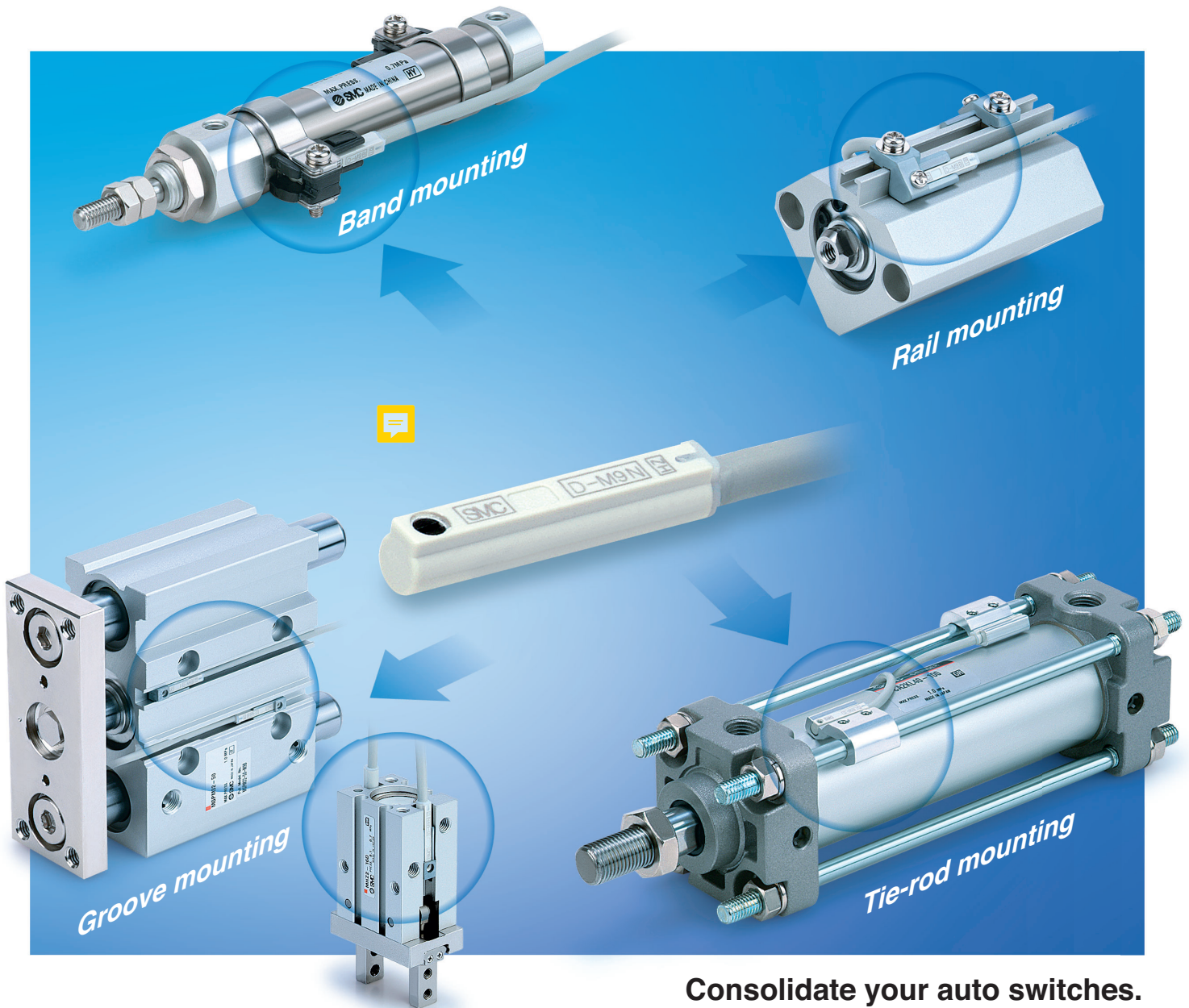




Auto Switch Guide



**Consolidate your auto switches.
Simplify your onsite inventory control.**

Auto Switch Guide

Select an auto switch model according to the series and the mounting style.

Series *	Size	Mounting Style						Auto Switch Mounting Style Notes	Page No.
		Direct (Round Groove)	Direct (Rectangular Groove)	Direct (for rotary actuators)	Rail	Tie rod	Band		
C55	20 to 63							Direct (Round Groove)	.4
C76	32, 40							Band	.8
C85	8 to 25							Band	.8
C95	32 to 250							Tie rod	.7
CA2	40 to 100							Tie rod	.7
CE1	12 to 25							Rail	.6
	32 to 63							Direct (Round Groove)	.4
CG1	20 to 100							Band	.8
CG5..S	20 to 100							Band (use D-G5BAL) Water resistant	.8
CJ2	6, 10, 16							Band	.8
CJP2	4, 6, 10, 16							Direct (Round Groove)	.4
CJ5..S	10, 16							Band (use D-H7BAL) Water resistant	.8
CL1	40 to 160							Tie rod	.7
CLG1	20 to 40							Band	.8
CLJ2	16							Band	.8
CLM2	20 to 40							Band	.8
CLQ	20 to 100							Direct (Round Groove)	.4
CLS	125 to 200							Tie rod for cylinder unit	.7
	125 to 250							Direct (Round Groove) for lock unit	.4
CM2	20 to 40							Band	.8
CNA	40 to 100							Tie rod	.7
CNG	20 to 40							Band	.8
CNS	125, 140, 160							Tie rod	.7
CP95	32 to 100							Direct (Rectangular Groove)	.5
CQ2	12 to 25							Rail	.6
	32 to 100							Direct (Round Groove)	.4
	125 to 200							Direct (Rectangular Groove)	.5
CQM	12 to 50							Direct (Round Groove)	.4
CQS	12 to 25							Direct (Round Groove)	.4
CRA1	30							Rail (for rotary actuators)	.10
	50 to 100							Direct (for rotary actuators)	.10
CRB1	50 to 100							Direct (for rotary actuators)	.10
CRB2	10 to 40							Direct (for rotary actuators)	.10
CRBU	10 to 40							Direct (for rotary actuators)	.10
CRJ	0.5, 1							Direct (Round Groove)	.4
CRQ2	10 to 40							Direct (Round Groove)	.4
CS1	125 to 200							Tie rod	.7
CU	6 to 32							Direct (Round Groove)	.4
CUJ	6 to 10							Direct (Round Groove, use D-F8 type)	.4
CXS	6 to 32							Direct (Rectangular Groove)	.5
CXSJ	6 to 32							Direct (Round Groove)	.4
CXT	12 to 40							Direct (Round Groove)	.4
CXW	10 to 32							Rail	.6
CY1F	10, 15, 25							Direct (Round Groove)	.4
CY1H/HT	10 to 32							Direct (Rectangular Groove)	.5
CY1L	6 to 40							Rail	.6
CY1S	6 to 40							Rail	.6
CY3R	6 to 20							Direct (Round Groove)	.4
	25 to 63							Direct (Rectangular Groove)	.5
E-MY2	16, 25							Direct (Round Groove)	.4
MB	32 to 125							Tie rod	.7
MB1	32 to 100							Direct (Rectangular Groove)	.5
MDHR2	10 to 30							Direct (use solid state switch)	.4
MDHR3	10, 15							Direct (use solid state switch)	.4
MGC	20 to 50							Band	.8
MGF	40, 63, 100							Direct (Rectangular Groove)	.5
MGG	20 to 100							Band	.8
MGJ	6, 10							Direct (Round Groove, use D-F8 type)	.4
MGP	12 to 100							Direct (Rectangular Groove)	.5
MGT	63, 80, 100							Cylinder unit: Direct (Rectangular Groove)	.5
	63, 80, 100							Table unit: Direct (Round Groove)	.4
MGZ(R)	20, 25, 32							Direct (Round Groove)	.4
	40 to 80							Direct (Rectangular Groove)	.5

