

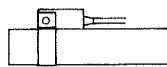
Information ②

How to Mount and Move the Auto Switch

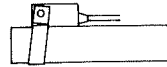
Mounting Bracket Band mounted type

⚠ Caution

1. Tighten the screw under the specified torque when mounting auto switch.
2. Set the mounting band perpendicularly to cylinder tube.



Correct mounting

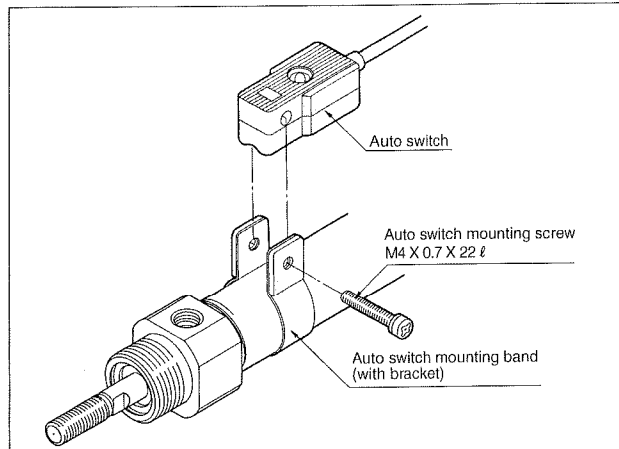


Wrong mounting

<Applicable auto switch>

- Reed switch D-B53, D-B54, D-B64
D-B59W
- Solid-state switch D-G59, D-G5P, D-K59, D-G5BAL
D-G59W, D-G5PW, D-K59W
D-G59F
D-G5NTL

How to mount and move the auto switch



- ① Put a mounting band on the cylinder tube and set it at the auto switch mounting position.
- ② Put the mounting section of the auto switch between the band mounting holes, then adjust the position of mounting holes of switch to those of mounting band.
- ③ Lightly thread the auto switch mounting screw through the mounting hole into the thread part of band fitting.
- ④ After setting the whole body to the detecting position by sliding, tighten the mounting screw to secure the auto switch. (The tightening torque of M4 screw should be about 1 to 1.2Nm {10.2 to 12.2kgfcm}.)
- ⑤ Modification of the detection position should be made in the condition of ③.

Part No. of auto switch mounting bracket (including band and screw)

Cylinder series	Applicable bore size (mm)							
	20	25	32	40	50	63	80	100
CDM2, CDBM2, CDVM3, CDVM5, CDLM2	BA2-020	BA2-025	BA2-032	BA2-040	—	—	—	—
CDG1, MGG	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
MGC	—	—	—	—	—	—	—	—
CDLG1	—	—	—	—	—	—	—	—
CDA1, CDBA1, CDV3, CNA	—	—	—	—	BA-05	BA-06	BA-08	BA-10
CDVS, CDLA, CDL1, CE2	—	—	—	—	—	—	—	—
RHC, MLGC, REC	BA-01	BA-02	BA-32	—	—	—	—	—

Mounting screw set (Stainless steel specification)

Use the following mounting screw set (Set screw included.) according to the required operating conditions. (Mounting band is not included.)

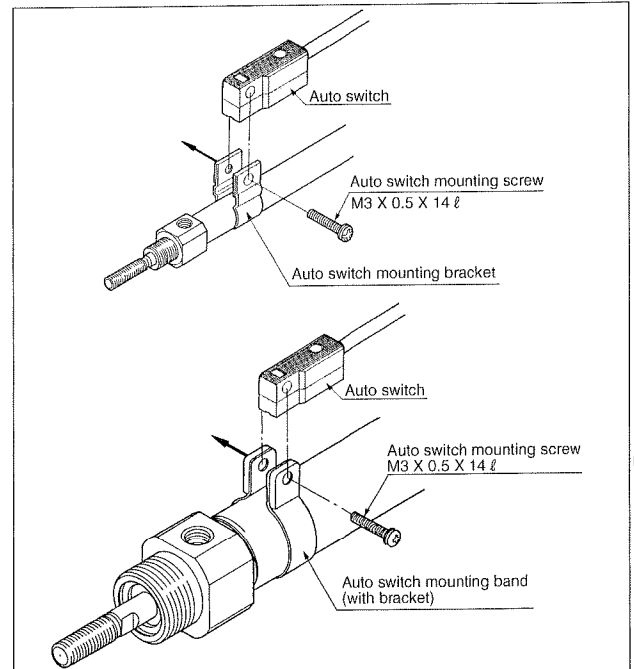
BBA3: For D-B5/B6/G5/K5

D-G5BAL is mounted on the cylinder with the above stainless steel screw BBA3 before shipment or BBA3 is enclosed with D-G5BAL when shipped without cylinder.

<Applicable auto switch>

- Reed switch D-C73, D-C76, D-C80
D-C73C, D-C80C
- Solid-state switch D-H7A1, D-H7A2, D-H7B, D-H7BAL
D-H7C
D-H7NF, D-H7LF
D-H7NW, D-H7PW, D-H7BW

How to mount and move the auto switch



- ① For series CDJ2 / Put a mounting bracket on the cylinder tube. For series CDM2 / Put a mounting band on the cylinder tube and set it at the auto switch mounting position.
- ② Put the mounting part of auto switch in the interval of stationary fitting to fit the mounting hole to the hole of stationary fitting.
- ③ Screw lightly the auto switch mounting screw through the mounting hole into the thread part of band fitting.
- ④ After setting the whole body to the detecting position by sliding, tighten the mounting screw to secure the auto switch. (The tightening torque of M3 screw should be about 0.8 to 1Nm {8.2 to 10.2kgfcm}.)
- ⑤ Modification of the detection position should be made in the condition of ③.

