay
Operating time	1 ms or less
Off-delay time	200 ± 50 ms
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	40 mA or less
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA)
Leakage current	100 µA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model	D-F7NT
Sheath	Outside diameter [mm] ø3.4
Insulator	Number of cores 3 cores (Brown/Blue/Black)
	Outside diameter [mm] ø1.1
Conductor	Effective area [mm ²] 0.2
	Strand diameter [mm] ø0.08
Minimum bending radius [mm] (Reference values)	

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Weight

(g)

Auto switch model	D-F7NT
Lead wire length	3 m (L) 57
	5 m (Z) 92

Timer Operation

Detection of intermediate positioning for high-speed cylinder

Detecting point dispersion occurs due to response time of PLC (sequencer); e.g. scanning.

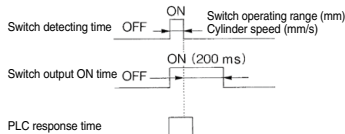
Ex.) Cylinder speed — 1000 mm/sec.

PLC response time — 0.1 sec.

Detecting point dispersion — Within

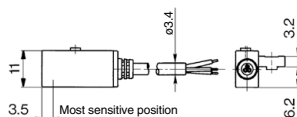
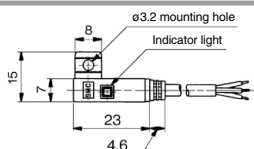
100 mm (= 1000 mm/sec. x 0.1 sec.)

Take PLC response time into consideration when using.



Dimensions

(mm)



Solid State Auto Switch with Timer Tie-rod Mounting Type D-F5NT



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- With built-in OFF-delay timer (approx. 200 ms)
- Easy intermediate detection



Auto Switch Specifications

PLC: Programmable Logic Controller

D-F5NT (With indicator light)	
Auto switch model	D-F5NT
Wiring type	3-wire
Output type	NPN
Output operation	Off-delay
Operating time	1 ms or less
Off-delay time	200 ± 50 ms
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load voltage	28 VDC or less
Load current	40 mA or less
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA)
Leakage current	100 µA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F5NT
Sheath	Outside diameter [mm]	ø4
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	ø1.22
	Effective area [mm ²]	0.3
Conductor	Strand diameter [mm]	ø0.08
	Minimum bending radius [mm] (Reference values)	24

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Timer Operation

Detection of intermediate positioning for high-speed cylinder

Detecting point dispersion occurs due to response time of PLC (sequencer); e.g. scanning.

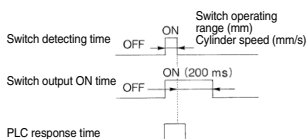
Ex.) Cylinder speed — 1000 mm/sec.

PLC response time — 0.1 sec.

Detecting point dispersion — Within

100 mm (= 1000 mm/sec. x 0.1 sec.)

Take PLC response time into consideration when using.



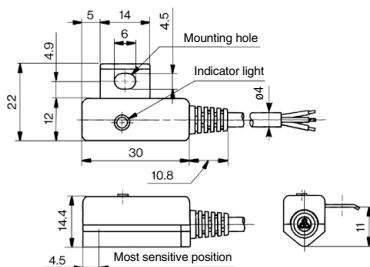
Weight

(g)

Auto switch model		D-F5NT
Lead wire length	3 m (L)	81
	5 m (Z)	127

Dimensions

(mm)



Magnetic Field Resistant 2-Color Indicator Solid State Auto Switch

D-P3DWASC/D-P3DWASE

(Electrical Entry: Pre-wired connector)



Refer to SMC website for the details of the products conforming to the international standards.

- It is possible to use in an environment which generates a magnetic field disturbance (AC magnetic field).
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



⚠ Caution

Precautions

For single-phase AC welding machines. If it is used for current inverter welders (including rectifying type) and condenser type welders, the magnetic field resistance is reduced. Please contact SMC regarding the performance.

Magnetic Field Resistance

If the current of the AC welding machine is 16000 A or lower, the auto switch can be used, even if the distance between the welding conductor (gun cable) and the cylinder/actuator or auto switch is 0 mm.

Please contact SMC when the AC welding current exceeds 16000 A.

Weight

(g)

Auto switch model	D-P3DWASC	D-P3DWASE
Lead wire length (m)	0.3	25



Connector pin

Model	Connector pin and wiring			
	1	2	3	4
D-P3DWASC	—	—	OUT(±)	OUT(±)
D-P3DWASE	OUT(±)	—	—	OUT(±)

Auto Switch Specifications

PLC: Programmable Logic Controller

D-P3DWASC/E (With indicator light)		
Auto switch model	D-P3DWASC	D-P3DWASE
Applicable load	24 VDC relay, PLC	
Load voltage	24 VDC	
Load current	6 to 40 mA	
Internal voltage drop	5 V or less	
Leakage current	1 mA or less at 24 VDC	
Operating time	40 ms or less	
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.	
Standard	CE/UKCA marking, UL (CSA)	

Oilproof Heavy-duty Lead Wire Specifications

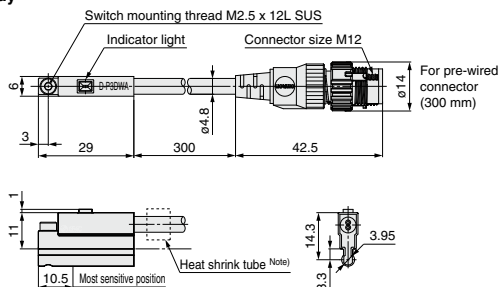
Auto switch model		D-P3DWASC	D-P3DWASE
Sheath	Outside diameter (mm)	ø4.8	
	Number of cores	2 cores	
Insulator	Outside diameter (mm)	ø1.52	
	Effective area (mm ²)	0.5	
Conductor	Strand diameter (mm)	ø0.08	
	Minimum bending radius (mm) (Reference values)	29	

- Impact resistance — Switch: 1000 m/s², Connector: 300 m/s²
- Insulation resistance — 50 MΩ or more at 500 VDC Mega (between lead wire and case)
- Withstand voltage — 1000 VAC for 1 minute (between lead wire and case)
- Ambient temperature — -10 to 60°C
- Enclosure — IEC60529 standard IP67
- Polarity: Non-polar

Dimensions

(mm)

Body



Note) A white color heat shrink tube is attached to the D-P3DWASE type only.

Magnetic Field Resistant 2-Color Indicator Solid State Auto Switch

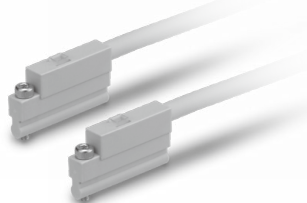
D-P3DWA

(Electrical Entry: Grommet)



Refer to SMC website for the details of the products conforming to the international standards.

- It is possible to use in an environment which generates a magnetic field disturbance (AC magnetic field).
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



⚠ Caution

Precautions

For single-phase AC welding machines. If it is used for current inverter welders (including rectifying type) and condenser type welders, the magnetic field resistance is reduced. Please contact SMC regarding the performance.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-P3DWA (With indicator light)	
Auto switch model	D-P3DWA
Applicable load	24 VDC relay, PLC
Load voltage	24 VDC
Load current	6 to 40 mA
Internal voltage drop	5 V or less
Leakage current	1 mA or less at 24 VDC
Operating time	40 ms or less
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking, UL (CSA)

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-P3DWA
Sheath	Outside diameter [mm]	ø4.8
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.52
	Effective area [mm ²]	0.5
	Strand diameter [mm]	ø0.08
Minimum bending radius [mm] (Reference values)		29

- Impact resistance — Switch: 1000 m/s²
- Insulation resistance — 50 MΩ or more at 500 VDC Mega (between lead wire and case)
- Withstand voltage — 1000 VAC for 1 minute (between lead wire and case)
- Ambient temperature — -10 to 60°C
- Enclosure — IEC60529 standard IP67
- Polarity: Non-polar

Magnetic Field Resistance

If the current of the AC welding machine is 16000 A or lower, the auto switch can be used, even if the distance between the welding conductor (gun cable) and the cylinder/actuator or auto switch is 0 mm. Please contact SMC when the AC welding current exceeds 16000 A.

Weight

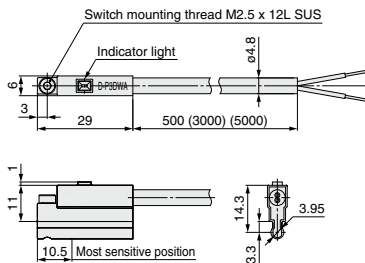
(g)

Auto switch model		D-P3DWA
Lead wire length	0.5 m (NII)	22
	3 m (L)	104
	5 m (Z)	170

Dimensions

(mm)

Body



Magnetic Field Resistant 2-Color Indicator Solid State Auto Switch

D-P4DWSC/D-P4DWSE/D-P4DW□DPC

(Electrical Entry: Pre-wired connector)



Grommet

- It is possible to use in an environment which generates a magnetic field disturbance (AC magnetic field).
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



⚠ Caution

Precautions

For single-phase AC welding machines.
Not applicable for DC inverter welding machines (including rectifying type) and/or condenser type welding.



Connector pin

Model	Connector pin/Wiring			
	1	2	3	4
D-P4DWSC	—	—	OUT(⊕)	OUT(⊖)
D-P4DWSE	OUT(⊖)	—	—	OUT(⊕)
D-P4DW□DPC	—	—	OUT(⊕)	OUT(⊖)

Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-P4DW□ (With indicator light)					
Auto switch model	D-P4DWSC	D-P4DWSE	D-P4DWSDDPC	D-P4DWMDDPC	D-P4DWLDDPC
Applicable load	24 VDC relay, PLC				
Load voltage	24 VDC (20 to 28 VDC)				
Load current	6 to 40 mA or less				
Internal voltage drop	5 V or less				
Leakage current	1 mA or less at 24 VDC				
Operating time	40 ms or less				
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.				
Standard	CE/UKCA marking				

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-P4DWSC	D-P4DWSE	D-P4DWSDDPC	D-P4DWMDDPC	D-P4DWLDDPC
Length [m]		0.3	0.3	0.5	1	3
Sheath	Outside diameter [mm]	ø6				
	Number of cores	2 cores				
Insulator	Outside diameter [mm]	ø2.3				
	Effective area [mm ²]	0.5				
Conductor	Strand diameter [mm]	ø0.08				
	Minimum bending radius [mm] (Reference values)	48				

- Impact resistance — Switch: 1000 m/s², Connector: 300 m/s²

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

- Polarity — Non-polar

Magnetic Field Resistance

If the current of the AC welding machine is 16000 A or lower, the auto switch can be used, even if the distance between the welding conductor (gun cable) and the cylinder or switch is 0 mm. Please contact SMC when the AC welding current exceeds 16000 A.