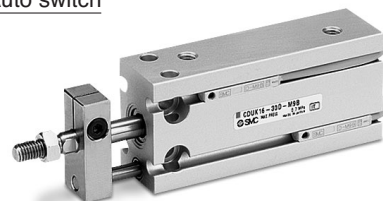
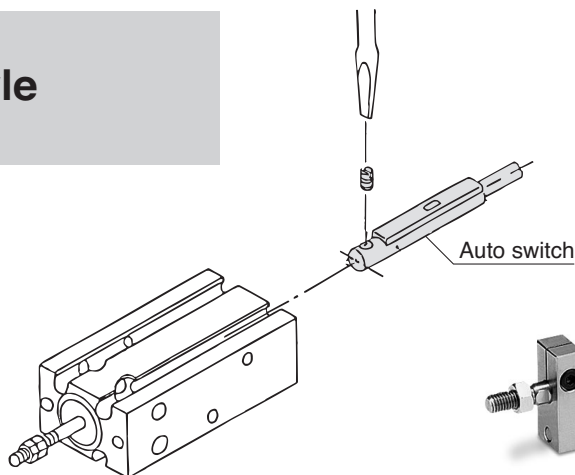
Series *	Size							Auto Switch Mounting Style Notes	Page No.
		Direct (Round Groove)	Direct (Rectangular Groove)	Direct (for rotary actuators)	Rail	Tie rod	Band		
MHC2	10 to 25							Direct (use solid state switch)	.5
	6							Direct (use solid state switch)	.4
MHF2	8 to 20							Direct (use solid state switch)	.4
MHK2	12 to 25							Direct (use solid state switch)	.4
MHL2	10 to 40							Direct (use solid state switch)	.5
MHS	16 to 25							Direct (use solid state switch)	.4
	32 to 125							Direct (use solid state switch)	.5
MHT2	32 to 63							Direct (Round Groove)	.4
MHW2	20 to 50							Direct (use solid state switch)	.5
MHY2	10 to 25							Direct (use solid state switch)	.4
MHZ2	10 to 40							Direct (use solid state switch)	.4
	6							Direct (use solid state switch)	.5
MHZJ2	6 to 25							Direct (use solid state switch)	.4
MHZL2	16 to 25							Direct (use solid state switch)	.4
	10							Direct (use solid state switch)	.5
MIW/MIS	8 to 32							Direct (Round Groove)	.4
MK	12, 16, 32 to 63							Direct (Round Groove)	.4
	20, 25							Rail	.6
MK2	32 to 63							Direct (Round Groove)	.4
	20, 25							Rail	.6
MLGP	20 to 100							Direct (Rectangular Groove)	.5
MLU	25 to 50							Rail	.6
MNB	32 to 100							Tie rod	.7
MRHQ	10 to 25							Rotation unit: Direct (In-line type)	.4
	10 to 25							Gripper unit: Direct (Perpendicular type)	.4
MRQ	32, 40							Rail	.6
MSQ	1 to 7							Direct (use solid state switch)	.4
	10 to 200							Direct (Round Groove)	.4
MSU	1 to 20							Direct (for rotary actuators)	.10
MSZ	10 to 50							Direct (Round Groove)	.4
MTS	8 to 40							Direct (Round Groove)	.4
MU	25 to 63							Rail	.6
MXF	8 to 20							Direct (Round Groove)	.4
MXH	6 to 20							Direct (Round Groove)	.4
MXJ	4.5, 6, 8							Direct (Round Groove)	.4
MXP	6 to 16							Direct (Round Groove)	.4
MXQ	6 to 25							Direct (Round Groove)	.4
MXS	6 to 25							Direct (Round Groove)	.4
MXU	6 to 16							Direct (Round Groove)	.4
MXW	8 to 25							Direct (Round Groove)	.4
MXY	6 to 12							Direct (Round Groove)	.4
MY1□□	10, 16, 20							Direct (Round Groove)	.4
	25 to 100							Direct (Rectangular Groove)	.5
MY2	16, 25, 40							Direct (Round Groove)	.4
MY3A/3B/3M	16 to 63							Direct (Round Groove)	.4
REAH/HT	10 to 32							Direct (Rectangular Groove)	.5
REAL	10 to 40							Rail	.6
REAR	10, 15, 20							Direct (Round Groove)	.4
	25, 32, 40							Direct (Rectangular Groove)	.5
REAS	10 to 40							Rail	.6
REBH/HT	15, 25, 32							Direct (Rectangular Groove)	.5
REBR	15							Direct (Round Groove)	.4
	25, 32							Direct (Rectangular Groove)	.5
REC	20 to 40							Band	.8
RHC	20 to 100							Band	.8
RLQ	32 to 63							Direct (Round Groove)	.4
RQ	20 to 100							Direct (Round Groove)	.4
RSA	50, 63, 80							Direct (Rectangular Groove)	.5
RSG	40, 50							Band	.8
RSH/RS1H	20 to 80							Direct (use solid state switch)	.5
RSQ	12, 32 to 50							Direct (Round Groove)	.4
	16, 20							Rail	.6
RZQ	32 to 63							Direct (Round Groove)	.4
SGC	-							Direct (use solid state switch)	.4

* The basic cylinder series is shown here. To use auto switches the magnetic version must be specified, unless a magnet for auto switches is standard. Eg. for CQ2 cylinders CDQ2 must be specified. See individual catalogue sections for details.


Direct mounting style Round groove



D-M9□



Applicable Auto Switch/Direct mounting

Applicable Series	Reed switch type		Solid state switch type		Description
	24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
C55 CJP2 CE1 (ø32~63) CLQ CLS CQ2 (ø32~100) CQM CQS CRJ * CRQ2 CU CXSJ CXT CY1F CY3R (ø6~20) E-MY2B ** E-MY2C/H/HT MDHR2 MDHR3 MGT MGZ(R) (ø20~32) ** MHC2 (ø6) MHF2 * MHK2 * MHS (ø16~25) * MHT2 MHY2 * MHZ2 (ø6,16~40) * MHZJ2 *	D-A93L	D-M9PL	D-M9NL	D-M9PWL	• Lead wire length = 3 m, refer to page 11 for other lengths.
E-MY1 (ø10~20) MY1□ (ø10~20) MY2 MY3 ** REAR (ø10~20) REBR (ø15) RLQ RQ, RSQ (ø12,32~50) RZQ SGC *	—	D-M9PSAPC	D-M9NSAPC	D-M9PWSAPC	Auto switch with pre-wired connector (M8-3pin).  • Lead wire length = 0.5 m, refer to page 15 for other lengths.

• Since there are other applicable auto switches than those listed, refer to pages 11 to 15 or SMC's Best Pneumatics catalogue for details.

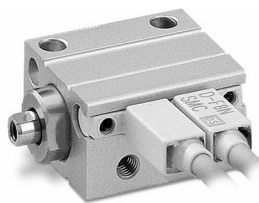
(*) Only solid state switches can be used.

(**) Bracket BMY3-016 is also required.



D-F8□

Short body type

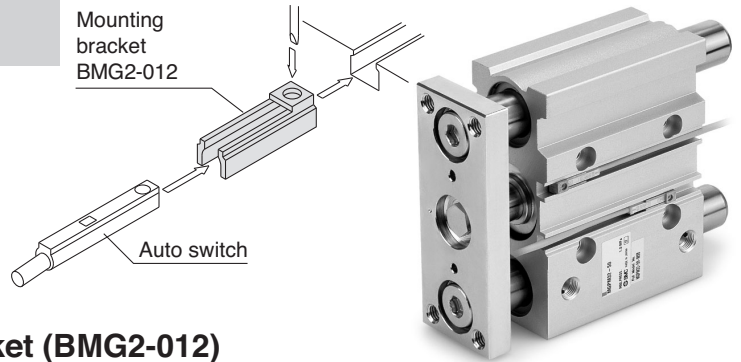


Applicable Auto Switch/Short Body Type/Direct mounting


Applicable Series	Solid state switch type				Description
	24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
CUJ MGJ CRJ * MSQ (1~7) *	D-F8BL	D-F8PL	D-F8NL	—	• Lead wire length = 3 m, refer to page 11 for other lengths.