Part No. of auto switch mounting bracket (including band and screw)

Cylinder series	Applicable bore size (mm)							
	6	10	15	16	20	25	32	40
CDJ2	BJ2-006	BJ2	—	BJ2	—	—	—	—
CDVJ3, CDVJ5	—	-010	—	-016	—	—	—	—
CDLJ2	—	—	—	—	—	—	—	—
CDM2, CDBM2	—	—	—	—	BM2	BM2	BM2	BM2
CDVM3, CDVM5, CDLM2	—	—	—	—	-020	-025	-032	-040
CDG1, MGG	—	—	—	—	—	—	—	—
CDLG1	—	—	—	—	BMA2	BMA2	BMA2	—
MGC	—	—	—	—	-020	-025	-032	BMA2-040
RHC, MLGC, REC	—	—	—	—	—	—	—	—
RSDG	—	—	—	—	—	—	—	—

Mounting screw set (Stainless steel specification)

Use the following mounting screw set according to the required operating conditions. (Mounting band is not included.)

BBA4: For D-C7/C8/H7

D-H7BAL is mounted on the cylinder with the above stainless steel screw BBA4 before shipment or BBA4 is enclosed with D-H7BAL when shipped without cylinder.

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How to Mount and Move the Auto Switch

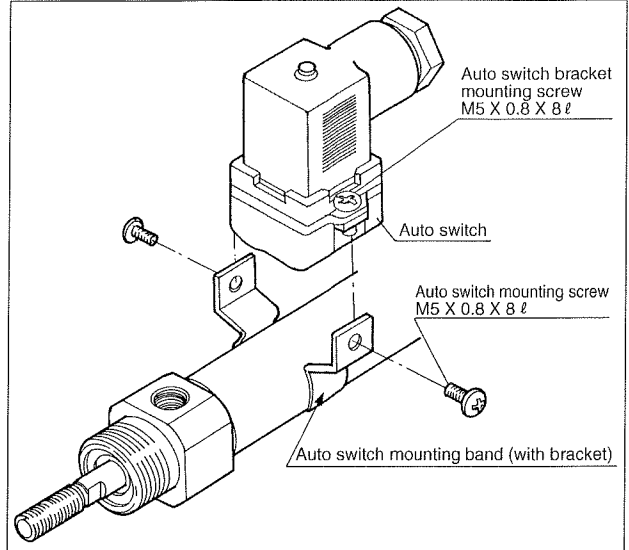
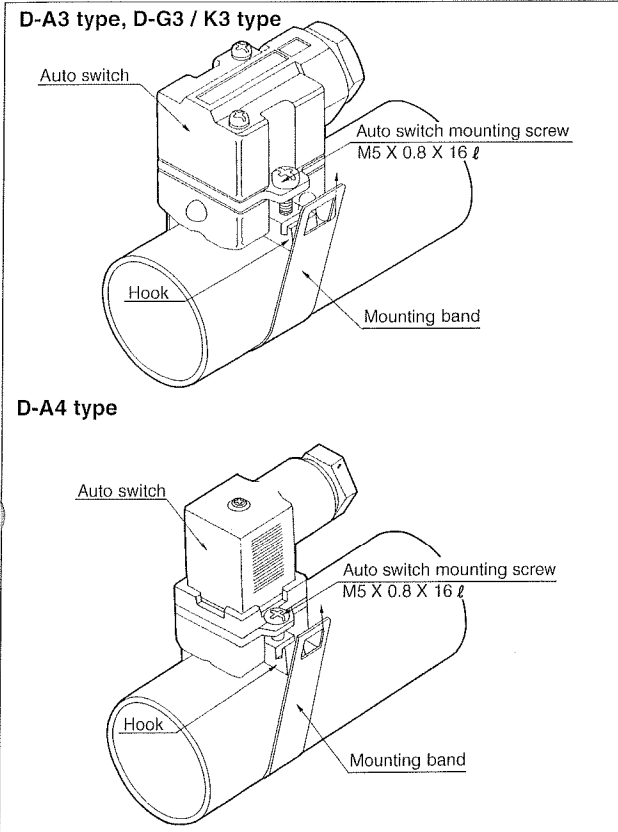
Mounting Bracket Band mounted type

<Applicable auto switch>

Reed switch D-A33, D-A34, D-A44
 Solid-state switch D-G39, D-K39

<Applicable auto switch>

Reed switch D-A33A, D-A34A, D-A44A
 Solid-state switch D-G39A, D-K39A



- ① Loosen the auto switch mounting screws at both sides to pull down the hook.
- ② Put a mounting band on the cylinder tube and set it at the auto switch mounting position, and then hook the band.
- ③ Screw lightly the auto switch mounting screw.
- ④ Set the whole body to the detecting position by sliding, tighten the mounting screw to secure the auto switch. (The tightening torque should be about 2 to 3Nm {20.4 to 30.6kgfcm}.)
- ⑤ Modification of the detecting position should be made in the condition of ③.

- ① Tighten completely the switch mounting screw on the switch body side.
- ② Put a mounting band on the cylinder tube and set it at the auto switch mounting position. Put the mounting section of auto switch between the interval of mounting band, then adjust the position of mounting holes of switch to those of mounting band.
- ③ Lightly thread the auto switch mounting screw through the mounting hole into the thread part of band fitting.
- ④ After reconfirming the detecting position, tighten the mounting screw to secure the auto switch. (The tightening torque of M5 screw should be about 2 to 3Nm {20.4 to 30.6kgfcm}.)
- ⑤ Modification of the detecting position should be made in the condition of ③.

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Part No.of auto switch mounting band

Cylinder series	Applicable bore size (mm)												
	20	25	32	40	50	63	80	100	125	140	160	180	200
CD41, CDBA1, CDV3				BD1	BD1	BD1	BD1	BD1					
CDV5, CDLA, CE2, CNA				-04M	-05M	-06M	-08M	-10M					
CDL1									BS1	BS1	BS1		
CDS1									-125	-140	-160	BS1-180	BS1-200
RHC	BD1-01M	BD1-02M	BD1-02	BD1-04M									

Part No.of auto switch mounting bracket (including band and screw)

Cylinder series	Applicable bore size (mm)			
	20	25	32	40
CDM2, CDBM2	BM3-020	BM3-025	BM3-032	BM3-040
CDLM2				

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How to Mount and Move the Auto Switch