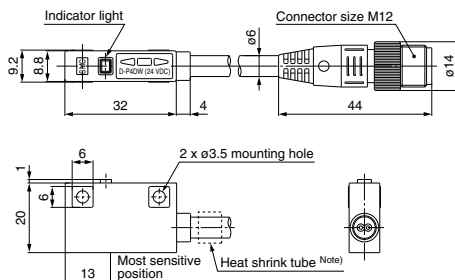
Weight

(g)

Auto switch model	D-P4DWSC	D-P4DWSE	D-P4DWSDDPC	D-P4DWMDDPC	D-P4DWLDDPC
	35	35	52	68	161

Dimensions

(mm)



Note) Only for D-P4DWSE
Printed contents: SE 1-4

Magnetic Field Resistant 2-Color Indicator Solid State Auto Switch D-P4DW



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- It is possible to use in an environment which generates a magnetic field disturbance (AC magnetic field).
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

For single-phase AC welding machines.
Not applicable for DC inverter welding machines (including rectifying type) and or condenser type welding.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-P4DW (With indicator light)	
Auto switch model	D-P4DW
Applicable load	24 VDC relay, PLC
Load voltage	24 VDC (20 to 28 VDC)
Load current	6 to 40 mA or less
Internal voltage drop	5 V or less
Leakage current	1 mA or less at 24 VDC
Operating time	40 ms or less
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-P4DW
Sheath	Outside diameter [mm]	ø6
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.92
	Effective area [mm ²]	0.5
	Strand diameter [mm]	ø0.08
Minimum bending radius [mm] (Reference values)		36

Note 1) Refer to page 1298 for solid state auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

- Polarity: Non-polar

Magnetic Field Resistance

If the current of the AC welding machine is 16000 A or lower, the auto switch can be used, even if the distance between the welding conductor (gun cable) and the cylinder or switch is 0 mm.
Please contact SMC when the AC welding current exceeds 16000 A.

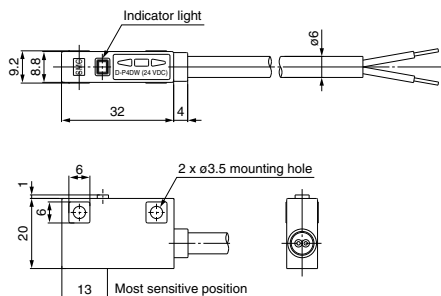
Weight

(g)

Auto switch model		D-P4DW
Lead wire length	3 m (L)	150
	5 m (Z)	244

Dimensions

(mm)



Heat Resistant 2-Color Indicator Solid State Auto Switch: Direct Mounting Type D-M9NJ/D-M9PJ



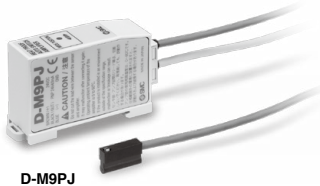
Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- Improved heat resistant type
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



D-M9NJ



D-M9PJ

⚠ Caution

Precautions

This auto switch can be mounted on the cylinder with heat resistant auto switch (-XB14) and is not applicable to the heat resistant cylinder (-XB6) since a magnet is not built in it.

Do not disconnect the cable between the sensor and amplifier by the customer.

Even when the sensor and amplifier are connected again, a contact resistance is produced, causing the auto switch to malfunction. Additionally, the sensor and amplifier are paired and they do not operate correctly in different combinations.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9NJ/D-M9PJ (With indicator light)		
Auto switch model	D-M9NJ	D-M9PJ
Output type	NPN	PNP
Power supply voltage	20 to 26 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 μ A at 24 VDC	
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.	
Ambient temperature	Sensor section: 0 to 150°C Amplifier section: 0 to 60°C	
Impact resistance	Sensor section: 1000 m/s ² Amplifier section: 300 m/s ²	
Standard	CE/UKCA marking	

Oilproof Heavy-duty Lead Wire Specifications (Grommet)

Auto switch model		D-M9NJ	D-M9PJ
Sheath	Outside diameter [mm]	ϕ 3.4	
	Number of cores	3 cores (Brown/Blue/Black)	
Insulator	Outside diameter [mm]	ϕ 1.1	
	Effective area [mm ²]	0.2	
Conductor	Strand diameter [mm]	ϕ 0.08	
	Minimum bending radius [mm] (Reference values)	21	

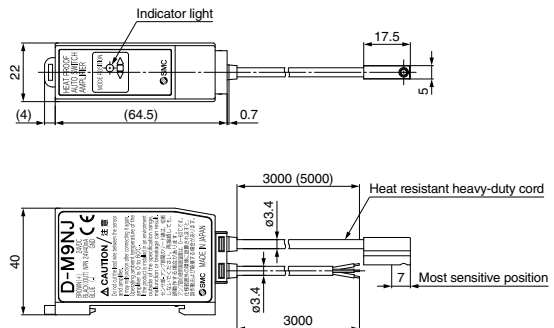
Weight

(g)

Auto switch model		D-M9NJ	D-M9PJ
Lead wire length	3 m (L)	160	
	5 m (Z)	200	

Dimensions

(mm)



CE UKCA RoHS

Grommet

- Improved heat resistant type
- The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Precautions

Auto switch which can be mounted on heat resistant, compact cylinder, CDQ2-XB14.
D-F7NJ is not applicable for the heat resistant type (-XB6) since a magnet is not built in it.

PLC: Programmable Logic Controller

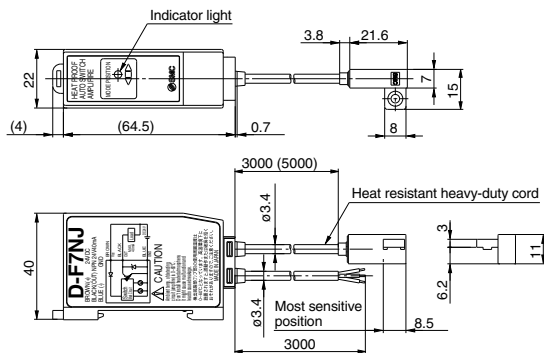
D-F7NJ (With indicator light)	
Auto switch model	D-F7NJ
Wiring type	3-wire
Output type	NPN
Applicable load	Relay, PLC
Power supply voltage	24 VDC (20 to 26 VDC)
Current consumption	25 mA or less
Load voltage	28 VDC or less
Load current	40 mA or less
Internal voltage drop	0.8 V or less
Leakage current	100 μ A at 24 VDC
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Ambient temperature	Sensor section: 0 to 150°C Amplifier section: 0 to 60°C
Impact resistance	Sensor section: 1000 m/s ² Amplifier section: 300 m/s ²
Standard	CE/UKCA marking

Auto switch model		D-F7NJ
Sheath	Outside diameter [mm]	ø3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	ø1.1
Conductor	Effective area [mm ²]	0.2
	Strand diameter [mm]	ø0.08
Minimum bending radius [mm] (Reference values)		21

(g)

Auto switch model		D-F7NJ
Lead wire length	3 m (L)	170
	5 m (Z)	210

(mm)



With Pre-wired Connector Solid State Auto Switch (Made to Order Specifications)



Refer to SMC website for the details of the products conforming to the international standards.

1 With Pre-wired Connector

- Eliminates the harnessing work by cable with connector specifications
- Adopts global standardized connector (IEC61076-2)
- IP67 construction



How to Order

D-M9N S A PC

Solid state auto 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

Connector model

A	M8-3 pin
B	M8-4 pin
D	M12-4 pin

(Note) Type A is not selectable for the auto switch with diagnostic output.

Connector Specifications

Connector model	M8-3 pin	M8-4 pin	M12-4 pin
Pin arrangement			
Conformed standard	IEC61076-2-104		IEC61076-2-101
Impact resistance	300 m/s ²		
Enclosure	Only with screw tightened IP67 (IEC60529 standard)		
Insulation resistance	100 MΩ or more at 500 VDC measured via megohmmeter		
Withstand voltage	1500 VAC 1 minute (between contacts), Leak current 1 mA or less		

Applicable Auto Switch

For details on the D-P3DWA series magnetic field resistant auto switch, refer to page 1342. And for details on the D-P4DW series, refer to page 1344.

2-wire

Mounting	Function	Applicable model
Rail mounting type	—	J79, F7BV
	2-color indicator	J79W, F7BWV
Band mounting type	Water resistant	F7BA, F7BAV
	—	H7B
	—	K59
	2-color indicator	H7BW
	—	K59W
Tie-rod mounting type	Water resistant	H7BA
	—	G5BA
	—	J59
Direct mounting type	2-color indicator	J59W
	Water resistant	F5BA
	—	Y59B, Y69B
	—	M9B, M9BV
	—	F8B
	Normally closed	M9BE, M9BEV
	2-color indicator	Y7BW, Y7BWV
	—	M9BW, M9BWV
	Water resistant	Y7BA
	—	M9BA, M9BAV
Rotary actuator	—	M7BA
	—	F6B
Rotary actuator	—	T791/2
	—	T991/2, T99V1/2

3-wire

Mounting	Function	Applicable model
Rail mounting type	—	F79, F7P, F7NV, F7PV
	2-color indicator	F79W, F7PW, F7NVV
	With timer	F7NT
Band mounting type	—	H7A1, H7A2
	—	G59, G5P
	2-color indicator	H7NW, H7PW
	—	G59W, G5PW
	With timer	G5NT
Tie-rod mounting type	—	F59, F5P
	2-color indicator	F59W, F5PW
	With timer	F5NT
Direct mounting type	—	Y59A, Y7P, Y69A, Y7PV
	—	M9N, M9P, M9NV, M9PV
	—	F8N, F8P
	—	Y7G, Y7H
	—	F9G, F9H
	Normally closed	M9NE, M9PE, M9NEV, M9PEV
	2-color indicator	Y7NW, Y7PW, Y7NVV, Y7PWW
	—	M9NW, M9PW, M9NVV, M9PWW
	Water resistant	M9NA, M9NAV, M9PA, M9PAV
	Hygienic	F6N, F6P
Rotary actuator	—	S791/2, S7P1/2
	—	S991/2, S9P1/2, S99V1/2

4-wire

Mounting	Function	Applicable model
Rail mounting type	Direct mounting type	F79F
Band mounting type		H7NF
Tie-rod mounting type		G59F
—		F59F

(Note) M8-3 pins are not selectable for the 4-wire auto switch.