(*) Also applicable to these models for short strokes.

Direct mounting style Rectangular groove



Applicable Auto Switch + Mounting Bracket (BMG2-012)

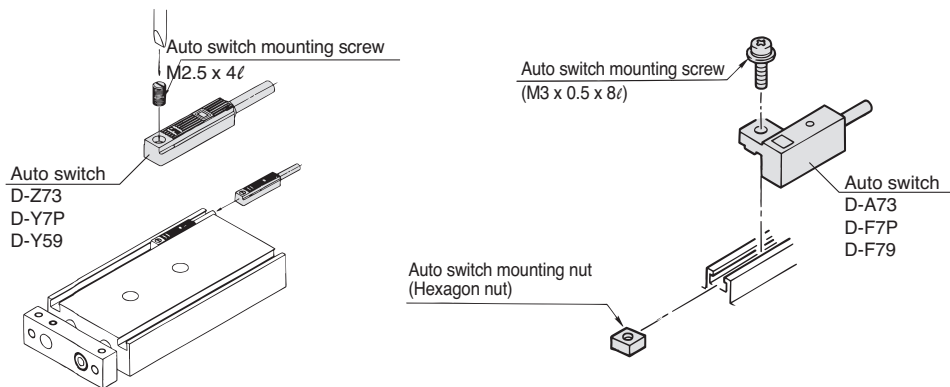
Applicable Series	Reed switch type		Solid state switch type		Description	
	24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)		
CP95 ** MB1 ** CQ2 (ø125-200) CY3R (ø25-63) MGF * MGP MGT MGZ(R) (ø40-80) ** MHC2 (ø10-25) * MHL2 * MHS (ø32-125) *	MHW2 * MHZ2 (ø10) * MHZL2 (ø10) * MLGP MY1□ (ø25-100) *** REAR (ø25-40) REBR (ø25, 32) RSA * RSQ (ø12, 32-63) RSH/RS1H *	D-A93L + BMG2-012	D-M9PL + BMG2-012	D-M9NL + BMG2-012	D-M9PWL + BMG2-012	• Lead wire length = 3 m, refer to page 11 for other lengths.
		—	D-M9PSAPC + BMG2-012	D-M9NSAPC + BMG2-012	D-M9PWSAPC + BMG2-012	Auto switch with pre-wired connector (M8-3pin).  • Lead wire length = 0.5 m, refer to page 15 for other lengths.

• Since there are other applicable auto switches than those listed, refer to pages 11 to 15 or SMC's Best Pneumatics catalogue for details.

(*) Only solid state switches can be used.

(**) Bracket BMP1-032 is also required.

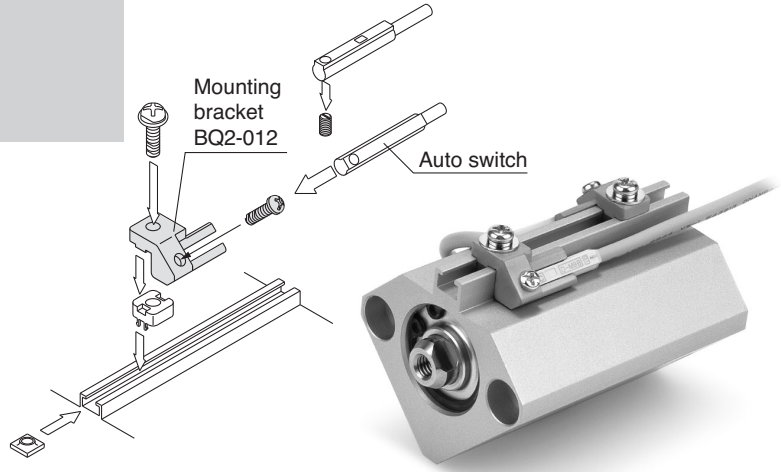
(***) Solid state switches must be used for all MY1 types and bore sizes. MY1B (ø40), MY1M (ø25, ø40), MY1C (ø40) and MY1HT (ø50, ø63) use different switches, see separate table below.




Applicable Auto Switch (MY1B, bore sizes ø25 to ø100 and MY1HT bore sizes ø50, ø63) (CXs bore sizes ø6 to ø32 and CXSW bore sizes ø6 to ø32)

Applicable Series	Reed switch type		Solid state switch type		Description	
	24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)		
MY1B (ø40) MY1M (ø25, ø40) MY1C (ø40) MY1HT	CXS CXSW	D-Z73L	D-Y7PL	D-Y59AL	D-Y7PWL	With lead wire length = 3 m Consult SMC for other lengths.
		—	D-Y7PSAPC	D-Y59ASAPC	D-Y7PWSAPC	With pre-wired connector (M8-3pin). Lead wire length =
CXW		D-A73HL	D-F7PL	D-F79L	D-F7PWL	With lead wire length = 3 m Consult SMC for other lengths.
		—	D-F7PSAPC	D-F79SAPC	D-F7PWSAPC	With pre-wired connector (M8-3pin). Lead wire length =

Rail mounting style



Applicable Auto Switch + Mounting Bracket (BQ2-012)

	Reed switch type		Solid state switch type			Description
	24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)		
CE1 (ø12 to 25) ** CJ2 (ø10, 16) CQ2 (ø12 to 25) MK (ø20, 25) MK2 (ø20, 25) MU * MLU * MRQ RSQ (ø16, 20)	D-A93L + BQ2-012 ***	D-M9PL + BQ2-012 ***	D-M9NL + BQ2-012 ***	D-M9PWL + BQ2-012 ***	• Lead wire length = 3 m, refer to page 11 for other lengths.	
	—	D-M9PSAPC + BQ2-012 ***	D-M9NSAPC + BQ2-012 ***	D-M9PWSAPC + BQ2-012 ***	Auto switch with pre-wired connector (M8-3pin).  • Lead wire length = 0.5 m, refer to page 15 for other lengths.	

• Since there are other applicable auto switches than those listed, refer to SMC's Best Pneumatics catalogue for details.

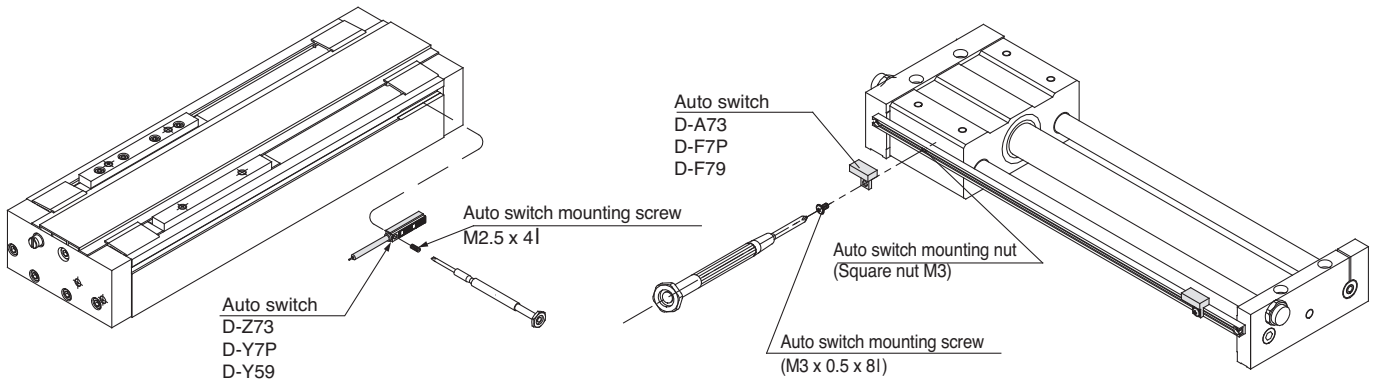
(*) Only solid state switches can be used.

(**) ø12 - Only solid state switches can be used.