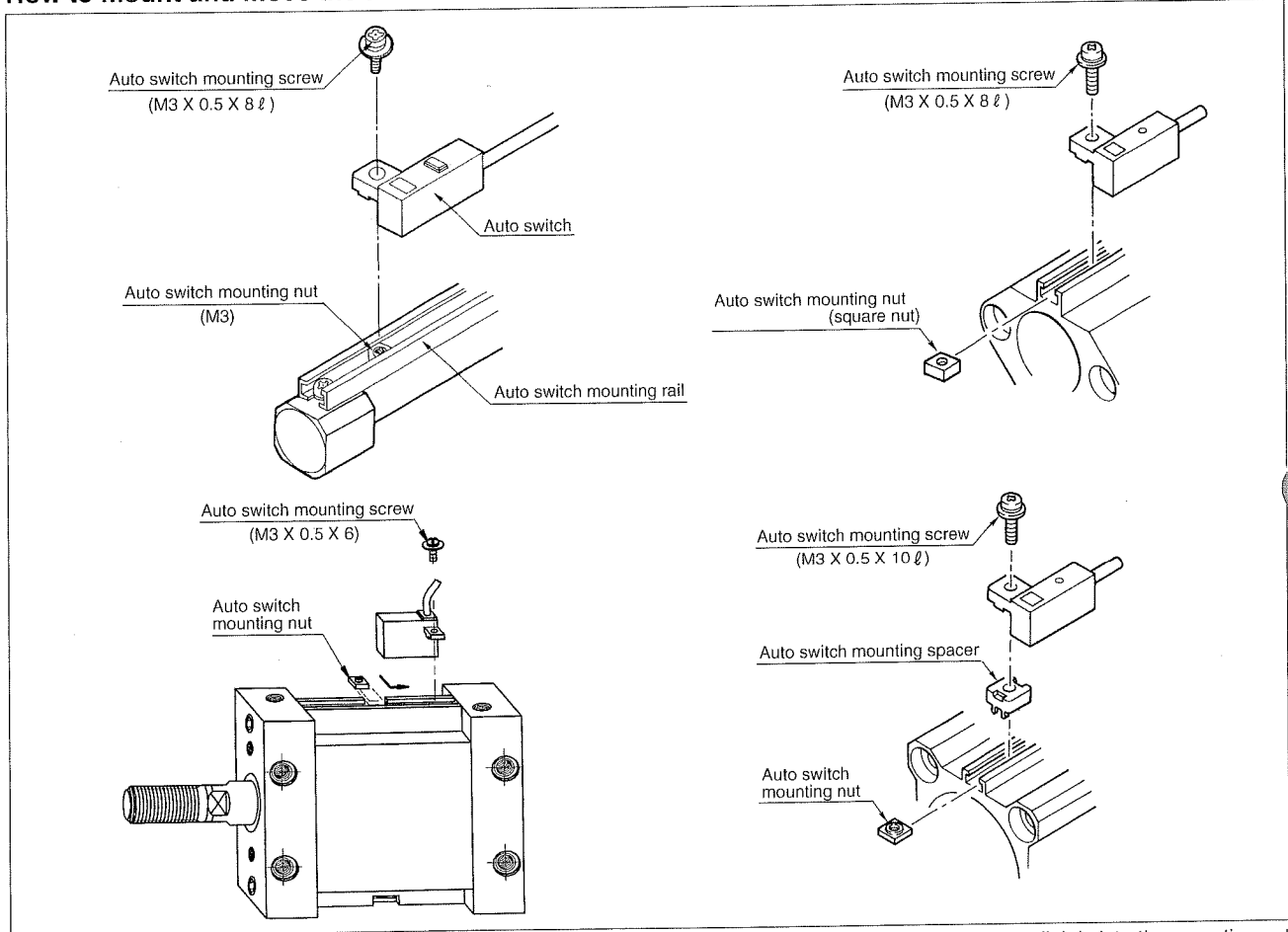
Mounting Bracket Rail mounted type

<Applicable auto switch>

Reed switch D-A72, D-A73, D-A80, D-A72H, D-A73H, D-A76H, D-A80H, D-A73C, D-A80C, D-A79W

Solid-state switch D-F79, D-F7P, D-J79, D-F7NV, D-F7PV, D-F7BV, D-J79C, D-F79W, D-F7PW, D-J79W, D-F7NWV, D-F7BWV, D-F79F, D-F7LF, D-F7BAL, D-F7NTL

How to mount and move the auto switch



① Slide the auto switch mounting nut inserted into the mounting rail and set at the auto switch mounting position.

② Fit the convex part of auto switch mounting arm into the concave part of auto switch mounting rail. Then slide the switch over the nut. (CDQ2 series: Fit the convex part of auto switch mounting arm through the auto switch spacer into the concave part of auto switch mounting rail.)

③ Push the auto switch mounting screw lightly into the mounting nut through the hole of auto switch mounting arm.

④ After reconfirming detection position, tighten the mounting screw to secure the auto switch. (Tightening torque of M3 screw should be 0.5 to 0.7Nm {5.1 to 7.1kgfcm}.)

⑤ Modification of the detecting position should be made in the condition of ④.

Part No. of auto switch mounting bracket (including nut, screw and spacer)

Cylinder series	Applicable bore size (mm)												
	12	16	20	25	32	40	50	63	80	100	125	140	160
CDQ2	BQ-1	BQ-1	BQ-1	BQ-1	BQ-2	BQ-2	BQ-2	BQ-2	BQ-2	BQ-2	BQ-2	BQ-2	BQ-2
MDU	—	—	—	BMU1-025	BMU1-025	BMU1-025	BMU1-025	BMU1-025	—	—	—	—	—
RSDQ	—	—	—	—	—	—	—	—	—	—	—	—	—
MK, MK2	—	—	BQ-1	BQ-1	BQ-2	BQ-2	BQ-2	BQ-2	—	—	—	—	—
CE1	BQ-1	—	—	—	—	—	—	—	—	—	—	—	—
CXT	—	—	—	—	—	—	—	—	—	—	—	—	—

Mounting screw set (Stainless steel specification)

Use the following mounting screw set (Nut included.) according to the required operating conditions. (Auto switch spacer is not included.)