Connector pin arrangement

Sensor type	Meaning of contact number			
	1 pin	2 pin	3 pin	4 pin
2-wire	OUT(+)	—	—	OUT(−)
3-wire	DC(+)	—	DC(−)	OUT
4-wire	DC(+)	Diagnostic output	DC(−)	OUT

Note1) For details on the D-P3DWASC and D-P3DWASE, refer to page 1342. And for details on the D-P4DWSC and D-P4DWSE, refer to page 1344.

Note2) For details on the pin arrangement, refer to the pin arrangement in the connector specifications above.

With Pre-wired Connector

Dimensions



M8-3 pin



M8-4 pin



M12-4 pin

Connector model	
M8-3 pin 4 pin	
M12-4 pin	

Connection (Socket side) Connector Cable

As the parts are not supplied from SMC, refer to the application examples listed in the below.
(For detail such as catalog availability, etc., please contact each manufacturer.)

Connector size	Number of pins	Manufacturer	Applicable series example
M8	3	OMRON Corporation	XS3□
		PHOENIX CONTACT GmbH & Co. KG	SAC-3P□
		Correns Corporation	M8-3D□
		TE Connectivity Ltd.	T40
	4	Hans Turck GmbH & Co. KG	PKG3M□
		OMRON Corporation	XS3□
		PHOENIX CONTACT GmbH & Co. KG	SAC-4P□
		Correns Corporation	M8-3D□
M12	3	TE Connectivity Ltd.	T40
		Hans Turck GmbH & Co. KG	PKG4M□
	4	OMRON Corporation	XS2□, XS5□
		PHOENIX CONTACT GmbH & Co. KG	SAC-4P□
		Correns Corporation	VA-4D□
		TE Connectivity Ltd.	T41
	4	Hans Turck GmbH & Co. KG	RKC4.4□
		Azbil Corporation	PA5-4I
		DDK Ltd.	CM02B

Weight for Connector Type

Part no.	Connector type	Weight
D-□□□APC	M8-3 pin	4 g
D-□□□BPC	M8-4 pin	4 g
D-□□□DPC	M12-4 pin	About 11 g

Made to Order Specifications: Solid State Auto Switch

-50: Without Indicator Light (Dark room) Specifications

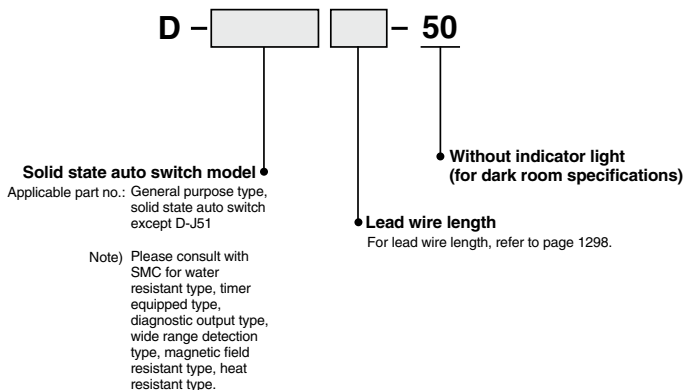
-61: Oilproof Flexible Heavy-duty Cord Specifications

2 Without Indicator Light (for dark room specifications)

Symbol

-50

Possible to use under the environment which hates a light.



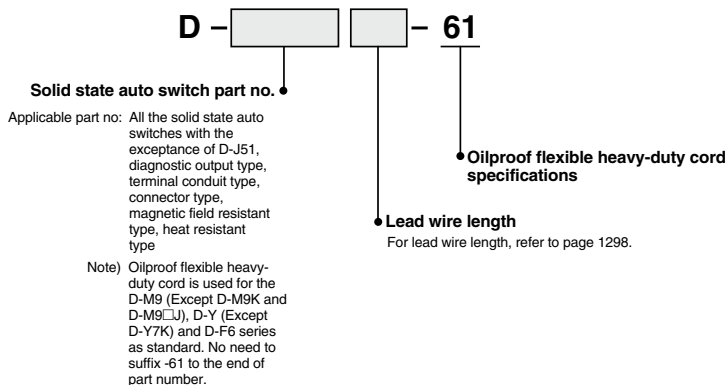
Dimensions and specifications are common as standard products with the exception of no indicator light.

3 Oilproof Flexible Heavy-duty Cord Specifications

Symbol

-61

This is the product which uses a heavy-duty cord having flexible characteristics 5 times (SMC comparison) as strong as oilproof heavy-duty cord used in the standard products.



Specifications are the same as standard products with the exception of lead wire specifications.

Lead wire: For D-F8 type..... ø2.7, 0.15 mm², 3 cores (Brown, Blue, Black), 2 cores (Brown, Blue)
For other model nos..... ø3.4, 0.15 mm², 3 cores (Brown, Blue, Black), 2 cores (Brown, Blue)

Dimensions are identical with D-F5 type, G5 type, J59 type, K59 type. Lead wire diameter is changed from ø4 to ø3.4. In other series products, it is common as standard product's specifications.

Solid State Auto Switch Made to Order

-551: UL/CSA Certified

-918: UL/CSA Certified

4 UL/CSA Certified

Symbol

-551, 918

UL, CSA certified

UL, CSA certified + Compatible with material restrictions for secondary battery manufacture

How to Order

⚠ Caution Auto switches must be ordered separately. They will be packaged separately. The auto switch cannot be ordered or shipped together with an actuator.

D-M9 ☐ ☐ ☐ ☐ - ☐

Output type

Symbol	Specifications
B	DC 2-wire type
N	DC 3-wire type NPN output
P	DC 3-wire type PNP output

Indicator light

Symbol	Specifications
Nil	1 color

Electrical entry direction

Symbol	Specifications
Nil	Axial entry
V	Perpendicular entry

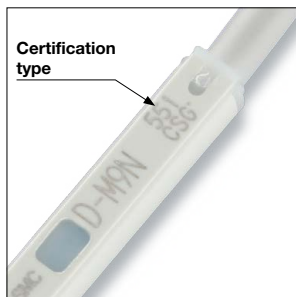
Certification type

Symbol	Specifications
551	UL, CSA certified
918	UL/CSA certified, Secondary battery compatible

Lead wire length + Connector

Symbol	Specifications
Nil	0.5 [m]
L	3 [m]
SAPC	M8-3 pin 0.5 [m]
SDPC	M12-4 pin 0.5 [m]

How to Identify Certified Products



The dimensions and specifications are the same as those of the standard (general purpose) D-M9 ☐ auto switch.

Reed Auto Switches

General Purpose Type,
2-Color Indicator

Reed Switch Variations

Type	Function	Auto switch mounting type	Electrical entry	Auto switch model	Page
Reed Auto Switch	General purpose	Direct	Grommet	D-A90/A93/A96*	1362
				D-A90V/A93V/A96V*	
		Band	Grommet	D-C73/C76/C80	1363
			Grommet	D-B53/B54/B64	1364
			Connector	D-C73C/C80C	1365
			Terminal conduit	D-A33/A34	1366
			Terminal conduit	D-A33A/A34A	1367
			DIN terminal	D-A44	1366
			DIN terminal	D-A44A	1367
		Rail	Grommet	D-A72/A73/A80	1368
			Connector	D-A72H/A73H/A76H/A80H	1369
		Tie-rod	Grommet	D-A73C/A80C	1370
			Grommet	D-A53/A54/A56/A64/A67	1371
			Terminal conduit	D-A33C/A34C	1372
			DIN terminal	D-A44C	
		Direct	Grommet	D-Z73/Z76/Z80**	1373
				D-E73A/E76A/E80A	1374
	2-color indicator	Band	Grommet	D-B59W	1375
		Rail	Grommet	D-A79W	1376
		Tie-rod	Grommet	D-A59W	1377
	Magnetic field resistance	Rod	Grommet	D-P79WSE	1378
				D-P74	1379
	Heat resistant	Band	Terminal conduit	D-B30/31/35	1381
			Grommet	D-B30J/31J/35J	

* Auto switches with an asterisk (*) can be mounted on a band (excluding D-A9□V), rail, tie-rod or square groove with an auto switch mounting bracket. Refer to pages 1386, 1390, 1394 and 1401 to 1403 for details.

** This auto switch can be mounted by tie-rod with using auto switch mounting bracket. For details, refer to page 1397.

Reed Auto Switch Direct Mounting Type

D-A90(V)/D-A93(V)/D-A96(V)

Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

Grommet



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Do not remove the protective cover attached to the product body until the product is ready to be mounted on the actuator.
3. 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.