(***) CE1, CQ2, MK, MK2, RSQ use BQ-1 and BQ2-012 as a set.

MU, MLU use BMU2-025 and BQ2-012 as a set.

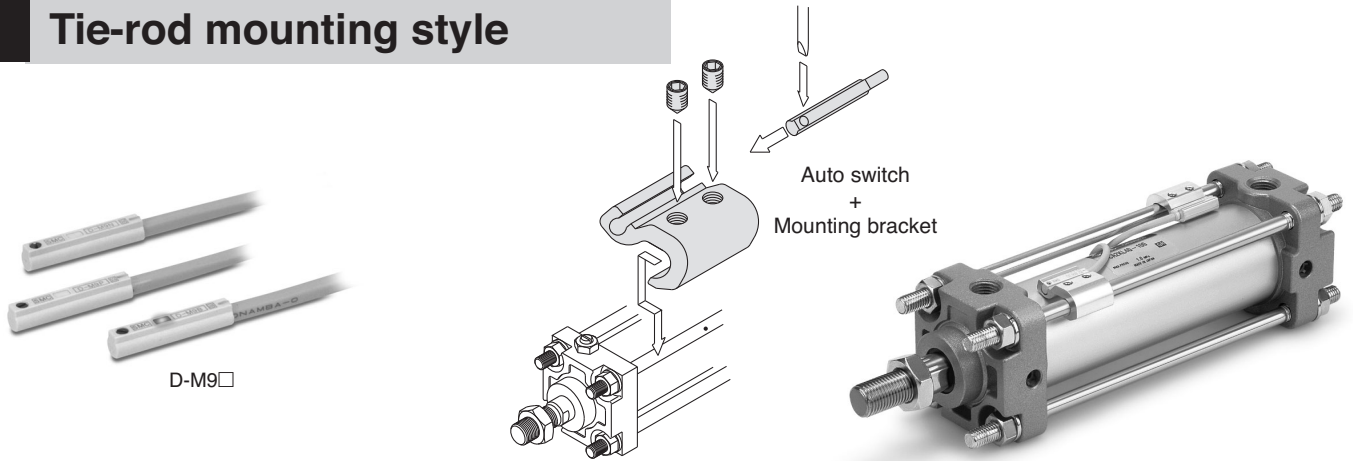
MRQ use BQ-2 and BQ2-012 as a set.




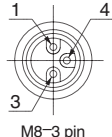
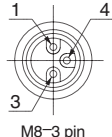
Applicable Auto Switch (CY1, REA, bore size ø6 to ø100)

Applicable Series	Reed switch type		Solid state switch type		Description
	24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
CY1H CY1HT REAH/REBH REAHT/REBHT	D-Z73L	D-Y7PL	D-Y59AL	D-Y7PWL	With lead wire length = 3 m Consult SMC for other lengths.
	—	D-Y7PSAPC	D-Y59ASAPC	D-Y7PWSAPC	With pre-wired connector (M8-3pin). Lead wire length =
CY1S CY1L REAL REAS	D-A73HL	D-F7PL	D-F79L	D-F7PWL	With lead wire length = 3 m Consult SMC for other lengths.
	—	D-F7PSAPC	D-F79SAPC	D-F7PWSAPC	With pre-wired connector (M8-3pin). Lead wire length =

Tie-rod mounting style



Applicable Auto Switch + Mounting bracket

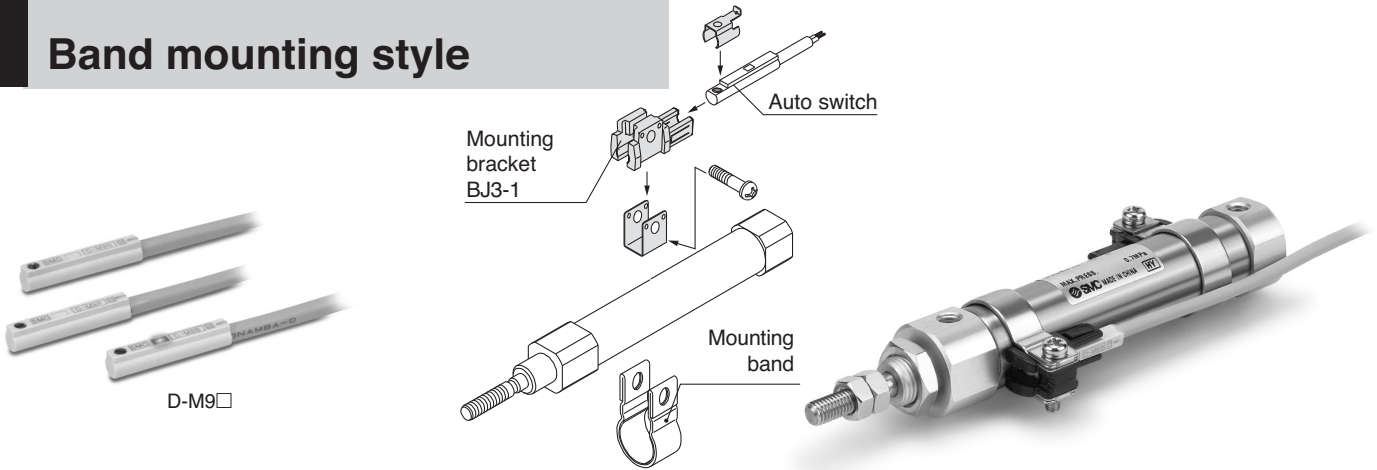
Applicable Series	Bore size (mm)	Reed switch type		Solid state switch type		Auto switch with pre-wired connector
		24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
C95 ** MB (ø32 to 125) MNB (ø32 to 100)	32, 40	D-A93L + BMB5-032	D-M9PL + BMB5-032	D-M9NL + BMB5-032	D-M9PWL + BMB5-032	 24 VDC 3-wire (PNP): D-M9PSAPC 24 VDC 3-wire (NPN): D-M9NSAPC 24 VDC Diagnostic indication (2-colour indication) 3-wire (PNP): D-M9PWSAPC
	50, 63	D-A93L + BA7-040	D-M9PL + BA7-040	D-M9NL + BA7-040	D-M9PWL + BA7-040	
	80, 100	D-A93L + BA7-063	D-M9PL + BA7-063	D-M9NL + BA7-063	D-M9PWL + BA7-063	
	125	D-A93L + BA7-080	D-M9PL + BA7-080	D-M9NL + BA7-080	D-M9PWL + BA7-080	
	160, 200	D-A93L + BS5-160	D-M9PL + BS5-160	D-M9NL + BS5-160	D-M9PWL + BS5-160	
CA2 * CNA * CL1 *	40, 50	D-A93L + BA7-040	D-M9PL + BA7-040	D-M9NL + BA7-040	D-M9PWL + BA7-040	 M8-3 pin • Lead wire length = 0.5 m, refer to page 15 for other lengths.
	63	D-A93L + BA7-063	D-M9PL + BA7-063	D-M9NL + BA7-063	D-M9PWL + BA7-063	
	80, 100	D-A93L + BA7-080	D-M9PL + BA7-080	D-M9NL + BA7-080	D-M9PWL + BA7-080	
CS1 CLS *** CNS (ø125 to 160) CL1 (ø125 to 160)	125, 140	D-A93L + BS5-125	D-M9PL + BS5-125	D-M9NL + BS5-125	D-M9PWL + BS5-125	 M8-3 pin • Lead wire length = 0.5 m, refer to page 15 for other lengths.
	160	D-A93L + BS5-160	D-M9PL + BS5-160	D-M9NL + BS5-160	D-M9PWL + BS5-160	
	180	D-A93L + BS5-180	D-M9PL + BS5-180	D-M9NL + BS5-180	D-M9PWL + BS5-180	
	200	D-A93L + BS5-200	D-M9PL + BS5-200	D-M9NL + BS5-200	D-M9PWL + BS5-200	

- Lead wire length = 3 m, refer to page 11 for other lengths.
- Since there are other applicable auto switches than those listed, refer to pages 11 to 15 or SMC's Best Pneumatics catalogue for details.
- (*) Only solid state switches can be used on ø50 cylinders.
- (**) See separate table for C95 with 250mm bore size.
- (***) Autoswitches cannot be fitted to CLS ø250 cylinder part.