BBA2: For D-A7/A8/F7/J7

D-F7BAL is mounted on the cylinder with the above stainless steel screw BBA2 before shipment or BBA2 is enclosed with D-F7BAL when shipped without cylinder.

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How to Mount and Move the Auto Switch

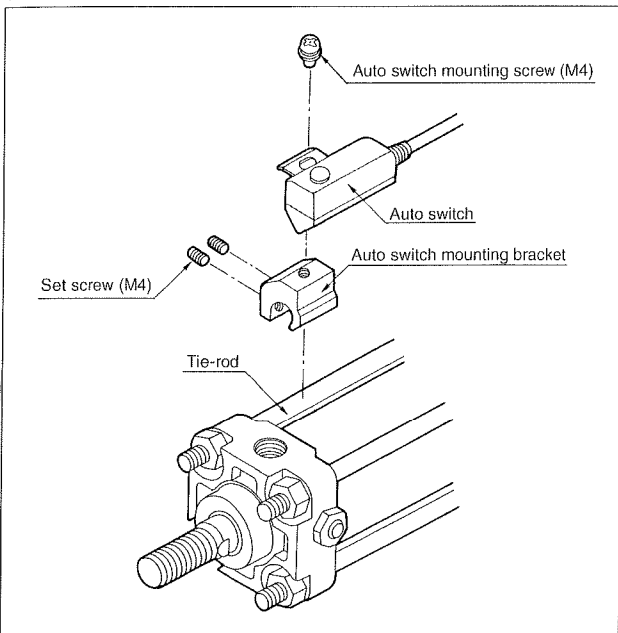
Mounting Bracket Tie-rod mounted type

<Applicable auto switch>

Reed switch D-A53, D-A54, D-A56, D-A64, D-A67
D-A59W

Solid-state switch D-F59, D-F5P
D-J59, D-J51, D-F5BAL
D-F59W, D-F5PW, D-J59W
D-F59F, D-F5LF
D-F5NTL

How to mount and move the auto switch



- Fix the auto switch on the auto switch mounting bracket with the mounting screw (M4) and install the set screw.
- Fit the mounting bracket into the cylinder tie-rod and then fix the auto switch at the detecting position with the hexagonal wrench. (Be sure to put the auto switch on the surface of cylinder tube.)
- When changing the detecting position, loosen the set screw to move the auto switch and then re-fix the auto switch on the cylinder tube. (Tightening torque of M4 screw should be 1 to 1.2 Nm {10.2 to 12.2 kgfcm})

Part No. of auto switch mounting bracket (including bracket, mounting screw and set screw)

Cylinder series	Applicable bore size (mm)										
	32	40	50	63	80	100	125	140	160	180	200
CDA1, CDBA1, CDV3	—	BT	BT	BT	BT	BT	—	—	—	—	—
CDVS, CDLA, CE2, CNA	—	-04	-04	-06	-08	-08	—	—	—	—	—
CDL1	—	—	—	—	—	—	BT	BT	BT	—	—
CDS1	—	—	—	—	—	—	-12	-12	-16	BT-18A	BT-20
MDB, MDBB	BT-03	BT-03	BT-05	BT-05	BT-06	BT-06	—	—	—	—	—

Mounting screw set (Stainless steel specification)

Use the following mounting screw set (Set screw included.) according to the required operating conditions. (Mounting bracket is not included.)

BBA1: For D-A5/A6/F5/J5

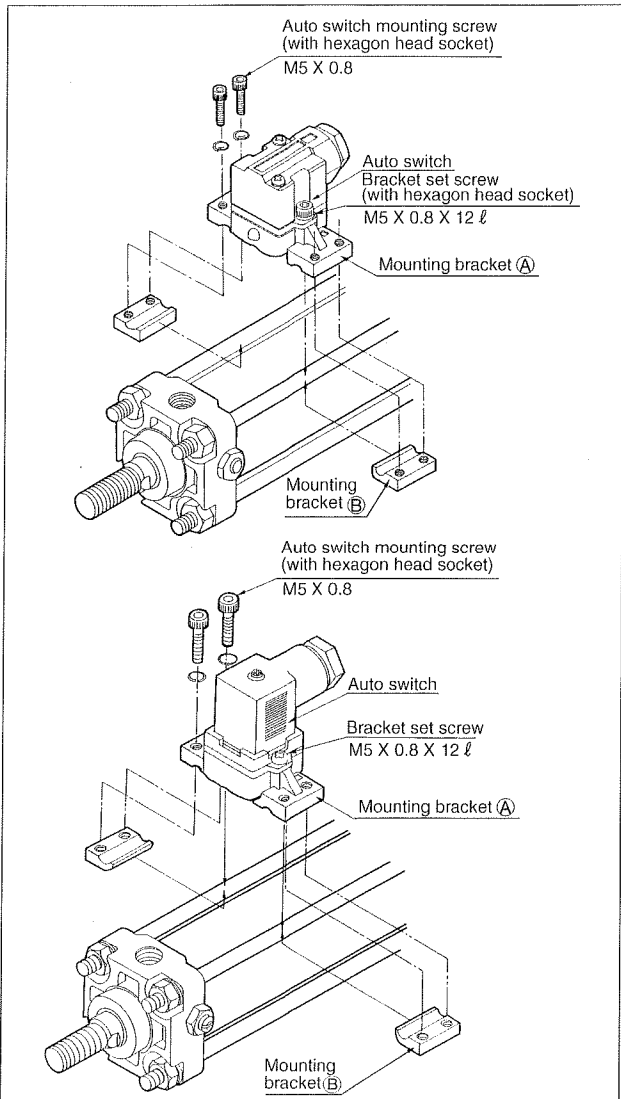
D-F5BAL is mounted on the cylinder with the above stainless steel screw BBA1 before shipment or BBA1 is enclosed with D-F5BAL when shipped without cylinder.

