

Reed Auto Switch Band Mounting Style D-C73/D-C76/D-C80



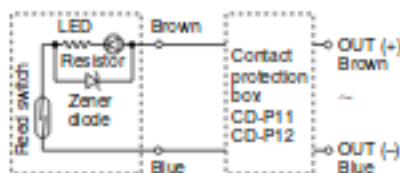
Auto Switch Specifications

PLC: Programmable Logic Controller

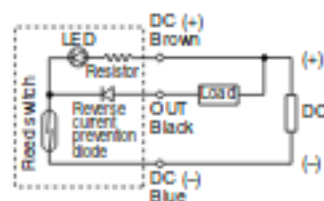
D-C7 (With indicator light)			
Auto switch model	D-C73		D-C76
Applicable load	Relay, PLC		IC circuit
Load voltage	24 VDC	100 VAC	4 to 8 VDC
Max. load current and range ⁽²⁾	5 to 40 mA	5 to 20 mA	20 mA
Contact protection circuit	None		
Internal voltage drop	2.4 V or less		0.8 V or less
Indicator light	Red LED illuminates when turned ON.		
Standard	CE marking		
D-C8 (Without indicator light)			
Auto switch model	D-C80		
Applicable load	Relay, PLC, IC circuit		
Load voltage	24 V $\bar{\bar{c}}$ or less	48 V $\bar{\bar{c}}$	100 V $\bar{\bar{c}}$
Max. load current	50 mA	40 mA	20 mA
Contact protection circuit	None		
Internal resistance	1 Ω or less (including lead wire length of 3 m)		
Standard	CE marking		

Auto Switch Internal Circuit

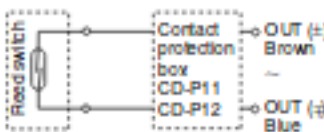
D-C73



D-C76



D-C80



• Lead wires — Oilproof heavy-duty vinyl cord, $\phi 3.4$, 0.2 mm², 2 cores (Brown, Blue), 3 cores (Brown, Black, Blue), 0.5 m

Note 1) Refer to page 1272 for reed auto switch common specifications.

Note 2) Refer to page 1272 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.

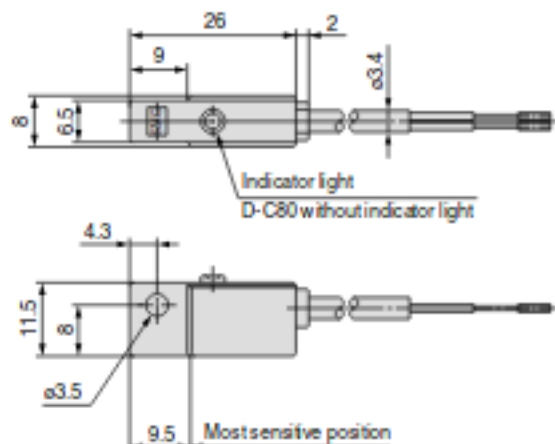
Mass

(g)

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

Dimensions

(mm)



Note 1) Operating load is an induction load.

Note 2) Wiring to the load is 5 m or longer.

Note 3) Load voltage is 100 VAC.

Use the contact protection box in any of the above listed situations. The contact point life may decrease. (Refer to page 1273 for contact protection box.)

Prior to Use

Auto Switches Common Specifications 1

⚠ Specific Product Precautions

Refer to the Auto Switch Precautions on pages 8 to 11 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 (2)
Impact resistance	300 m/s ²	1 000 m/s ² (4)
Insulation resistance	50 M Ω or more at 500 VDC Mega (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): 1 000 VAC/min. (Between lead wire and the case)
- 2) The terminal conduit type (D-A3/A3□/A3□□/G39/G39A/G39C/K39/K39A/K39C), DIN terminal type (D-A44/A44A/A44C) and heat resistant auto switch (D-F7NJL) conform to IEC60529 Standard IP63. The trimmer type amplifier section (D-R□K) conforms to IP40.
- 3) Excluding the solid state auto switches with a timer (D-M5□TL/G5NTL/F7NTL/F5NTL types) and magnetic field resistant 2-color indication solid state auto switch (D-P3DW□/P4DWL). The operating time for D-J51 is 2 ms or less and for D-P3DW□/P4DWL 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

• Lead wire length

NIL	0.5 m
M	1 m
L	3 m
Z	5 m
N*	None

* Applicable for the connector type (D-□□C) only.

Note 1) Lead wire length Z: 5 m

Applicable auto switches

Reed auto switch: D-B53/B54, D-C73(C)/C80C, D-A73(C)(H)/A80C, D-A53/A54, D-Z73, D-90/97/90A/93A

Solid state auto switch: Manufactured upon receipt of order as standard.

Note 2) The standard lead wire length for trimmer auto switches is 3 m.