Applicable Auto Switch + Mounting bracket (C95, bore size ø250mm)

Applicable Series	Bore size (mm)	Reed switch type		Solid state switch type		Description
		24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
C95	250	D-A54L + BT-20	D-F5PL + BT-20	D-F59L + BT-20	D-F5PWL + BT-20	With lead wire length = 3 m Consult SMC for other lengths.
		—	D-F5PSAPC + BT-20	D-F59SAPC + BT-20	D-F5PWSAPC + BT-20	With pre-wired connector (M8-3pin). Lead wire length =

Band mounting style



Applicable Auto Switch + Mounting Bracket (BJ3-1) + Mounting band

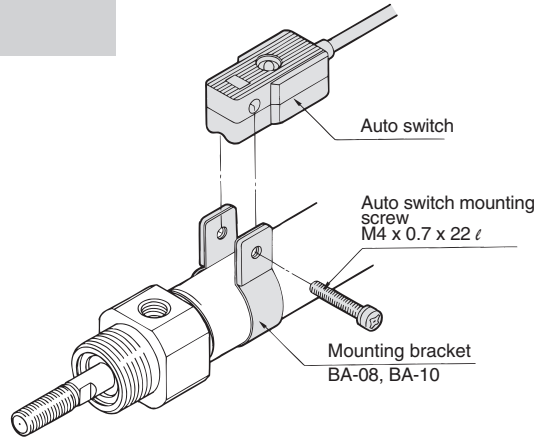
Applicable Series	Bore size (mm)	Reed switch type		Solid state switch type		Auto switch with pre-wired connector
		24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
C85 (ø8 to 16) * CJ2 (ø6, 10, 16) CLJ2 (ø16)	6	D-A93L + BJ3-1 + BJ2-006	D-M9PL + BJ3-1 + BJ2-006	D-M9NL + BJ3-1 + BJ2-006	D-M9PWL + BJ3-1 + BJ2-006	 24 VDC 3-wire (PNP): D-M9PSAPC
	8	—	D-M9PL + BJ3-1 + BJ2-008	D-M9NL + BJ3-1 + BJ2-008	D-M9PWL + BJ3-1 + BJ2-008	
	10	D-A93L + BJ3-1 + BJ2-010	D-M9PL + BJ3-1 + BJ2-010	D-M9NL + BJ3-1 + BJ2-010	D-M9PWL + BJ3-1 + BJ2-010	
	12	—	D-M9PL + BJ3-1 + BJ2-012	D-M9NL + BJ3-1 + BJ2-012	D-M9PWL + BJ3-1 + BJ2-012	
	16	D-A93L + BJ3-1 + BJ2-016	D-M9PL + BJ3-1 + BJ2-016	D-M9NL + BJ3-1 + BJ2-016	D-M9PWL + BJ3-1 + BJ2-016	
C85 (ø20, 25) * C76 (ø32, 40) CM2 CLM2	20	D-A93L + BJ3-1 + BM2-020	D-M9PL + BJ3-1 + BM2-020	D-M9NL + BJ3-1 + BM2-020	D-M9PWL + BJ3-1 + BM2-020	24 VDC 3-wire (NPN): D-M9NSAPC 24 VDC Diagnostic indication (2-color indication) 3-wire (PNP): D-M9PWSAPC
	25	D-A93L + BJ3-1 + BM2-025	D-M9PL + BJ3-1 + BM2-025	D-M9NL + BJ3-1 + BM2-025	D-M9PWL + BJ3-1 + BM2-025	
	32	D-A93L + BJ3-1 + BM2-032	D-M9PL + BJ3-1 + BM2-032	D-M9NL + BJ3-1 + BM2-032	D-M9PWL + BJ3-1 + BM2-032	
	40	D-A93L + BJ3-1 + BM2-040	D-M9PL + BJ3-1 + BM2-040	D-M9NL + BJ3-1 + BM2-040	D-M9PWL + BJ3-1 + BM2-040	
CG1 ** CLG1 (ø20 to 40) CNG (ø20 to 40) MGC (ø20 to 50) MGG REC (ø20 to 40) RHC ** RSG (ø40, 50)	20	D-A93L + BJ3-1 + BMA2-020	D-M9PL + BJ3-1 + BMA2-020	D-M9NL + BJ3-1 + BMA2-020	D-M9PWL + BJ3-1 + BMA2-020	 M8-3 pin * Lead wire length = 0.5 m, refer to page 15 for other lengths.
	25	D-A93L + BJ3-1 + BMA2-025	D-M9PL + BJ3-1 + BMA2-025	D-M9NL + BJ3-1 + BMA2-025	D-M9PWL + BJ3-1 + BMA2-025	
	32	D-A93L + BJ3-1 + BMA2-032	D-M9PL + BJ3-1 + BMA2-032	D-M9NL + BJ3-1 + BMA2-032	D-M9PWL + BJ3-1 + BMA2-032	
	40	D-A93L + BJ3-1 + BMA2-040	D-M9PL + BJ3-1 + BMA2-040	D-M9NL + BJ3-1 + BMA2-040	D-M9PWL + BJ3-1 + BMA2-040	
	50	D-A93L + BJ3-1 + BMA2-050	D-M9PL + BJ3-1 + BMA2-050	D-M9NL + BJ3-1 + BMA2-050	D-M9PWL + BJ3-1 + BMA2-050	
	63	D-A93L + BJ3-1 + BMA2-063	D-M9PL + BJ3-1 + BMA2-063	D-M9NL + BJ3-1 + BMA2-063	D-M9PWL + BJ3-1 + BMA2-063	

- Lead wire length = 3 m, refer to page 11 for other lengths.
- Since there are other applicable auto switches than those listed, refer to pages 11 to 15 or SMC's Best Pneumatics catalogue for details.
- (*) ø8 to ø12, solid state switches only can be used.
- (**) See separate table for CG1 and RHC with 80 and 100mm bore size.

Stainless Steel Cylinder:

Water resistant 2-colour indication type. Solid state switch, 2-wire, 24VDC	Series CJ5-S			Series CG5-S									
	Auto switch model	Mounting bracket no.		Auto switch model	Mounting bracket no.								
		ø10	ø16		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	
D-H7BAL	BJ2-010S	BJ2-016S	D-G5BAL	NBA-088S	NBA-106S	BGS1-032S	BAF-04S	BAF-05S	BAF-06S	BAF-08S	BAF-10S		

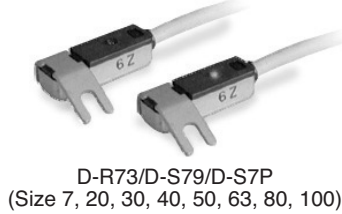
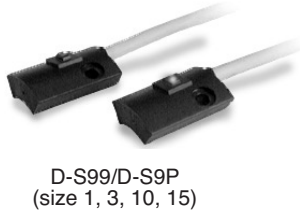
Band mounting style





Applicable Auto Switch + Mounting Bracket (CG1, RHC, bore size $\varnothing 80$, $\varnothing 100$)

Applicable Series	Bore size (mm)	Reed switch type	Solid state switch type			Description
		24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
CG1 RHC	80	D-B54L + BA-08	D-G5PL + BA-08	D-G59L + BA-08	D-G5PWL + BA-08	With lead wire length = 3 m Consult SMC for other lengths.
		—	D-G5PSAPC + BA-08	D-G59SAPC + BA-08	D-G5PWSAPC + BA-08	With pre-wired connector (M8-3pin). Lead wire length = 0.5m Consult SMC for other lengths.
	100	D-B54L + BA-10	D-G5PL + BA-10	D-G59L + BA-10	D-G5PWL + BA-10	With lead wire length = 3 m Consult SMC for other lengths.
		—	D-G5PSAPC + BA-10	D-G59SAPC + BA-10	D-G5PWSAPC + BA-10	With pre-wired connector (M8-3pin). Lead wire length = 0.5m Consult SMC for other lengths.