<Applicable auto switch>

Reed switch D-A33C, D-A34C, D-A44C

Solid-state switch D-G39C, D-K39C

How to mount and move the auto switch



- Fix the mounting bracket (A) on the auto switch with the set screw.
- Fit the convex part of mounting bracket into tie-rod and set the auto switch at the mounting position.
- Insert the mounting bracket (B) from the underneath and put lightly in the tie-rod with the mounting screw.
- Set the whole body to the detecting position by sliding, tighten the mounting screw to secure the auto switch. (Tightening torque of M5 screw should be 2 to 3Nm {20.4 to 30.6kgfcm}.)
- Modification of the detecting position should be made in the condition of ③.

Part No. of auto switch mounting bracket (including bracket and screw)

Cylinder series	Applicable bore size (mm)				
	40	50	63	80	100
CDA1, CDBA1	BA3	BA3	BA3	BA3	BA3
CDV3, CDVS, CDL1, CE2, CNA	-040	-050	-063	-080	-100

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Information ②

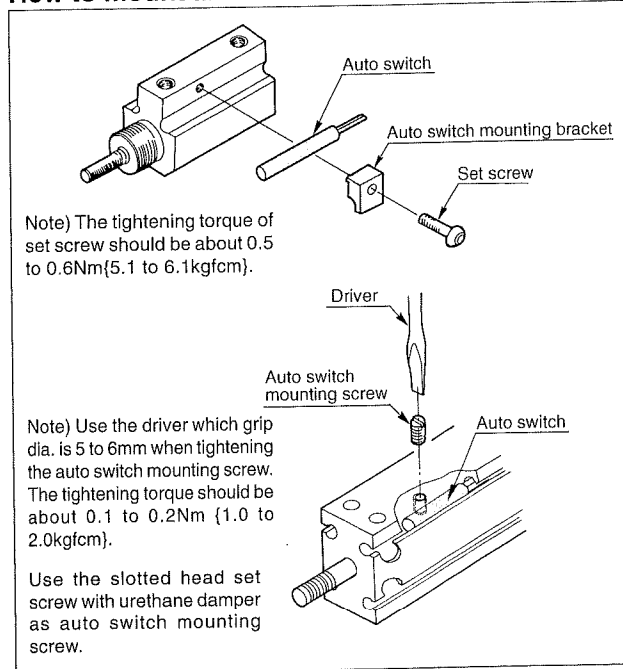
How to Mount and Move the Auto Switch

Mounting Bracket Direct mounted type

<Applicable auto switch>

Reed switch D-90 / 97, D-90A / 93A

How to mount and move the auto switch



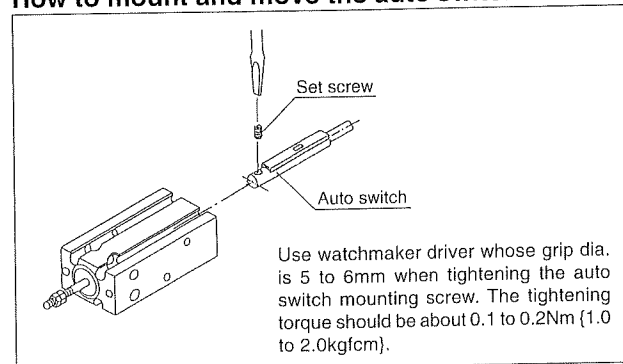
Part No. of auto switch mounting bracket (including bracket and screw)

Cylinder series	Applicable bore size (mm)						
	6	10	15	16	20	25	32
CDJP- *D	BP-1	BP-1	—	—	—	—	—
CDU	BU-1	BU-1	—	BU-1	BU-1	BU-1	BU-1

<Applicable auto switch>

Reed switch D-A90 (V) / A93 (V) / A96 (V)
 Solid-state switch D-F9N (V) / F9P (V) / F9B (V) / F9NW (V) / F9PW (V) / F9BW (V) / F9BAL

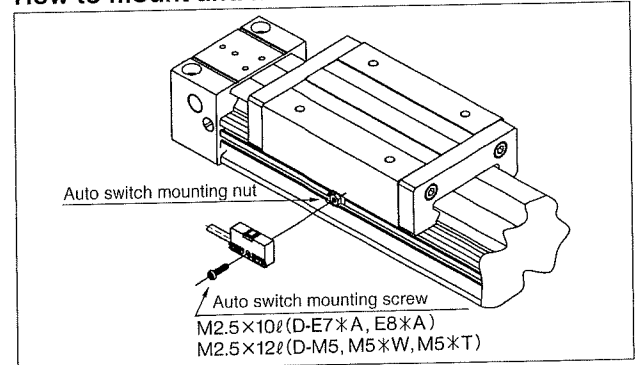
How to mount and move the auto switch



<Applicable auto switch>

Reed switch D-E73A / E76A / E80A
 Solid-state switch D-M5N / M5P / M5B
 D-M5NW / M5PW / M5BW
 D-M5NTL / M5PTL

How to mount and move the auto switch



- 1 Insert the auto switch mounting nut into the auto switch mounting groove and then set the switch at the mounting position by sliding.
- 2 Put the convex part of auto switch into the mounting groove and slide it over the nut.
- 3 Push the auto switch mounting screw lightly into the mounting nut through the mounting hole.
- 4 After reconfirming detecting position, tighten the mounting screw to secure the auto switch. (Tightening torque of M2.5 screw should be 0.1 to 0.2Nm {1.0 to 2.0kgcm}.)