D-A90, D-A90V (Without indicator light)			
Auto switch model	D-A90, D-A90V		
Applicable load	IC circuit, Relay, PLC		
Load voltage	24 V $\frac{AC}{DC}$ or less	48 V $\frac{AC}{DC}$ or less	100 V $\frac{AC}{DC}$ or less
Maximum load current	50 mA	40 mA	20 mA
Internal circuit*	(4)		
Contact protection circuit	None		
Internal resistance	1 Ω or less (Including lead wire length of 3 m)		
Standard	CE/UKCA marking		
D-A93, D-A93V, D-A96, D-A96V (With indicator light)			
Auto switch model	D-A93, D-A93V		D-A96, D-A96V
Applicable load	Relay, PLC		IC circuit
Load voltage	24 VDC ⁽⁴⁾	100 VAC	4 to 8 VDC
Load current range and Maximum load current ⁽³⁾	5 to 40 mA	5 to 20 mA	20 mA
Internal circuit*	(3)		(5)
Contact protection circuit	None		
Internal voltage drop	D-A93: 2.4 V or less (up to 20 mA)/3 V or less (up to 40 mA) D-A93V: 2.7 V or less		0.8 V or less
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model	D-A90(V)	D-A93(V)	D-A96(V)
Sheath	Outside diameter [mm]	$\phi 2.7$	
Insulator	Number of cores	2 cores (Brown/Blue)	
	Outside diameter [mm]	$\phi 0.96$	
Conductor	Effective area [mm ²]	0.18	
	Strand diameter [mm]	$\phi 0.08$	
Lead wire minimum bending radius [mm] (Reference values)		17	

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

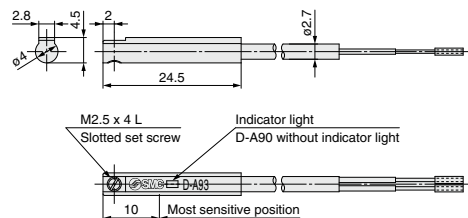
(g)

Model	D-A90	D-A90V	D-A93	D-A93V	D-A96	D-A96V
Lead wire length	0.5 m (NII)	6	6	6	8	8
	1 m (M)	—	—	11	—	—
	3 m (L)	30	30	30	41	41
	5 m (Z)	—	—	47	47	—

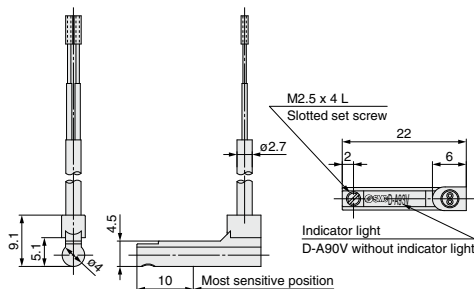
Dimensions

(mm)

D-A90/D-A93/D-A96



D-A90V/D-A93V/D-A96V



With Pre-wired Connector Reed Auto Switch (Made to Order Specifications) D-A90(V)/D-A93(V)/D-A96(V) C € UK CA

Grommet



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Do not remove the protective cover attached to the product body until the product is ready to be mounted on the actuator.
3. 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.

How to Order

D-A90 S APC

Reed auto switch part no.

A90
A90V
A93
A93V
A96
A96V

Cable length

S	0.5 m
M	1.0 m
L	3.0 m
Z	5.0 m

Connector model

A	M8-3 pin
D	M12-4 pin

Connector specifications

Connector model	M8-3 pin	M12-4 pin
Pin arrangement		
Conformed standard	IEC61076-2-104	IEC61076-2-101
Impact resistance	300 m/s ²	
Enclosure	Only with screw tightened IP67 (IEC60529 standard)	
Insulation resistance	100 MΩ or more at 500 VDC measured via megohmmeter	
Withstand voltage	1500 VAC 1 minute (between contacts), Leak current 1 mA or less	

Connector pin arrangement

Sensor type	Meaning of contact number			
	1 pin	2 pin	3 pin	4 pin
2-wire type	OUT (+)	—	—	OUT (-)
3-wire type	DC (+)	—	DC (-)	OUT

* For details on the pin arrangement, refer to the pin arrangement in the connector specifications above.

Additional weight by connector type

Part no.	Connector type	Weight
D-□□□APC	M8-3 pin	4 g
D-□□□DPC	M12-4 pin	Approx. 11 g

Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

D-A90, D-A90V (Without indicator light)		
Auto switch model	D-A90, D-A90V	
Applicable load	IC circuit, Relay, PLC	
Load voltage	24 VDC or less	
Maximum load current	50 mA	
Internal circuit*	(4)	
Contact protection circuit	None	
Internal resistance	1 Ω or less	
Standard	CE/UKCA marking	
D-A93, D-A93V, D-A96, D-A96V (With indicator light)		
Auto switch model	D-A93, D-A93V	D-A96, D-A96V
Applicable load	Relay, PLC	IC circuit
Load voltage	24 VDC ⁽⁴⁾	4 to 8 VDC
Load current range and Maximum load current ⁽³⁾	5 to 40 mA	20 mA
Internal circuit*	(3)	(5)
Contact protection circuit	None	
Internal voltage drop	D-A93: 2.4 V or less (up to 20 mA)/3 V or less (up to 40 mA) D-A93V: 2.7 V or less	0.8 V or less
Indicator light	Red LED illuminates when turned ON.	
Standard	CE/UKCA marking	

Refer to the D-A9□ type for specifications other than those listed in the table above.

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Dimensions

Connector model	Sensor section
M8-3 pin	
M12-4 pin	

Connection (Socket side) Connector Cable

As the parts are not supplied from SMC, refer to the application examples listed in the below. (For detail such as catalog availability, etc., please contact each manufacturer.)

Connector size	Number of pins	Manufacturer	Applicable series example
M8	3	OMRON Corporation	XS3□
		PHOENIX CONTACT GmbH & Co. KG	SAC-3P□
		Correns Corporation	M8-3D□
		TE Connectivity Ltd.	T40
		Hans Turck GmbH & Co. KG	PKG3M□
		OMRON Corporation	XS2□, XS5□
M12	4	PHOENIX CONTACT GmbH & Co. KG	SAC-4P□
		Correns Corporation	VA-4D□
		TE Connectivity Ltd.	T41
		Hans Turck GmbH & Co. KG	RKC4.4□
		Azbil Corporation	PA5-4I
		DDK Ltd.	CM02B

CE UK
CA

Auto Switch Specifications

Grommet



Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

D-C7 (With indicator light)		
Auto switch model	D-C73	
Applicable load	Relay, PLC	
Load voltage	24 VDC ⁽⁴⁾	100 VAC
Max. load current and range ⁽³⁾	5 to 40 mA	5 to 20 mA
Internal circuit*	(3)	
Contact protection circuit	None	
Internal voltage drop	2.4 V or less	0.8 V or less
Indicator light	Red LED illuminates when turned ON.	
Standard	CE/UKCA marking	
D-C8 (Without indicator light)		
Auto switch model	D-C80	
Applicable load	Relay, PLC, IC circuit	
Load voltage	24 V $\frac{DC}{AC}$ or less	48 V $\frac{DC}{AC}$
Max. load current	50 mA	40 mA
Internal circuit*	(4)	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including lead wire length of 3 m)	
Standard	CE/UKCA marking	

Auto switch model		D-C73	D-C76	D-C80
Sheath	Outside diameter (mm)	ø3.4		
Insulator	Number of cores	2 cores (Brown/Blue)	3 cores (Brown/Black)	2 cores (Brown/Blue)
	Outside diameter (mm)	ø1.1		
	Effective area (mm ²)	0.2		
Conductor	Strand diameter (mm)	ø0.08		
	Lead wire minimum bending radius (mm) (Reference value)	21		

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

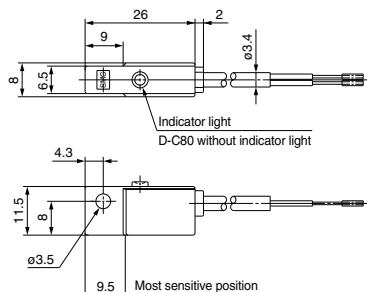
Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

(g)

Auto switch model		D-C73	D-C76	D-C80
Lead wire length	0.5 m (Nil)	9	10	9
	3 m (L)	46	50	46
	5 m (Z)	76	—	—

(mm)



Reed Auto Switch Band Mounting Type D-B53/D-B54/D-B64



Refer to SMC website for the details of the products conforming to the international standards.

Grommet



Caution

Precautions

Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-B5 (With indicator light)				
Auto switch model	D-B53	D-B54		
Applicable load	PLC	Relay, PLC		
Load voltage	24 VDC ⁽⁴⁾	24 VDC ⁽⁴⁾	100 VAC	200 VAC
Load current range ⁽³⁾	5 to 50 mA	5 to 50 mA	5 to 25 mA	5 to 12.5 mA
Internal circuit*	③	①		
Contact protection circuit	None	Built-in		
Internal voltage drop	2.4 V or less	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)		
Indicator light	Red LED illuminates when turned ON.			
Standard	CE/UKCA marking			
D-B6 (Without indicator light)				
Auto switch model	D-B64			
Applicable load	Relay, PLC			
Load voltage	24 V ^{AC} _{DC} or less	100 VAC		200 VAC
Max. load current	Max. 50 mA	Max. 25 mA		Max. 12.5 mA
Internal circuit*	②			
Contact protection circuit	Built-in			
Internal resistance	25 Ω or less			
Standard	CE/UKCA marking			

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model	D-B53/B54/B64	
Sheath	Outside diameter (mm)	ø4
Insulator	Number of cores	2 cores (Brown/Blue)
	Outside diameter (mm)	ø1.22
Conductor	Effective area (mm ²)	0.3
	Strand diameter (mm)	ø0.08
Lead wire minimum bending radius (mm) (Reference values)		24

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

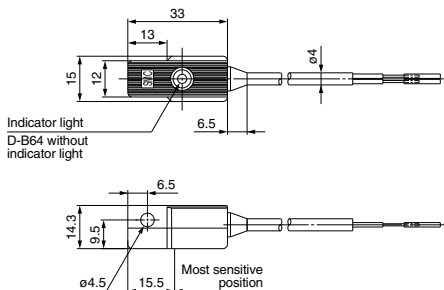
Weight

(g)

Auto switch model	D-B53	D-B54	D-B64
Lead wire length	0.5 m (Nil)	22	22
	3 m (L)	78	78
	5 m (Z)	126	126
			—

Dimensions

(mm)



Reed Auto Switch Band Mounting Type D-C73C/D-C80C



Refer to SMC website for the details of the products conforming to the international standards.

Connector



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Confirm that the connector is appropriately tightened. If tightened insufficiently, the waterproof performance will deteriorate.
3. For details, refer to page 1385.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-C73C (With indicator light)	
Auto switch model	D-C73C
Applicable load	Relay, PLC
Load voltage	24 VDC ⁽⁵⁾
Load current range ⁽⁴⁾	5 to 40 mA
Internal circuit [*]	③
Contact protection circuit	None
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking
D-C80C (Without indicator light)	
Auto switch model	D-C80C
Applicable load	Relay, PLC
Load voltage	24 V ^{AC} _{DC} or less
Maximum load current	50 mA
Internal circuit [*]	④
Contact protection circuit	None
Internal resistance	1 Ω or less (Including lead wire length of 3 m)
Standard	CE/UKCA marking

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Lead wire with connector may be shipped with switch.