Direct mounting style For rotary actuators (CRB2, CRBU2, CRB1, MSU)





Applicable Auto Switch/ Rotary actuators (CRB2, CRBU2, CRB1, MSU)

Applicable Series	Size	Reed switch type	Solid state switch type		Description
		24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	
CRB2 CRBU2 CRB1 MSU	1 3 10 15	D-93AL	D-S9P1L* + D-S9P2L	D-S991L* + D-S992L	• Lead wire length = 3 m, consult SMC for other lengths.
		—	D-S9P1SAPC* + D-S9P2SAPC	D-S991SAPC* + D-S992SAPC	Auto switch with pre-wired connector (M8-3pin). • Lead wire length = 0.5 m, 
	7 20 30 40 50 63 80 100	D-R731L* + D-R732L	D-S7P1L* + D-S7P2L	D-S791L* + D-S792L	• Lead wire length = 3 m, consult SMC for other lengths.
		—	D-S7P1SAPC* + D-S7P2SAPC	D-S791SAPC* + D-S792SAPC	Auto switch with pre-wired connector (M8-3pin). • Lead wire length = 0.5 m, consult SMC for other lengths. 

* Note, left handed and right handed switches are needed so order one off each part number.
• Since there are other applicable auto switches than those listed, refer to pages 11 to 15 or SMC's Best Pneumatics catalogue for details.

Applicable Auto Switch/ Rotary actuators (CRA1)

Applicable Series	Size	Reed switch type	Solid state switch type			Description
		24 VDC 2-wire	24 VDC 3-wire (PNP)	24 VDC 3-wire (NPN)	24 VDC (2-colour indication) 3-wire (PNP)	
CRA1	30	D-A73L	D-F7PL	D-F79L	D-F7PWL	• Lead wire length = 3 m, consult SMC for other lengths.
		—	D-F7PSAPC	D-F79SAPC	D-F7PWSAPC	Auto switch with pre-wired connector (M8-3pin). • Lead wire length = 0.5 m, consult SMC for other lengths. 
	50 63 80 100	D-A53L	D-F5PL	D-F59L	D-F5PWL	• Lead wire length = 3 m, consult SMC for other lengths.
		—	D-F5PSAPC	D-F59SAPC	D-F5PWSAPC	Auto switch with pre-wired connector (M8-3pin). • Lead wire length = 0.5 m, consult SMC for other lengths. 

• Since there are other applicable auto switches than listed, refer to SMC's Pneumatics catalogue for details.

Applicable Auto Switch/ Rotary actuators (CRJ, CRQ2, MSQ, MSZ)

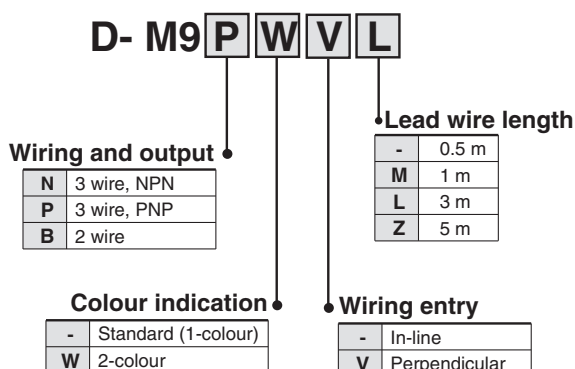
• Refer to section "Direct mounting style/Round groove" on page 4.

Auto Switch Specifications

Auto Switch Common Specifications

Type	Reed switch	Solid state 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
Impact resistance	300 m/s ²	1000 m/s ²
Insulation resistance	50 M Ω or more at 500 Mega VDC (between lead wire and case)	
Withstand voltage	1000 VAC for 1 minute (between lead wire and case)	1000 VAC for 1 minute (between lead wire and case)
Ambient temperature	-10 to 60°C	
Enclosure	IEC529 standard IP67, JIS C 0920 waterproof construction	
Standard	Conforming to CE Standards	

How to Order



Note 1) Applicable auto switch with 5 m lead wire "Z"
Solid state switch: Manufactured upon receipt of order as standard.
Note 2) For 1 m(M), available with D-M9□W(V) only.

Contact Protection Boxes: CD-P11, CD-P12

<Applicable switch model>

D-A9/A9□V
The auto switches above do not have a built-in contact protection circuit. Therefore, please use a contact protection box with the switch for any of the following cases:
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 VAC.
The contact life may be shortened. (Due to permanent energising conditions.)

Specifications

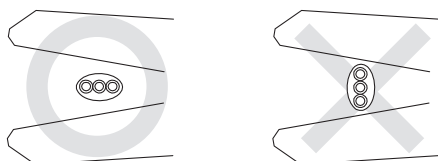
Part no.	CD-P11		CD-P12
Load voltage	100 VAC	200 VAC	24 VDC
Maximum load current	25 mA	12.5 mA	50 mA

* Lead wire length — Switch connection side 0.5 m
Load connection side 0.5 m



Applicable Wire Stripper

When the cable sheath is stripped, confirm the stripping direction. The insulator may be split or damaged depending on the direction. (D-M9□(V) only)

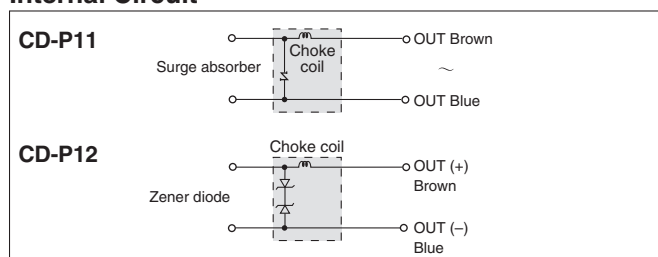


Recommended Tool

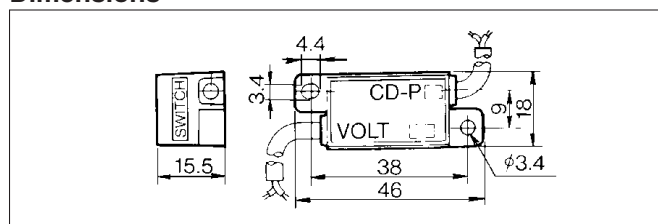
Model name	Model no.
Wire stripper	D-M9N-SWY

* Stripper for a round cable (ϕ 2.0) can be used for a 2-wire type cable.

Internal Circuit



Dimensions



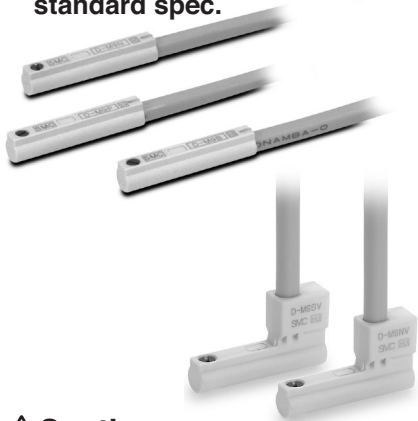
Connection

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 metre.

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

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Lead free
- UL certified (style 2844) lead cable is used.
- Flexibility is 1.5 times greater than the conventional model (SMC comparison).
- Using flexible cable as standard spec.