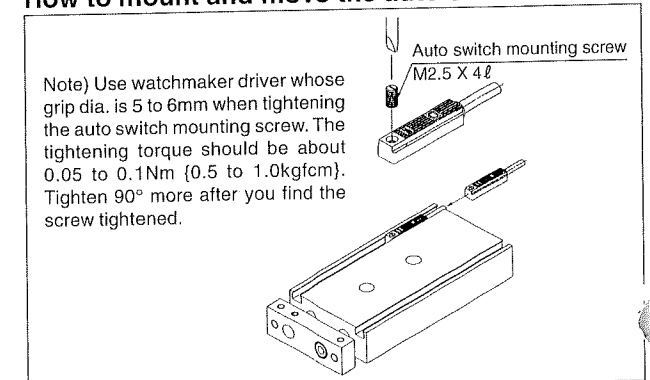
Part No. of auto switch mounting bracket (including nut and screw)

Cylinder series	Applicable bore size (mm)	Applicable bore size (mm)		
		25	32	40
ML1	M2.5X12 l	BM Y2-025	BM Y2-025	BM Y2-025

<Applicable auto switch>

Reed switch D-Z73 / Z76 / Z80
 Solid-state switch D-Y59^A / Y69^A, D-Y7P (V)
 D-Y7NW (V) / Y7PW (V) / Y7BW (V)
 D-Y7BAL

How to mount and move the auto switch



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

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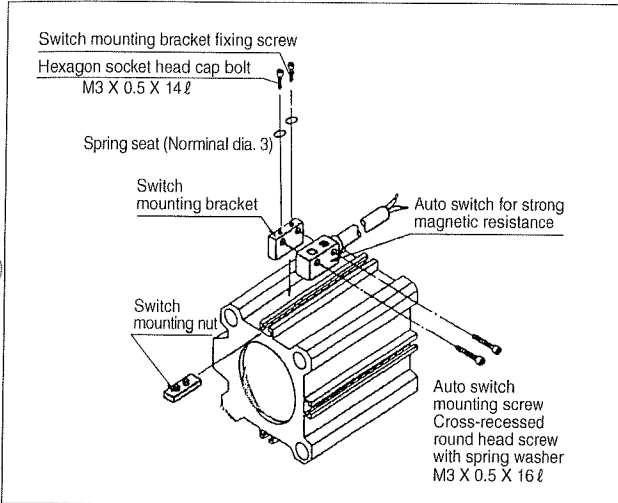
How to Mount and Move the Auto Switch

Mounting Bracket Direct mounted type

<Applicable auto switch>

Sold-state switch D-P5DWL

How to mount and move the auto switch



- ① Mount the mounting bracket onto the mounting nut by tightening the bracket fixing screw lightly through the mounting hole on the top of the bracket.
- ② Insert the mounting bracket ass'y (bracket + nut) into the mounting groove and set it at the auto switch mounting position.
- ③ Push the auto switch mounting screw lightly into the auto switch through the mounting hole to secure.
- ④ After reconfirming detection position, tighten the mounting screw to secure the auto switch. (Tightening torque should be 0.5 to 0.7Nm {5.1 to 7.1kgfcm}.)

Part No. of auto switch mounting bracket (including bracket and screw)

Cylinder series	Applicable bore size (mm)		
	40	50	63
MK, MK2	BQP1-050	BQP1-050	BQP1-050

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Auto Switch Weight (Single)

Band mounted type (g)

Applicable auto switch	Type		Lead wire length			
			0.5m	3m	None	
Reed switch	D-C7	2-wire system	9	46	—	
	D-C8	3-wire system	10	50		
	D-C73C D-C80C		14	53	—	
	D-B5 D-B6		22	78	—	
	D-B59W		20	76	—	
	D-A3		—	—	116	
	D-A4		—	—	114	
	D-A3 * A D-A44A		—	—	110	
	Solid-state switch	D-H7	2-wire system	11	50	—
			3-wire system	13	57	—
4-wire system			13	56	—	
D-K5		2-wire system	18	68	—	
		3-wire system	20	78	—	
D-G5		3-wire system	20	78	—	
		4-wire system	20	74	—	
D- * 39		—	—	116		
D- * 39A		—	—	110		
D-H7C		15	54			

Tie-rod mounted type (g)

Applicable auto switch	Type		Lead wire length		
			0.5m	3m	None
Reed switch	D-A5	2-wire system	24	80	—
	D-A6	3-wire system			
	D-A59W		25	80	—
	D-A3 * C	ø40	—	—	162
		ø50	—	—	166
		ø63	—	—	184
		ø80	—	—	210
	D-A44C	ø100	—	—	232
		ø40	—	—	160
		ø50	—	—	164
ø63		—	—	182	
Solid-state switch	D-J5	2-wire system	21	71	—
		3-wire system	23	81	—
	D-F5	4-wire system	22	77	—

Rail mounted type (g)

Applicable auto switch	Type		Lead wire length	
			0.5m	3m
Reed switch	D-A7 / A7 * H	2-wire system	10	47
	D-A8 / A80H	3-wire system	11	52
	D-A73C D-A80C		12	54
	D-A79W		11	53
	Solid-state switch	D-J7	2-wire system	11
D-F7		3-wire system	13	57
		4-wire system	13	56
D-J79C		13	52	

Direct mounted type (g)


Applicable auto switch	Type		Lead wire length		
			0.5m	3m	
Reed switch	D-A9 / A9 * V	2-wire system	7	35	
		3-wire system	8	41	
	D-9		5	23	
	D-9 * A		9	47	
	D-E7 * A D-E8 * A	2-wire system	10	47	
		3-wire system	11	55	
	D-Z7 D-Z8	2-wire system	9	49	
		3-wire system	10	55	
Solid-state switch	D-Y *	1 color	2-wire system	9	50
			3-wire system	10	53
	2 color	2-wire system	11	54	
		3-wire system	11	54	
	D-M5		2-wire system	14	53
			3-wire system	16	60
	D-Y7BA		—	54	
	D-F9 *	1 color	2-wire system	6	31
			3-wire system	7	37
		2 color	2-wire system	7	32
3-wire system			7	34	
D-F9BA		—	37		




Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by label of “**Caution**”, “**Warning**” or “**Danger**”. To ensure safety, be sure to observe ISO 4414 ^{Note 1)}, JIS B 8370 ^{Note 2)} and other safety practices.

 **Caution** : Operator error could result in injury or equipment damage.

 **Warning** : Operator error could result in serious injury or loss of life.

 **Danger** : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414:Pneumatic fluid power-Recommendations for the application of equipment to transmission and control systems.

Note 2) JIS B 8370:Pneumatic system axiom.

Warning

❶ The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

❷ Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

❸ Do not service machinery/equipment or attempt to remove component until safety is confirmed.

1) Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.

2) When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.

3) Before machinery/equipment is re-started, take measures to prevent shooting/out of cylinder piston rod etc. (Bleed air into the system gradually to create back-pressure.)