Note 4) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 5) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

(g)

Auto switch model		D-C73C	D-C80C
Lead wire length	0.5 m (Nil)	14	14
	3 m (L)	53	53
	5 m (Z)	83	83

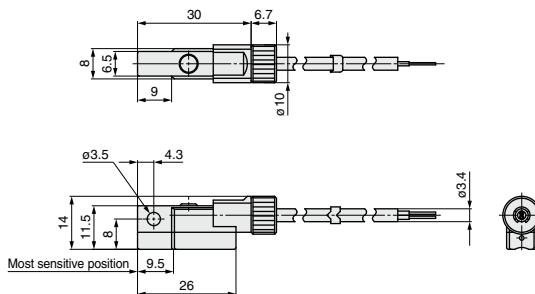
Lead wires with a connector indication

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

Dimensions

(mm)



Reed Auto Switch Band Mounting Type D-A33/D-A34/D-A44



Refer to SMC website for the details of the products conforming to the international standards.

Terminal conduit: D-A3
DIN terminal: D-A4



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Use cable whose O.D. is within the size in the figure to maintain water resistant performance.
3. After wiring, confirm that tightening gland and all screws are tightened.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A3 (With indicator light) Terminal conduit				
Auto switch model	D-A33	D-A34		
Applicable load	PLC		Relay, PLC	
Load voltage	24 VDC ⁽³⁾	24 VDC ⁽³⁾	100 VAC	200 VAC
Load current range ⁽²⁾	5 to 50 mA	5 to 50 mA	5 to 25 mA	5 to 12.5 mA
Internal circuit [*]	③	①		
Contact protection circuit	None	Built-in		
Internal voltage drop	2.4 V or less	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)		
Indicator light	Red LED illuminates when turned ON.			
Standard	CE/UKCA marking			

D-A44 (With indicator light) DIN terminal			
Auto switch model	D-A44		
Applicable load	Relay, PLC		
Load voltage	24 VDC ⁽³⁾	100 VAC	200 VAC
Load current range	5 to 50 mA	5 to 25 mA	5 to 12.5 mA
Internal circuit [*]	①		
Contact protection circuit	Built-in		
Internal voltage drop	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)		
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 3) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

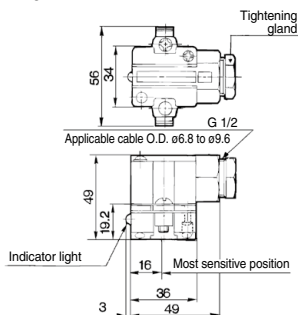
(g)

Auto switch model		D-A33	D-A34	D-A44
Lead wire	None	116	116	114

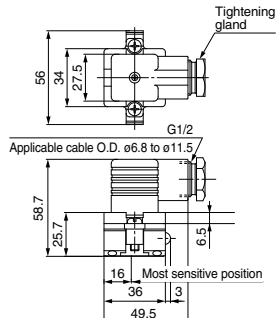
Dimensions

(mm)

D-A3



D-A44



Reed Auto Switch Band Mounting Type

D-A33A/D-A34A/D-A44A



Refer to SMC website for the details of the products conforming to the international standards.

Terminal conduit: D-A3□A
DIN terminal: D-A44A



⚠ Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Use cable whose O.D. is within the size in the figure to maintain water resistant performance.
3. After wiring, confirm that tightening gland and all screws are tightened.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A3□A (With indicator light) Terminal conduit				
Auto switch model	D-A33A	D-A34A		
Applicable load	PLC	Relay, PLC		
Load voltage	24 VDC ⁽³⁾	24 VDC ⁽³⁾	100 VAC	200 VAC
Load current range ⁽²⁾	5 to 50 mA	5 to 50 mA	5 to 25 mA	5 to 12.5 mA
Internal circuit*	③	①		
Contact protection circuit	None	Built-in		
Internal voltage drop	2.4 V or less	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)		
Indicator light	Red LED illuminates when turned ON.			
Standard	CE/UKCA marking			
D-A44A (With indicator light) DIN terminal				
Auto switch part model	D-A44A			
Applicable load	Relay, PLC			
Load voltage	24 VDC ⁽³⁾	100 VAC	200 VAC	
Load current range	5 to 50 mA	5 to 25 mA	5 to 12.5 mA	
Internal circuit*	①			
Contact protection circuit	Built-in			
Internal voltage drop	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)			
Indicator light	Red LED illuminates when turned ON.			
Standard	CE/UKCA marking			

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 3) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

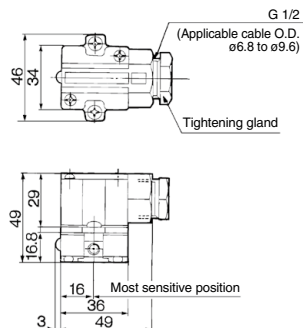
(g)

Auto switch model	D-A33A	D-A34A	D-A44A
Lead wire	None	112	110

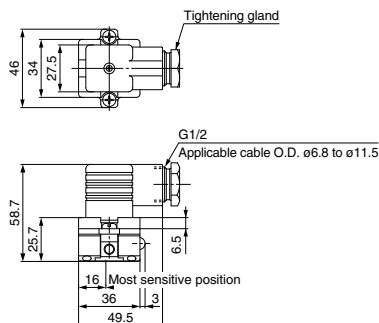
Dimensions

(mm)

D-A3□A



D-A44A



Reed Auto Switch Rail Mounting Type D-A72/D-A73/D-A80



Refer to SMC website for the details of the products conforming to the international standards.

Grommet
Electrical entry: Perpendicular



Caution

Precautions

Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A7 (With indicator light)			
Auto switch model	D-A72	D-A73	
Applicable load	Relay, PLC	Relay, PLC	
Load voltage	200 VAC	24 VDC ⁽⁴⁾	100 VAC
Load current range ⁽³⁾	5 to 10 mA	5 to 40 mA	5 to 20 mA
Internal circuit*		③	
Contact protection circuit		None	
Internal voltage drop		2.4 V or less	
Indicator light		Red LED illuminates when turned ON.	
Standard		CE/UKCA marking	
D-A8 (Without indicator light)			
Auto switch model	D-A80		
Applicable load	Relay, IC circuit, PLC		
Load voltage	24 V ^{AC} _{DC} or less	48 V _{DC}	100 V ^{AC} _{DC}
Maximum load current	50 mA	40 mA	20 mA
Internal circuit*		④	
Contact protection circuit		None	
Internal resistance	1 Ω or less (Including lead wire length of 3 m)		
Standard		CE/UKCA marking	

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-A72	D-A73	D-A80
Sheath	Outside diameter [mm]	ø3.4		
Insulator	Number of cores	2 cores (Brown/Blue)		
	Outside diameter [mm]	ø1.1		
Conductor	Effective area [mm ²]	0.2		
	Strand diameter [mm]	ø0.08		
Lead wire minimum bending radius [mm] (Reference values)		21		

• Lead wire Oilproof vinyl cabtire cord: ø3.4, 0.2 mm², 2 cores (Brown, Blue), 0.5 m

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

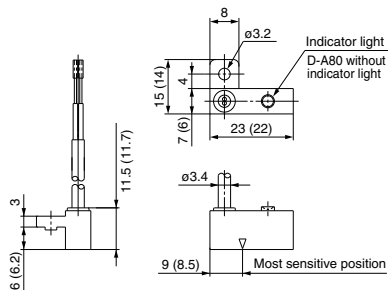
Weight

(g)

Auto switch model		D-A72	D-A73	D-A80
Lead wire length	0.5 m (Nil)	10	10	10
	3 m (L)	47	47	47
	5 m (Z)	—	77	—

Dimensions

(mm)



() values for D-A72

Reed Auto Switch Rail Mounting Type D-A7□H/D-A80H



Refer to SMC website for the details of the products conforming to the international standards.

**Grommet
Electrical entry: In-line**



⚠ Caution

Precautions

Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A7□H (With indicator light)				
Auto switch model	D-A72H	D-A73H		D-A76H
Applicable load	Relay, PLC	Relay, PLC		IC circuit
Load voltage	200 VAC	24 VDC ⁽⁴⁾	100 VAC	4 to 8 VDC
Max. load current/Load current range ⁽³⁾	5 to 10 mA	5 to 40 mA	5 to 20 mA	20 mA
Internal circuit*		③		⑤
Contact protection circuit		None		
Internal voltage drop		2.4 V or less		0.8 V or less
Indicator light		Red LED illuminates when turned ON.		
Standard		CE/UKCA marking		
D-A80H (Without indicator light)				
Auto switch model	D-A80H			
Applicable load		Relay, IC circuit, PLC		
Load voltage	24 V ^{AC} _{DC} or less	48 V ^{AC} _{DC}	100 V ^{AC} _{DC}	
Maximum load current	50 mA	40 mA	20mA	
Internal circuit*		④		
Contact protection circuit		None		
Internal resistance		1 Ω or less (Including lead wire length of 3 m)		
Standard		CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-A72H/A73H	D-A76H	D-A80H
Sheath	Outside diameter [mm]	ø3.4		
	Number of cores	2 cores (Brown/Blue)	3 cores (Brown/Blue/Black)	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.1		
	Effective area [mm ²]	0.2		
Conductor	Strand diameter [mm]	ø0.08		
	Lead wire minimum bending radius [mm] (Reference values)	21		

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

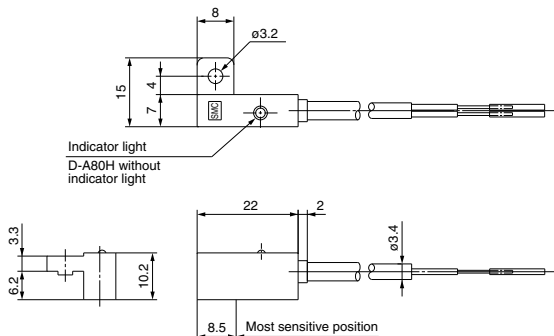
(g)

Auto switch model		D-A72H	D-A73H	D-A76H	D-A80H
Lead wire length	0.5 m (Nil)	10	10	11	10
	3 m (L)	47	47	52	47
	5 m (Z)	—	77	—	—

Dimensions

(mm)

D-A7□H, D-A80H



Reed Auto Switch Rail Mounting Type D-A73C/D-A80C



Refer to SMC website for the details of the products conforming to the international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A73C (With indicator light)	
Auto switch model	D-A73C
Applicable load	Relay, PLC
Load voltage	24 VDC ⁽⁵⁾
Load current range ⁽⁴⁾	5 to 40 mA
Internal circuit*	③
Contact protection circuit	None
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking
D-A80C (Without indicator light)	
Auto switch model	D-A80C
Applicable load	Relay, IC circuit, PLC
Load voltage	24 V ^{AC} _{DC}
Maximum load current	50 mA
Internal circuit*	④
Contact protection circuit	None
Internal resistance	1 Ω or less (Including lead wire length of 3 m)
Standard	CE/UKCA marking

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Lead wire with connector may be shipped with the auto switch.