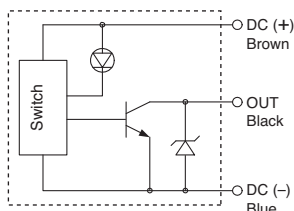
Caution

Operating Precautions

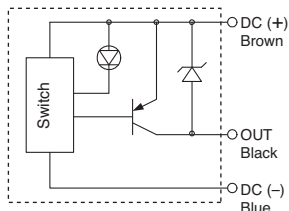
Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

Auto Switch Internal Circuit

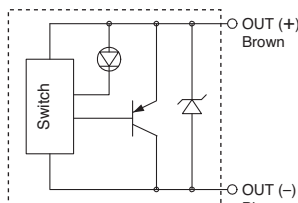
D-M9N(V)



D-M9P(V)



D-M9B(V)



Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□/ D-M9□V (With indicator light)						
Auto switch part no.	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire			2-wire		
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less			2.5 to 40 mA		
Internal voltage drop	0.8 V or less				4 V or less	
Leakage current	100 A or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when ON.					
Standard	Conforming to CE Standards					

Lead wires

Oilproof heavy-duty vinyl cable: $\phi 2.7 \times 3.2$ ellipse

D-M9B(V) 0.15 mm² x 2 cores

D-M9N(V), D-M9P(V) 0.15 mm² x 3 cores

Note 1) Refer to page 15 for details of solid state switch with pre-wired connector.

Note 2) Refer to page 11 for solid state switch common specifications and for lead wire lengths.

Weight

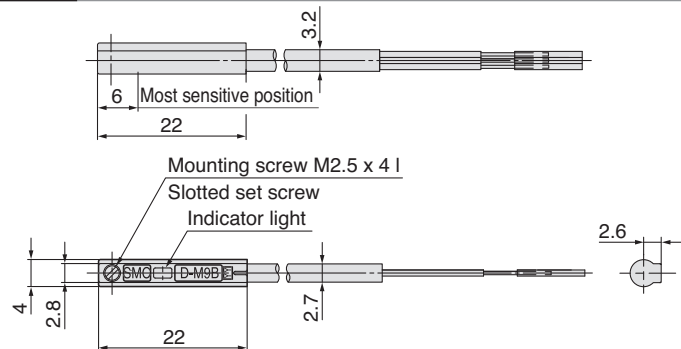
Unit: g

Auto switch part no.	D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)			
0.5 (—)	8	8	7
1 (M)	14	14	13
3 (L)	41	41	38
5 (Z)	68	68	63

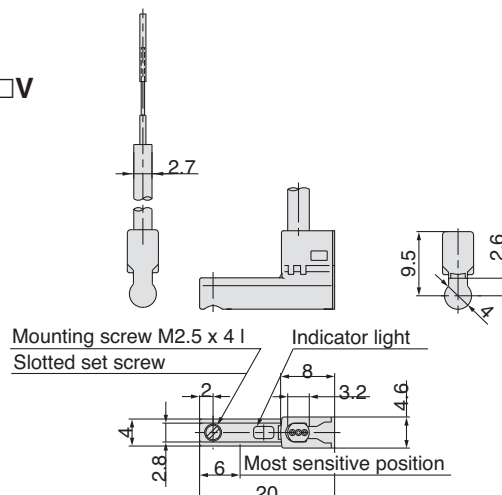
Dimensions

Unit: mm

D-M9□



D-M9□V



Normally Closed Solid State Auto Switch Direct Mounting Type

D-M9NE(V)/D-M9PE(V)/D-M9BE(V)



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

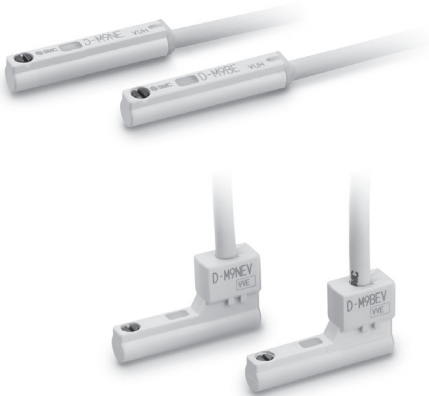
Auto Switch Specifications

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 marking, RoHS					

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)



Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(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 11 for solid state auto switch common specifications.

Note 2) Refer to page 11 for lead wire lengths.

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.

Weight

(g)

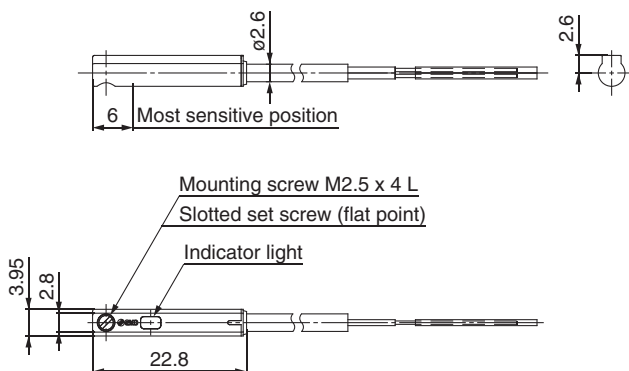
Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(V)
Lead wire length	0.5 m (—)	8	7	7
	1 m (M)*	14	13	13
	3 m (L)	41	38	38
	5 m (Z)*	68	63	63

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

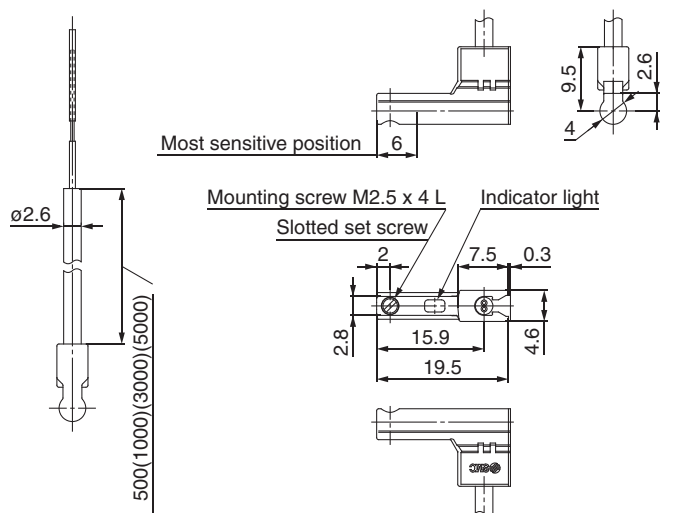
Dimensions

(mm)

D-M9□E



D-M9□EV



2-Colour Indication Solid State Switch: Direct Mounting Style

D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

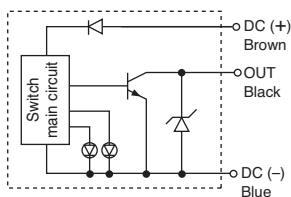
Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- RoHS compliant
- UL certified (style 2844) lead cable is used.
- Flexibility is 1.5 times greater than the conventional model (SMC comparison).
- Using flexible cable as standard spec.
- The optimum operating position can be determined by the colour of the light. (Red \bar{E} Green \bar{E} Red)

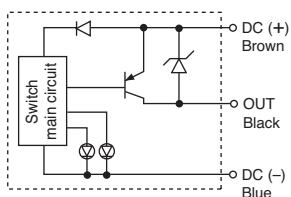


Auto Switch Internal Circuit

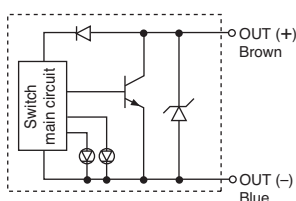
D-M9NW(V)



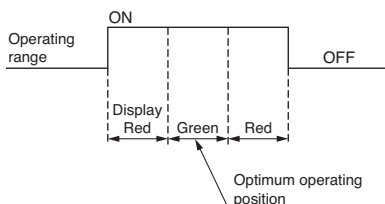
D-M9PW(V)



D-M9BW(V)



Indicator light / Display method



Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□W/D-M9□WV (With indicator light)						
Auto switch part no.	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 IC, 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				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 A or less at 24 VDC				0.8 mA or less	
Internal voltage drop	Operating position Red LED illuminates. Optimum operating position Green LED illuminates.					
Standard	Conforming to CE Standards					

● Lead wires

- Oilproof heavy-duty vinyl cable: $\phi 2.7 \times 3.2$ ellipse
- D-M9BW(V) 0.15 mm² x 2 cores
- D-M9NW(V), D-M9PW(V) 0.15 mm² x 3 cores

Note 1) Refer to page 15 for details of solid state switch with pre-wired connector.