❹ Contact SMC if the product is to be used in any of the following conditions:

1) Conditions and environments beyond the given specifications, or if product is used outdoors.

2) Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.

3) An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.



Auto Switch Precautions

Be sure to read before handling.

Design, Selection

Warning

1 Confirm specifications.

Do not use switches with load current, voltage, temperature, impact beyond the specification range.

2 Parallel mounting of cylinder

When using two or more auto switch capable cylinders or more mounted parallel to one another, the distance between tubes should be 40 mm or more to avoid possible incorrect operation caused by magnetic force from neighboring cylinder. (Refer to the allowable distance for each cylinder indicated in cylinder catalog.)

3 Setting switch at intermediate stroke

When setting the auto switch at the intermediate position of stroke and the load operates from the piston passing over the switch, it may occur that high-speed operation may not allow the switch operate. Max. detectable piston speed is:

$$V \text{ (mm/s)} = \frac{\text{Auto switch operating range (mm)}}{\text{Load operating time (ms)}} \times 1,000$$

Auto switch with built-in OFF delay timer (about 200ms) is suitable for high-speed operation.

(D-F5NT, F7NT, G5NT, M5*T type)

4 Wiring should be as short as possible.

(Reed switch)

Long wiring to the load may increase the current at ON, which may lead to shorter life.

- 1) An auto switch with more than a 5 meter long lead wire must be used with a contact protection box.
- 2) Consult SMC in case an auto switch with built-in contact protective circuit is used with more than a 30 meter long lead wire. In such a case, it is impossible to absorb the flowing current and may shorten the product life.

(Solid-state switch)

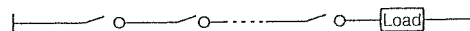
- 3) Lead wire should be less than 100 meters.

5 Internal voltage drop

(Reed switch)

- 1) Switch with indicator light
(Except for D-A56, A76H, A96, A96V, C76, E76A AND Z76)

If the switches are connected in series as shown in the following figure, it makes the voltage drop greater due to the internal resistance of the light emitting diodes (Refer to the internal resistance voltage in the auto switch specification). The load may not operate due to the internal voltage drop.



If used in less than the specified voltage, the load may not operate due to the internal voltage drop. The allowable range of the load should be confirmed. Select the auto switch using the following formula.

$$\text{Power voltage} - \text{Internal drop voltage} > \text{Min. operating voltage of load.}$$

- 2) If the internal resistance of the light emitting diode causes trouble, switches with no indicator light (D-A6*, A80, A80H, A90, A90V, C80, R80, 90, E80A, Z80) should be used.

(Solid-state switch)

- 3) The internal voltage drop of 2-wire solid-state switch is larger than that of reed switch. Refer to 1). 12VDC relay is not available.

6 Current leakage

(Solid-state switch)

2-wire solid-state switch has a current flow in the load to operate the internal circuit at off.

Please use the following formula:

$$\text{Load operating current (Input off current at controller)} > \text{Current leakage}$$

If not, switch will remain in the ON condition. In such a case use the 3-wire type.

7 Do not use a load which generates a surge voltage.

(Reed switch)

When relays and solenoid valves that generate a surge are to be driven directly, use a switch equipped with a built-in surge absorption element.

(Solid-state switch)

An output part connected to a zener diode for protection against surge may be damaged by repeated surges. Use an auto switch with built-in surge absorbing element when directly driving a load that generates a surge such as a relay or solenoid valve.

8 Inter lock circuit

Set a double interlock system like a mechanical protection function or sensor.

Check regularly to confirm normal operation.

9 Secure the maintenance space.

Space for maintenance should be taken into consideration when designing machinery.



Auto Switch Precautions

Be sure to read before handling.

Installation, Adjustment

⚠ Warning

① Do not drop or cause impact to switch.

Do not drop, apply excessive impact (more than 300m/s² for reed switch, more than 1000m/s² for solid-state switch) when handling. Damage could occur to the inside as well as the body.

② Do not pull the lead wire with excessive force. Do not pull the lead wire to move the cylinder.

It may cause breakage of lead wire or damage to the internal switch element due to the applied stress.

③ Tighten the screw within the specified torque range.

Tightening with over the specified torque may damage the mounting screw, bracket or switch. If tightening with smaller torque than the specified range, the mounting position may slide.

④ Set the switch at the center of operating range.

Adjust the mounting position of auto switch to have the piston stopped in the middle of the switch operating range, or the switch may operate erratically. (The most suitable mounting position shown in the catalog is near the borderline of the stroke end.)

Wiring

⚠ Warning

① Wiring must not be subjected to repeated bending stress or pulling forces.

It may cause the wire to break.

② Connect the load before supplying power.

(2-wire type)

Switch may fail due to excessive current flow as soon as switch comes ON without load.

③ Check the insulation of wiring.

Do not use wiring with damaged insulation due to risk of a short circuit. e.g. contact with other wiring, ground or between terminals etc. An auto switch may be damaged by excessive current flowing into the switch.

④ Avoid close proximity to power or high voltage cable.

Electrical interference might cause malfunction to the control circuit, including the switch, due to noise.

⑤ Do not short the load.

(Reed switch)

The switch may be broken by excessive current as soon as the load is shorted.

(Solid-state switch)

The short protection circuit is not equipped with D-F9* (V), F9*W (V), J51, G5NB nor all the PNP type. Take care so that the switch is not broken as soon as the load is shorted. Pay special attention when replacing the power wire (Brown) and output wire (Black).

Wiring

⚠ Warning

⑥ Avoid incorrect wiring.

(Reed switch)

24VDC switch with indicator light has polarity. The brown lead or terminal No.1 is (+) and the blue lead or terminal No.2 is (-). D-97 type: Non indicated lead is (+) and the black line is (-).

1) The reverse connection allows the switch to operate but the LED light does not come on. A current exceeding the specification may damage the diode causing switch failure.

Applicable auto switch model

D-A73, A73H, A73C, C73, C73C, E73A, Z73, R73 type

D-97, 93A, A93, A93V type

D-A33, A34, A33A, A34A, A44, A44A type

D-A53, A54, B53, B54 type

2) The reverse connection of the 2-color indication type (D-A79W, A59W and B59W) allows the switch to be ON normally.