Note 4) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 5) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Connector



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Confirm that the connector is appropriately tightened. If tightened insufficiently, the waterproof performance will deteriorate.
3. Refer to page 1385 for the details.

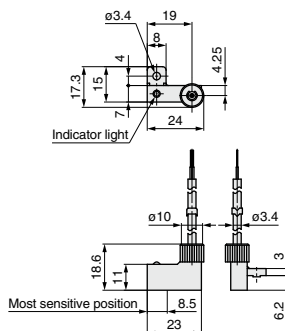
Weight

(g)

Auto switch model		D-A73C	D-A80C
Lead wire length	0.5 m (Nil)	12	12
	3 m (L)	54	54
	5 m (Z)	84	84

Dimensions

(mm)



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

CE UK
CA

Grommet



Precautions

Auto Switch Specifications

PLC: Programmable Logic Controller

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-A53/A54	D-A56	D-A64/A67
Sheath	Outside diameter [mm]	ø4		
Insulator	Number of cores	2 cores (Brown/Blue)	3 cores (Brown/Blue/Black)	2 cores (Brown/Blue)
	Outside diameter [mm]	ø1.22		
Conductor	Effective area [mm ²]	0.3	0.2	0.3
	Strand diameter [mm]	ø0.08		
Lead wire height [mm] (Reference value)		24		

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

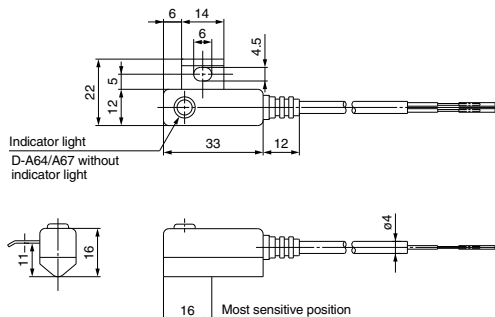
Weight

(g)

Auto switch model		D-A53	D-A54	D-A56	D-A64	D-A67
Lead wire length	0.5 m (Nil)	24		24	24	
	3 m (L)	80		80	80	
	5 m (Z)	125		—	—	

Dimensions

(mm)



Reed Auto Switch Tie-rod Mounting Type

D-A33C/D-A34C/D-A44C



Refer to SMC website for the details of the products conforming to the international standards.

Terminal conduit: D-A3□C
DIN terminal: D-A44C



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Use cable whose O.D. is within the size in the figure to maintain water resistant performance.
3. After wiring, confirm that tightening gland and all screws are tightened.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A3□C (With indicator light) Terminal conduit				
Auto switch model	D-A33C	D-A34C		
Applicable load	PLC	Relay, PLC		
Load voltage	24 VDC ⁽³⁾	24 VDC ⁽³⁾	100 VAC	200 VAC
Load current range ⁽²⁾	5 to 50 mA	5 to 50 mA	5 to 25 mA	5 to 12.5 mA
Internal circuit*	③			
Contact protection circuit	None		Built-in	
Internal voltage drop	2.4 V or less	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)		
Indicator light	Red LED illuminates when turned ON.			
Standard	CE/UKCA marking			
D-A44C (With indicator light) DIN terminal				
Auto switch model	D-A44C			
Applicable load	Relay, PLC			
Load voltage	24 VDC ⁽³⁾	100 VAC	200 VAC	
Load current range ⁽²⁾	5 to 50 mA	5 to 25 mA	5 to 12.5 mA	
Internal circuit*	①			
Contact protection circuit	Built-in			
Internal voltage drop	2.4 V or less (Up to 20 mA)/3.5 V or less (Up to 50 mA)			
Indicator light	Red LED illuminates when turned ON.			
Standard	CE/UKCA marking			

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 3) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

(g)

Auto switch model	Applicable bore size (mm)	Weight	Auto switch model	Applicable bore size (mm)	Weight
D-A33C-4, A34C-4	40	162	D-A44C-4	40	160
D-A33C-5, A34C-5	50	166	D-A44C-5	50	164
D-A33C-6, A34C-6	63	184	D-A44C-6	63	182
D-A33C-8, A34C-8	80	210	D-A44C-8	80	208
D-A33C-10, A34C-10	100	232	D-A44C-10	100	230

Dimensions

(mm)

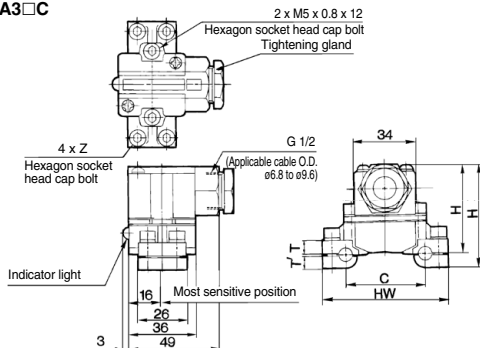
Auto switch model	Applicable bore size (mm)	C	HW	H	H'	T	T'	Z
D-A3□C-4, D-A44C-4	40	44	69	58 (67.5)	50.5 (60)	7.5	6.5	M5 x 0.8 x 16
D-A3□C-5, D-A44C-5	50	52	77	59 (68.5)	51.5 (61)	8.5	6.5	
D-A3□C-6, D-A44C-6	63	64	91	61.5 (71)	53 (62.5)	10.5	7.5	M5 x 0.8 x 20
D-A3□C-8, D-A44C-8	80	78	107	65 (74.5)	54.5 (64)	12.5	9.5	M5 x 0.8 x 25
D-A3□C-10, D-A44C-10	100	92	121	68 (77.5)	57.5 (67)	15.5	9.5	

* () : Denotes the values of D-A44C

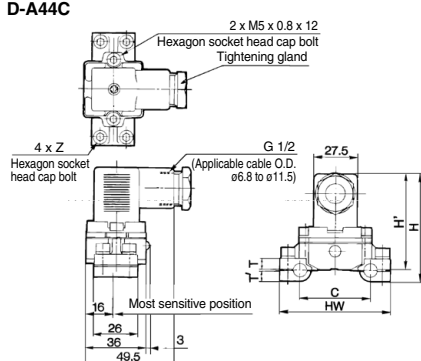
(mm)

Dimensions

D-A3□C



D-A44C

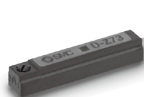


Reed Auto Switch Direct Mounting Type D-Z73/D-Z76/D-Z80



Refer to SMC website for the details of the products conforming to the international standards.

Grommet



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Do not remove the protective cover attached to the product body until the product is ready to be mounted on the actuator.
3. 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.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-Z7 (With indicator light)			
Auto switch model	D-Z73		D-Z76
Applicable load	Relay, PLC		IC circuit
Load voltage	24 VDC ⁽⁴⁾	100 VAC	4 to 8 VDC
Max. load current and load current range ⁽³⁾	5 to 40 mA	5 to 20 mA	20 mA
Internal circuit*	(3)		(5)
Contact protection circuit	None		
Internal voltage drop	2.4 V or less (Up to 20 mA)/3 V or less (Up to 40 mA)		0.8 V or less
Indicator light	Red LED illuminates when turned ON.		
Standard	CE/UKCA marking		
D-Z8 (Without indicator light)			
Auto switch model	D-Z80		
Applicable load	Relay, PLC, IC circuit		
Load voltage	24 V ^{AC} _{DC} or less	48 V ^{AC} _{DC}	100 V ^{AC} _{DC}
Maximum load current	50 mA	40 mA	20 mA
Internal circuit*	(4)		
Contact protection circuit	None		
Internal resistance	1 Ω or less (Including 3 m lead wire)		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model	D-Z73	D-Z76	D-Z80
Sheath	Outside diameter [mm] ø2.7	ø3.4	ø2.7
Insulator	Number of cores 2 cores (Brown/Blue)	3 cores (Brown/Blue/Black)	2 cores (Brown/Blue)
	Outside diameter [mm] ø1.1		
Conductor	Effective area [mm ²] 0.18	0.2	0.18
	Strand diameter [mm] ø0.08		
Lead wire minimum bending radius [mm] (Reference values)	17	21	17

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

Note 4) The auto switches can operate at 12 VDC, but consider the internal voltage drop of the auto switch described in Reed Auto Switch Precautions on page 18.

Weight

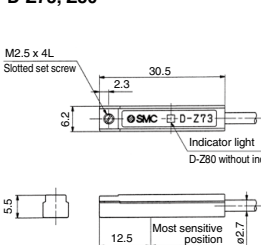
(g)

Auto switch model	D-Z73	D-Z76	D-Z80
Lead wire length			
0.5 m (Nil)	7	10	7
3 m (L)	31	55	31
5 m (Z)	50	—	—

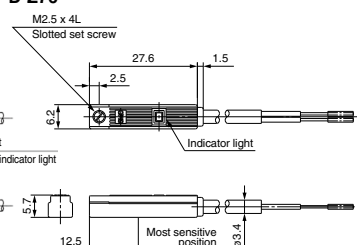
Dimensions

(mm)

D-Z73, Z80



D-Z76



CE UK
CA

Auto Switch Specifications

Grommet



Precautions

D-E80A (Without indicator light)

Auto switch model	D-E80A		
Applicable load	Relay, PLC, IC circuit		
Load voltage	24 V ^{AC} or less	48 V ^{AC}	100 V ^{AC}
Maximum load current	50 mA	40 mA	20 mA
Internal circuit*	④		
Contact protection circuit	None		
Internal resistance	1 Ω or less (Including lead wire length of 3 m)		
Standard	CE/UKCA marking		

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-E73A	D-E76A	D-E80A
Sheath	Outside diameter (mm)	ø3.4		
Insulator	Number of cores	2 cores (Brown/Blue)	3 cores (Brown/Black)	2 cores (Brown/Blue)
	Outside diameter (mm)	ø1.1		
Conductor	Effective area (mm ²)	0.2		
	Strand diameter (mm)	ø0.08		
	Lead wire minimum bending radius (mm) (Reference values)	21		