Note 3) The standard lead wire length for solid state auto switches with a timer, water resistant 2-color indication solid state auto switches, wide range detection type solid state auto switches, heat resistant 2-color indication solid state auto switches and magnetic field resistant 2-color indication solid state switches is 3 m and 5 m (except D-P3DW, D-M5□A(V)□). (0.5 m is not available.)

Note 4) 1 m (M): D-M5□(W)(V) only

Note 5) Lead wire length tolerance

Lead wire length	Tolerance
0.5 m	±15 mm
1 m	±30 mm
3 m	±90 mm
5 m	±150 mm

Solid state auto switch oil resistant flexible cable cord indication

Add a -61 at the end of the part number for the solid state auto switch flexible cord except D-Y59□, D-Y69□, D-Y7□, D-M9□/M9□V, and D-M9□/W/M9□WV.

(Example)

D-F7PL-61

• Flexible specification

(D-Y59, D-Y69, D-Y7 and D-M9 series use flexible lead wire as standard.)

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

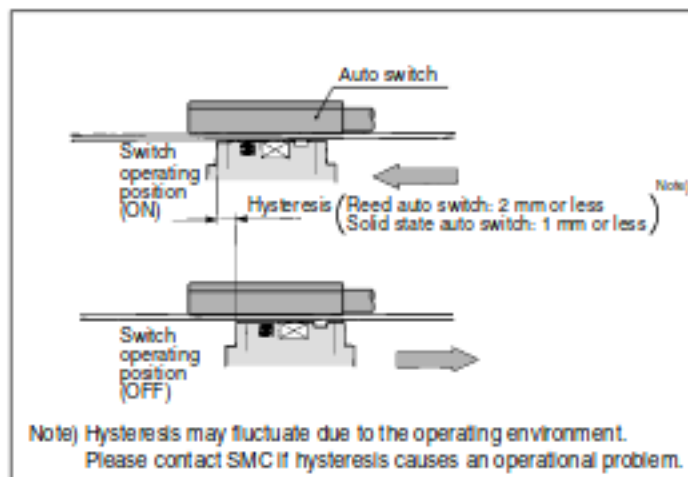
Auto Switches Common Specifications 2

⚠ Specific Product Precautions

Refer to the Auto Switch Precautions on pages 8 to 11 before using auto switches.

Auto Switch Hysteresis

Hysteresis is the distance between the position at which piston movement operates an auto switch to the position at which reverse movement turns the switch off. This hysteresis is included in part of the operating range (one side).



Contact Protection Box: CD-P11, CD-P12

-Applicable switch models-

D-A7/A8, D-A7□/HA80H, D-A73C/A80C, D-C7/C8, D-C73C/C80C, D-E7□A, E80A, D-Z7/Z8, D-99□A, D-A9/A9□V, and D-A79W type
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 load is greater than 5 m.
 - ③ Where the load voltage is 100/200 VAC.
- Therefore, 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% to the rating of applicable auto switches (except D-A73C/A80C/C73C/C80C/90/97A79W) 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.

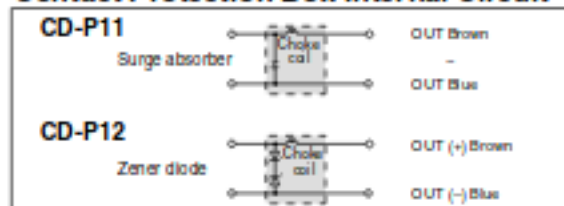
Even for the built-in contact protection circuit type (D-A34[A]C, D-A44[A]C, D-A54/A64, D-A59W, D-B59W), use the contact protection box when the wiring length to load is very long (over 30 m) and PLC (Programmable Logic Controller) with a large inrush current is used.

Contact Protection Box Specifications

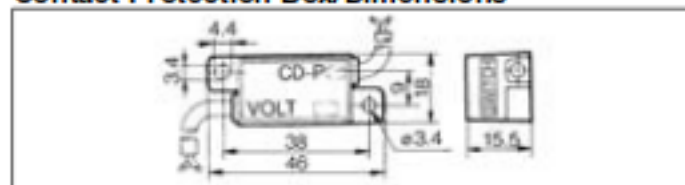
Part no.	CD-P11	CD-P12
Load voltage	100 VAC or less	200 VAC, 24 VDC
Max. load current	25 mA	12.5 mA, 50 mA

* 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

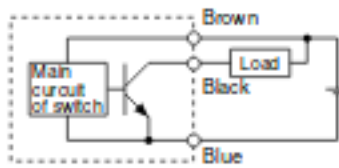
To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Keep the switch as close as possible to the contact protection box, with a lead wire length of no more than 1 meter.