(Solid-state switch)

1) The 2-wire type is equipped with a protection circuit so that the switch will not be damaged by reverse connection, however, the switch is always ON. The switch will be damaged by reverse connection when the load is shorted.

2) In case of 3-wire type

Reverse connection of (+) and (-) is protected by protection circuit, but the switch may be damaged if connecting polarity (+) with blue lead wire and (-) with black lead wire.



Auto Switch Precautions

Be sure to read before handling.

Environment

Warning

- ❶ **Do not use switches in an environment where auto switch is in direct contact with explosive atmosphere.**

The auto switches have no explosion proof construction; it may ignite explosive gas.

Therefore, avoid the use of switch in such an atmosphere.

- ❷ **Do not use switches where a magnetic field exists.**

It may cause a malfunction or reduce magnetic force of magnet assembled in the actuator. Contact SMC for a strong magnetic field resistant auto switch.

- ❸ **Do not use switches in an environment where an auto switch may be continuously exposed to direct water contact.**

Although conforming to the IEC standard IP67 structure (JISC0920: Watertight structure) except for D-A3*, A44*, G39* and K39*, use of the auto switch for long periods of time with continuous exposure to water is limited. It may cause adverse effect on insulation or switch malfunction due to deterioration by lubrication of potting resin.

- ❹ **Do not use switches in an environment where oil or chemical is required.**

Contact SMC for the use of auto switches in an environment requiring contact with coolant, cleaning solvent, other kinds of oils or chemicals for a short time. It may cause adverse effect on insulation or switch malfunction due to deterioration of potting resin and hardening of lead wire.

- ❺ **Do not use switches where operating temperature changes greatly.**

Contact SMC for the temperature changes other than normal range.

- ❻ **Do not use switches where excessive force may be applied.**

(Reed switch)

If excessive force of more than 300m/s² is applied to reed switch while operating, it may cause a malfunction of the contact point. For example, outputting signal instantly (1m or less) or cutting the signal down. Contact SMC when requiring a solid-state auto switch in such a case.

- ❼ **Do not use switches where a large surge voltage is generated.**

(Solid-state switch)

When electronic type machine lifter, high frequency induction furnace or motor, which generate large surge voltage, is placed near switches, use a switch equipped with a built-in surge adsorption element and avoid the common wiring. It may cause damage or deterioration of switches internal circuit element.

- ❽ **Pay attention to any iron powder accumulation or magnetic substance.**

If cutting or iron powder from welding spatter is accumulated or magnetic substances are placed nearby, magnetic force of piston magnet may be reduced and switch will not function properly.

Maintenance

Warning

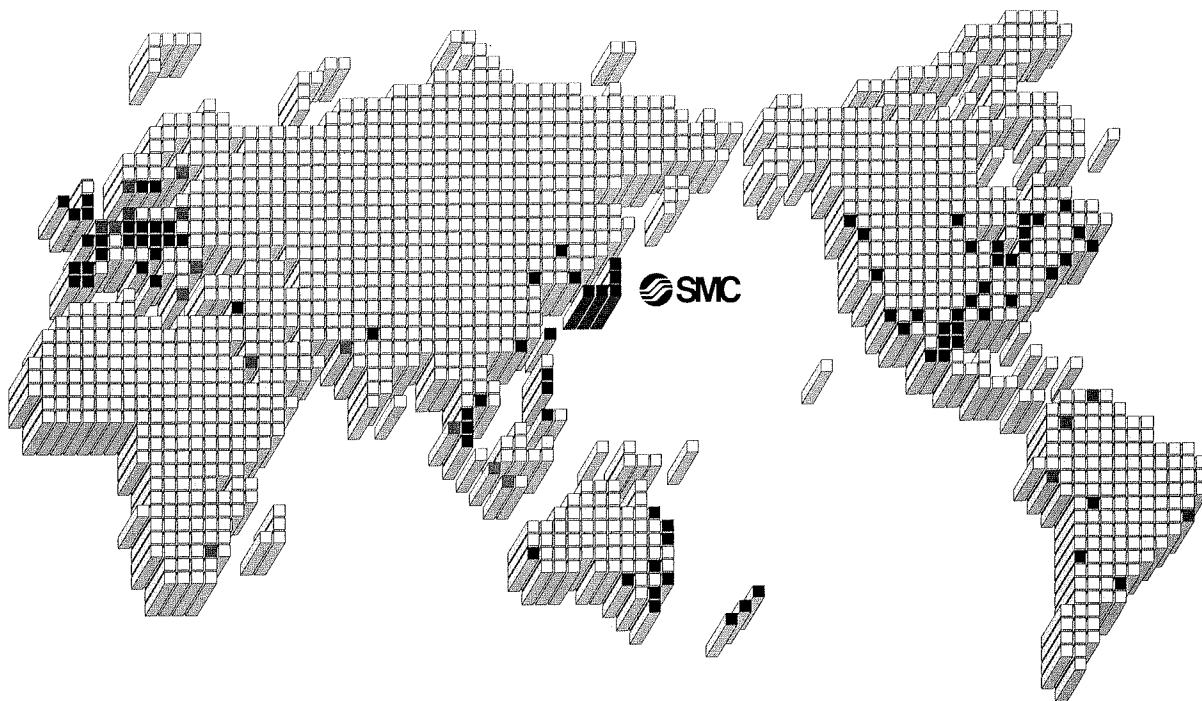
- ❶ **The following maintenance should be done regularly.**
- 1) Additional tightening of switch mounting screw
Readjust the mounting position and tighten the screw if screw is loose or mounting position has slid.
 - 2) Confirmation of the lead wire condition
Replace switch or repair the lead wire to avoid insulation fault if lead wire is damaged.
 - 3) Confirmation of green light (2-color indication switch)
Confirm the switch green light emitting diode at the setting position before stopping.
If light is red, mounting position is not correct.

Others

Warning

- ❶ **Contact SMC for water resistant performance, bending resistance of lead wires, and use in welding applications.**

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