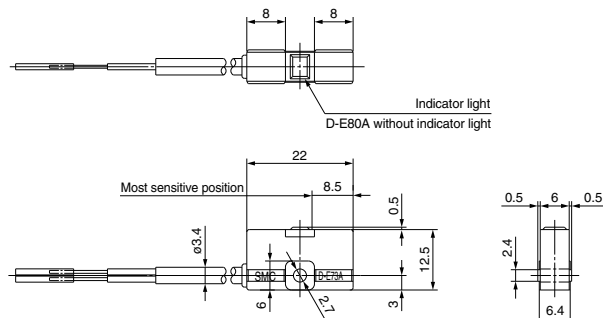
Weight

(g)

Auto switch model		D-E73A	D-E76A	D-E80A
Lead wire length	0.5 m (Nil)	10	11	10
	3 m (L)	47	55	47

Dimensions

(mm)



2-Color Indicator Reed Auto Switch Band Mounting Type D-B59W



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-B59W (With indicator light)	
Auto switch model	D-B59W
Applicable load	Relay, PLC
Load voltage	24 VDC
Load current range ⁽³⁾	5 to 40 mA
Internal circuit*	⑥
Contact protection circuit	Built-in
Internal voltage drop	4 V or less
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-B59W
Sheath	Outside diameter [mm]	ø4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.22
	Effective area [mm ²]	0.3
Conductor	Strand diameter [mm]	ø0.08
	Lead wire minimum bending radius [mm] (Reference values)	24

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

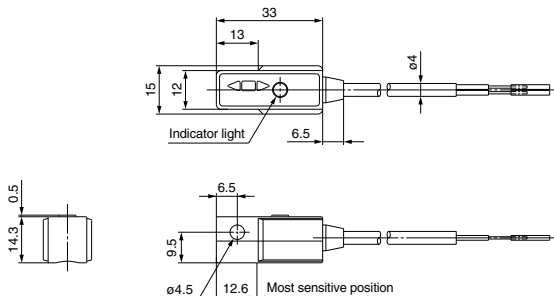
Weight

(g)

Auto switch model		D-B59W
Lead wire length	0.5 m (Nil)	20
	3 m (L)	76

Dimensions

(mm)



2-Color Indicator Reed Auto Switch Rail Mounting Type D-A79W



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A79W (With indicator light)	
Auto switch model	D-A79W
Applicable load	Relay, PLC
Load voltage	24 VDC
Load current range ⁽³⁾	5 to 40 mA
Internal circuit*	⑦
Contact protection circuit	None
Internal voltage drop	4 V or less
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-A79W
Sheath	Outside diameter [mm]	ø3.4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.1
	Effective area [mm ²]	0.2
Conductor	Strand diameter [mm]	ø0.08
	Lead wire minimum bending radius [mm] (Reference values)	21

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

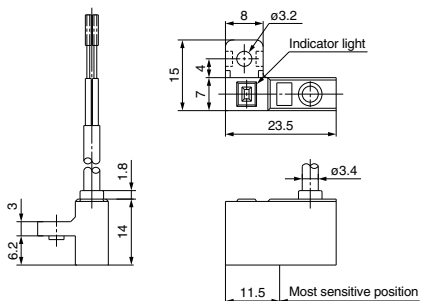
Weight

(g)

Auto switch model		D-A79W
Lead wire length	0.5 m (Nil)	11
	3 m (L)	53

Dimensions

(mm)



2-Color Indicator Reed Auto Switch Tie-rod Mounting Type D-A59W



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

The proper operating range can be determined by the color of the light.

(Red → Green ← Red)



Caution

Precautions

Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-A59W (With indicator light)	
Auto switch model	D-A59W
Applicable load	Relay, PLC
Load voltage	24 VDC
Load current range ⁽³⁾	5 to 40 mA
Internal circuit*	⑥
Contact protection circuit	Built-in
Internal voltage drop	4 V or less
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-A59W
Sheath	Outside diameter [mm]	ø4
	Number of cores	2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	ø1.22
	Effective area [mm ²]	0.3
Conductor	Strand diameter [mm]	ø0.08
	Lead wire minimum bending radius [mm] (Reference values)	24

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

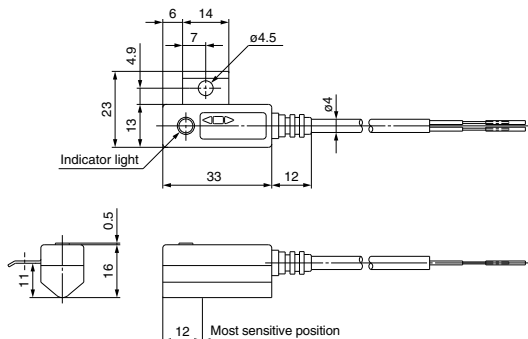
Weight

(g)

Auto switch model		D-A59W
Lead wire length	0.5 m (Nil)	25
	3 m (L)	80

Dimensions

(mm)



Magnetic Field Resistant 2-Color Indicator Reed Auto Switch

D-P79WSE

(Electrical Entry: Pre-wired connector)



Refer to SMC website for the details of the products conforming to the international standards.

Grommet

The proper operating range can be determined by the color of the light.
(Red → Green ← Red)



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Cylinder with a strong integrated magnet must be used.

Auto Switch Specifications

PLC: Programmable Logic Controller

Auto switch model	D-P79WSE
Applicable load	PLC
Load voltage	24 VDC
Load current range	8 to 20 mA
Internal circuit*	⑥
Contact protection circuit	Built-in
Internal voltage drop	6 V or less
Indicator light	Operating range Red LED illuminates. Proper operating range Green LED illuminates.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model	D-P79WSE
Sheath	Outside diameter [mm] ø6
Insulator	Number of cores 2 cores
	Outside diameter [mm] ø2.3
Conductor	Effective area [mm ²] 0.5
	Strand diameter [mm] ø0.08
Lead wire minimum bending radius [mm] (Reference values)	48

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.
Note 1) Refer to page 1298 for reed auto switch common specifications.

Weight

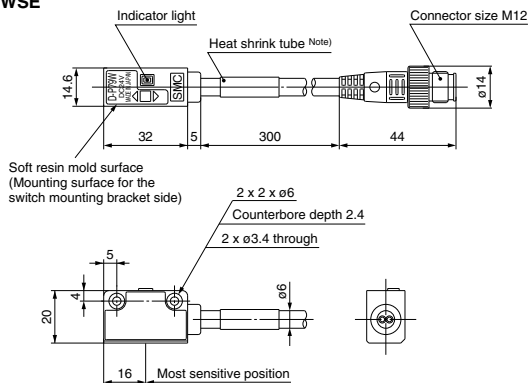
(g)

Auto switch model	D-P79WSE
	100

Dimensions

(mm)

D-P79WSE



Note) D-P79WSE = "SE 1 4"

Caution

Please be careful of the mounting direction.
The soft resin mold surface must be directed to the switch mounting bracket side.

Magnetic Field Resistant Reed Auto Switch D-P74



Refer to SMC website for the details of the products conforming to the international standards.

Grommet



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Cylinder with a strong integrated magnet must be used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-P74L/Z (With indicator light)	
Auto switch model	D-P74
Electrical entry	Grommet
Application	Relay, PLC
Load voltage	24 VDC 100 VAC
Max. load voltage/Load current range	5 to 40 mA 5 to 20 mA
Internal circuit*	①
Contact protection circuit	Built-in
Internal voltage drop (internal resistance)	2.4 V or less
Leakage current	0
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-P74
Sheath	Outside diameter [mm]	ø6.8
Insulator	Number of cores	2 cores (White/Black)
	Outside diameter [mm]	ø1.1
Conductor	Effective area [mm ²]	0.75
	Strand diameter [mm]	ø0.18
Lead wire minimum bending radius [mm] (Reference values)		48

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Refer to page 1298 for lead wire lengths.

Note 3) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

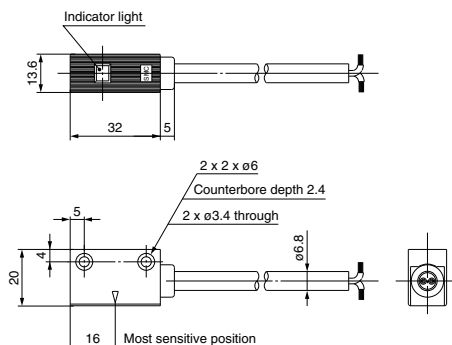
Weight

(g)

Auto switch model		D-P74
Lead wire length	0.5 m (Nil)	48
	3 m (L)	189
	5 m (Z)	320

Dimensions

(mm)



Magnetic Field Resistant Reed Auto Switch D-P74-376



Refer to SMC website for the details of the products conforming to the international standards.

Grommet



Caution

Precautions

1. Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.
2. Cylinder with a strong integrated magnet must be used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-P74-376 (With indicator light)	
Auto switch model	D-P74-376
Electrical entry	Grommet
Application	Relay, PLC
Load voltage	24 VDC
Max. load current/Load current range	5 to 20 mA
Internal circuit*	①
Contact protection circuit	Built-in
Internal voltage drop (internal resistance)	2 V or less
Leakage current	0
Operating time	1.2 ms
Indicator light	Red LED illuminates when turned ON.
Standard	CE/UKCA marking

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-P74
Sheath	Outside diameter [mm]	ø6
Insulator	Number of cores	2 cores
	Outside diameter [mm]	ø1.1
Conductor	Effective area [mm ²]	0.75
	Strand diameter [mm]	ø0.18
Lead wire minimum bending radius [mm] (Reference values)		48

* Refer to the applicable internal circuit diagram (numbers ① to ⑦) on page 1301.

Note 1) Refer to page 1298 for reed auto switch common specifications.

Note 2) Under 5 mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible where the output signal is less than 2.5 mA. However, there is no problem in terms of contact output, when an output signal exceeds 1 mA or more.

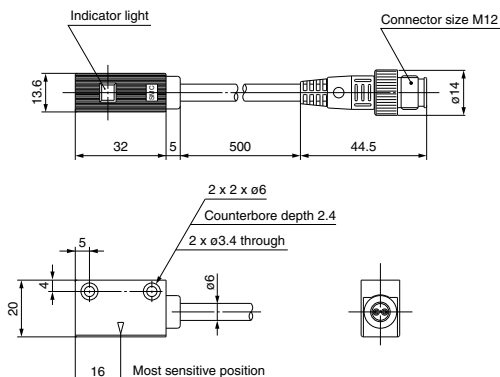
Weight

(g)

Auto switch model	D-P74-376
	60

Dimensions

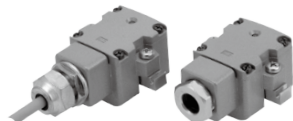
(mm)



Heat Resistant Reed Auto Switch D-B30(J)/31(J)/35(J)



Can be used outdoors or under high temperature (Max. 120°C). Wide operating range (double that of other SMC products) enables stable position detection.