Prior to Use

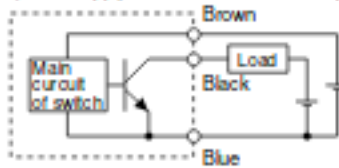
Auto Switches Connection and Example

Basic Wiring

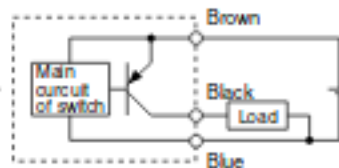
Solid state 3-wire, NPN



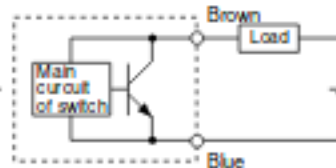
(Power supply for switch and load are separate)



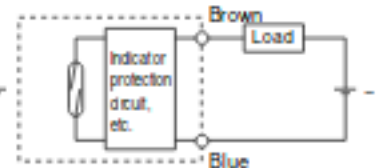
Solid state 3-wire, PNP



2-wire (Solid state)

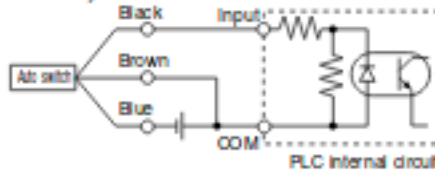


2-wire (Reed switch)

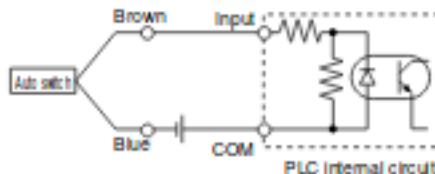


Example of Connection with PLC (Programmable Logic Controller)

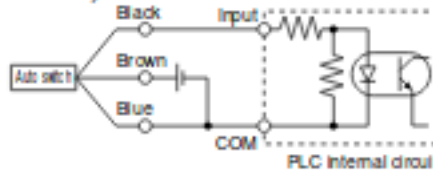
• Sink input specifications 3-wire, NPN



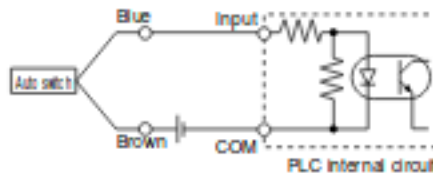
2-wire



• Source input specifications 3-wire, PNP



2-wire

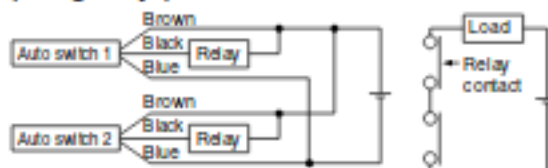


Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

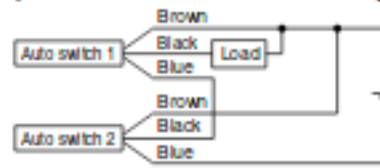
Example of AND (Series) and OR (Parallel) Connection

• 3-wire

AND connection for NPN output (Using relays)

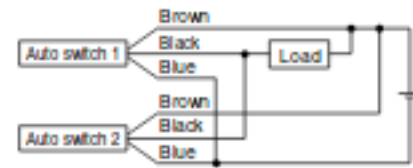


AND connection for NPN output (Performed with auto switches only)



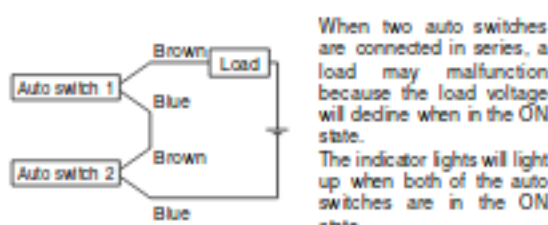
The indicator lights will light up when both auto switches are turned ON.

OR connection for NPN output



• 2-wire

2-wire with 2-switch AND connection

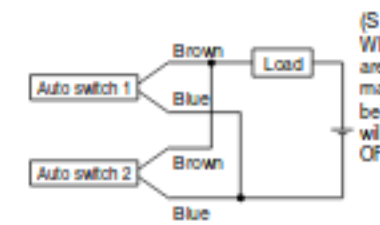


When two auto switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state. The indicator lights will light up when both of the auto switches are in the ON state.

Load voltage at ON = Power supply voltage - Residual voltage x 2 pcs.
= 24 V - 4 V x 2 pcs.
= 16 V

Example: Power supply is 24 VDC
Internal voltage drop in auto switch is 4 V.

2-wire with 2-switch OR connection



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

Load voltage at OFF = Leakage current x 2 pcs. x Load Impedance
= 1 mA x 2 pcs. x 3 kΩ
= 6 V

Example: Load Impedance is 3 kΩ.
Leakage current from auto switch is 1 mA.

(Reed auto switch)
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.