High temperature environment such as places around ignited gas outlet or furnace

Outdoor plants and environment with high temperature and humidity

Environment for steam cleaning or high temperature sterilization

Applications requiring wide operating range such as clamping of elastic work pieces

Use of metal case and heat resistant materials. The construction prevents influence of external environment by sealing the auto switch internal parts to improve heat resistance.

The wide operating range allows easy position setting and reduces influence of the work piece position changes.

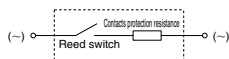
⚠ Caution

Precautions

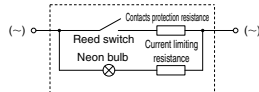
Do not drop or bump the auto switch while handling it as it may result in the auto switch breaking.

Auto Switch Internal Circuit

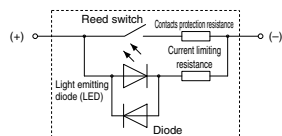
D-B30



D-B31



D-B35



Auto Switch Specifications

Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

PLC: Programmable Logic Controller

Auto switch model	D-B30	D-B30J	D-B31	D-B31J	D-B35	D-B35J
Electrical entry	Terminal conduit	Grommet	Terminal conduit	Grommet	Terminal conduit	Grommet
Operating voltage	24 VDC / 100 VAC		100 VAC		24 VDC	
Operating current range	5 to 30 mADC / 5 to 20 mAAC		5 to 20 mAAC		5 to 30 mADC	
Internal voltage drop	2.5 V or less		2.5 V or less		2.0 V or less	
Indicator light	Without indicator light		Neon bulb lights up when OFF		Red LED lights up when OFF	
Applicable load	PLC (Programmable Logic Controller)					
Shock resistance	300 m/s ²					
Leakage current	0.1 mA or less		1 mA or less		1 mA or less	
Lead wire	—	0.5 m	—	0.5 m	—	0.5 m
Enclosure	Terminal conduit : IEC60529 IP64 Grommet : IEC60529 IP67					
Withstand voltage	1500 VAC for 1 minute (between case and terminals or lead wires)					
Insulation resistance	50 MΩ or larger between case (ground) and lead wires (terminals)					
Operating temperature range	-10°C to 120°C					
Standard	CE/UKCA marking					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-B30J	D-B31J	D-B35J
Sheath	Outside diameter [mm]	ø6		
Insulator	Number of cores	2 cores (Brown/Blue)		
	Outside diameter [mm]	ø2.3		
Conductor	Effective area [mm ²]	0.5		
	Strand diameter [mm]	ø0.08		
Lead wire minimum bending radius [mm] (Reference values)		48 (Room temperature)		

Weight

(g)

Auto switch model	D-B30	D-B30J	D-B31	D-B31J	D-B35	D-B35J
Lead wire length	None	190	—	190	190	—
	0.5 m (Nil)	—	250	—	250	250
	3 m (L)	—	268	—	268	268
	5 m (Z)	—	462	—	462	462

Lead wire length

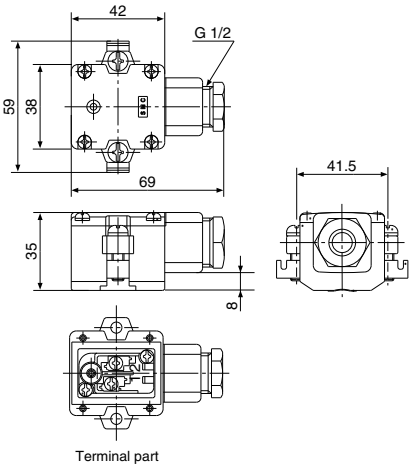
In case of the grommet type (J type), the lead wire length is 0.5 m.
(No lead wire is attached to the terminal conduit type.)
3 m and 5 m types are available as a special order.

D-B3 Series

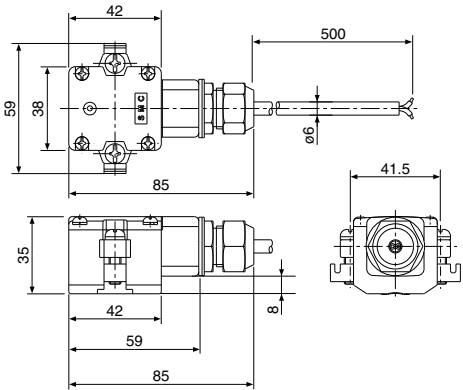
Dimensions

(mm)

Terminal conduit type D-B3□

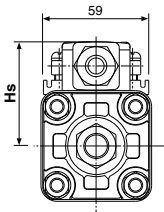


Terminal conduit type D-B3□J



* Recommended minimum bending radius for lead wire RT : 25 mm or more
120°C : 50 mm or more

Dimensions for Cylinder Mounting



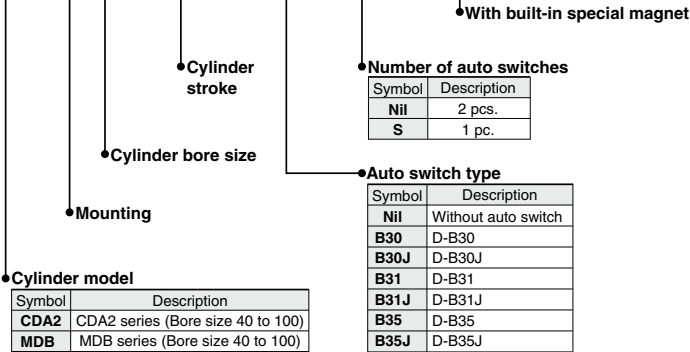
Hs dimensions

(mm)

Bore size	Cylinder model	
	CDA2	MDB
40 mm	58.5	57.5
50 mm	64	63
63 mm	71	69.5
80 mm	79.5	78.5
100 mm	90	89

Mounting cylinder part no.

CDA2 **B 50 – 200 –** **B31J** **S** – **X1184**





D-B3 Series

Specific Product Precautions

Be sure to read this before handling the products.

Refer to page 8 for safety instructions and pages 14 to 18 for auto switch precautions.

Caution

1. Use the reed switch within the operating range.

Take precautions about the ambient temperature because using the reed switch beyond the operating range may affect its internal electronic parts and sealing construction, causing abnormalities to the service life of the contact, as well as operation and waterproof performance of the switch.

Also, the maximum temperature of the environment where the switch is used must be fully understood before operation is started because the temperature of the environment where the auto switch is installed may experience some changes after operation is started due to factors other than air temperature such as influence of radiation heat from the heat source, air circulation or heat conduction.

2. Take precautions about the environment where the auto switch is installed.

If conditions (water splashes, time, temperature) beyond the normal ranges can be applied to the auto switch, use the auto switch in an environment where it will not be directly exposed to water splashes at a high temperature by installing a cover to protect the entire auto switch, as long as it is possible. The grommet type auto switch has a construction that will protect its internal parts against water splashes at the normal temperature. However, if the conditions (water splashes, time, temperature) exceed the normal ranges, they may adversely affect the auto switch internal insulation performance.

Also, confirm the applicability of the auto switch in the environment because extreme heat cycles or a long-term high humidity may cause functional deterioration of the auto switch protection construction.

In principle, the terminal conduit type must be used in an environment with no exposure to humidity or water because at high temperatures, it may become impossible to achieve sufficient waterproof effect due to deformation of lead wire sealant depending on the heat resistance of the lead wire and cable clamp.

3. Visibility of an indicator light

Because the auto switch uses light emitting diodes and neon bulbs for display, continuous operation at a high temperature may cause changes in characteristics of the entire display circuit. Also, the transparency of the display window on the body may change depending on the characteristics of the resin.

Because of the above factors, lighting under high temperature may become dark, causing decline of visibility.

However, there could be no problem in output of the signal itself and its safety owing to adoption of the OFF-state lighting system.

4. Take precautions about leakage current.

According to the heat resistant characteristics of its parts, the auto switch adopts the OFF-state lighting system (the indicator light lights up when the reed switch contact is open and goes off when the reed switch contact is closed).

Since the current for indicator lighting is running when the auto switch is off, confirm the allowable leakage current of PLC etc. before selecting the model.

If the leakage current of the indicator light becomes a problem for the PLC operation, select a model without an indicator light.

5. Keep the lead wire length as short as possible.

If a long lead wire is used because of the conditions of the plant or equipment where the switch is installed, malfunction in the reed switch reset operation may occur due to premature damage to the contact surface caused by the inrush current resulting from the line flotation capacity and influence of the electric field created by the power line near the wiring.

Therefore, the maximum wiring length should be kept at 100 m or less.

Avoid wiring in proximity with the power line. Also, if the length of wiring in use is extremely long (30 m or longer), schedule replacement in periodical maintenance.

The basic guidelines for replacement are a total wiring length of 100 m between the load and the auto switch and 1 million cycles of operation (at 120°C, 100 VAC PLC load).

6. Install the auto switch at the center of the operating range.

The operation range of the auto switch is set at approximately double that of the standard type in consideration of the mounting error when the detection position is set. However, this range is subject to change with the temperature. Although the variation in the operating range differs with the cylinder on which the auto switch is mounted, a temperature change of 100°C will roughly result in the maximum of 20% reduction in the overall operation range.

(Approximately 2 mm variation at the position where the auto switch usually turns on)

Therefore, install the auto switch at the center of the operating range (stable range), while understanding the possible change in the operating range and considering the stability of the auto switch operation.

(Avoid installation of the auto switch at the boundary where the auto switch turns on or off.)

7. Selection of applicable cylinders

The auto switch should be mounted on special cylinders (-X1184 series) because it is operated by magnets using heat resistant material.

8. Maintenance

After the auto switch is installed under high temperature, apply additional tightening periodically to the auto switch mounting band.

The rubber lining of the auto switch mounting band may need some time to adapt to the environment because of temperature changes in the installation environment. Perform additional tightening at a tightening torque of 2 to 3 N·m while carefully applying equal torque to both lifting screws.

9. Product upgrades

The product is subject to change without prior notice due to upgrades.