Note 2) Refer to page 11 for solid state switch common specifications and for lead wire lengths.

Weight

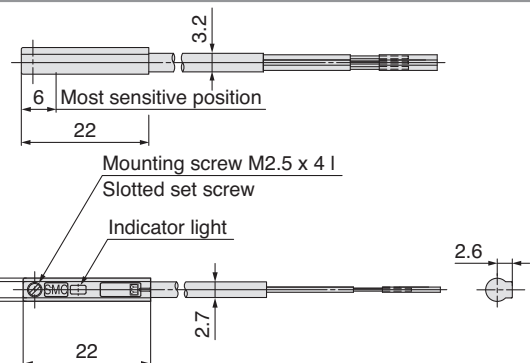
Unit: g

Auto switch part no.	D-M9NW(V)	D-M9PW(V)	D-M9BW(V)	
Lead wire length (m)	0.5	8	8	7
	1	14	14	13
	3	41	41	38
	5	68	68	63

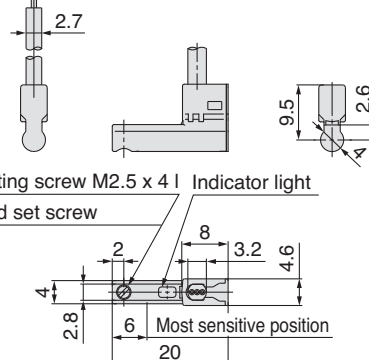
Dimensions

Unit: mm

D-M9□W



D-M9□WV

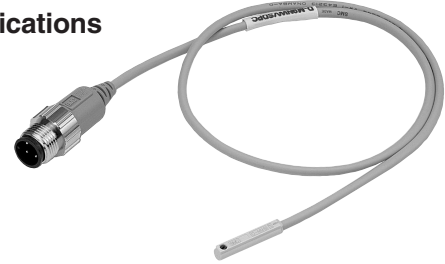


Solid State Switch With Pre-wired Connector



With Pre-wired Connector

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



How to Order

D- M9 **P** **W** **V** **S** **A** **PC**

Wiring and output

N	3 wire, NPN
P	3 wire, PNP
B	2 wire

Colour indication

-	Standard (1-colour)
W 1)	2-colour

Note 1) Not available with 3 m cable length

Wiring entry

-	In-line
V 1)	Perpendicular

Note 1) Not available with 3 m cable length

Connector model

A	M8—3 pin
B 1)	M8—4 pin
D 1)	M12—4 pin

Note 1) Not available with 3 m cable length

Cable length

S	0.5 m
M	1.0 m
L	3.0 m

Connector Specifications

Connector model	M8—3 pin	M8—4 pin	M12—4 pin
Pin arrangement			
Conformed standard	JIS C 4524, JIS C 4525, IEC 947-5-2, NECA 0402		
Impact resistance	300 m/s ²		
Enclosure	IP-67 (IEC529 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	Colour distinction of lead wire				Meaning of contact number			
	1 pin	2 pin	3 pin	4 pin	1 pin	2 pin	3 pin	4 pin
DC 2-wire type	Brown	—	—	Blue	OUT (+)	—	—	OUT (-)
DC 3-wire type	Brown	—	Blue	Black	DC (+)	—	DC (-)	OUT

Weight

Unit: g

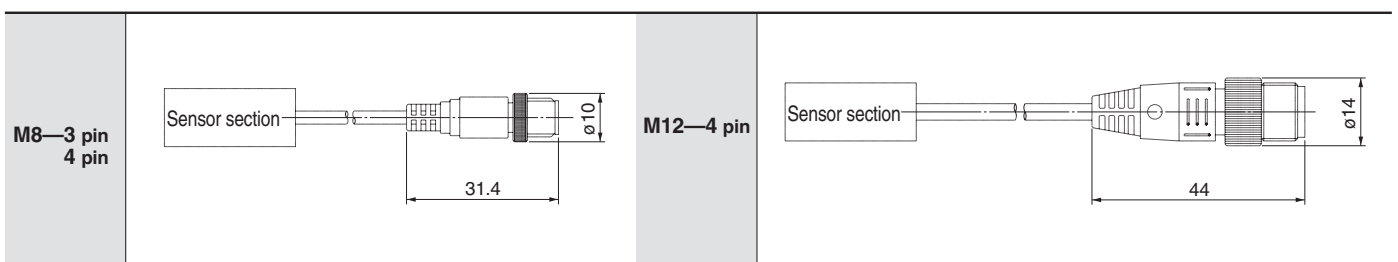
M8 connector type:

Auto switch part no.	Lead wire length (m)	D-M9N□APC	D-M9B□APC	D-M9N□BPC	D-M9B□BPC
		D-M9P□APC		D-M9P□BPC	
	0.5	11	11	11	11
	1	18	18	18	18
	3	46	46	—	—

M12 connector type:

Auto switch part no.	Lead wire length (m)	D-M9N□DPC	D-M9B□DPC
		D-M9P□DPC	
	0.5	19	18
	1	26	25

Dimensions



Other Available Switches

Since there are other applicable auto switches than those listed, refer to SMC's Best Pneumatics catalogue for details.

Trimmer Auto Switch

One auto switch allows work pieces to be distinguished easily.

With timer (with OFF delay timer)

Can detect an intermediate position of a high-speed cylinder.

Resistant to strong magnetic fields

For use in environments where AC current is 16,000A or more.

Without indicator

For light free environments.

Operating range: wide-area detection type

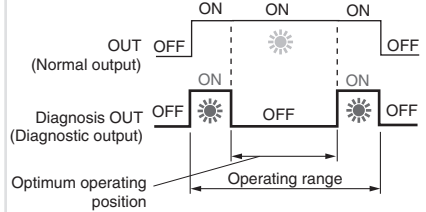
Operating range:
35 to 50 mm

Water, oil resistant

For water, coolant splash environments.

With diagnostic output

Displacement of the detecting position is detected at the PLC side.



Heat resistant

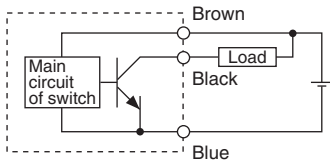
For use in environments of 150°C, 130°C, 120°C.

Before Operation

Auto Switch Connection and Example

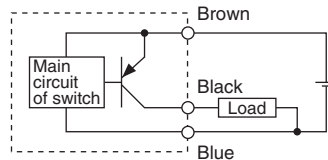
Basic Wiring

Solid state 3-wire, NPN

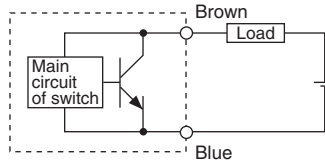


(Power supply for switch and load are separate)

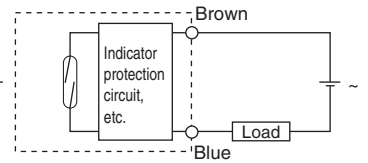
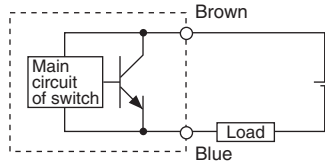
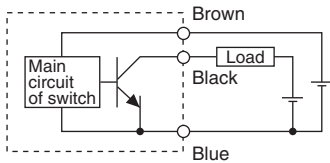
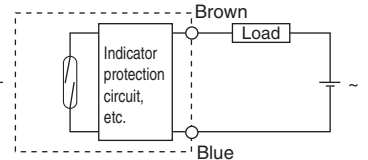
Solid state 3-wire, PNP



Solid state 2-wire



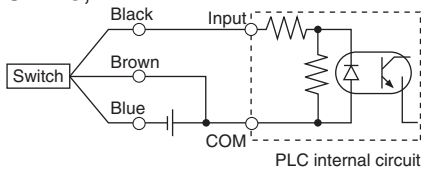
Reed switch 2-wire



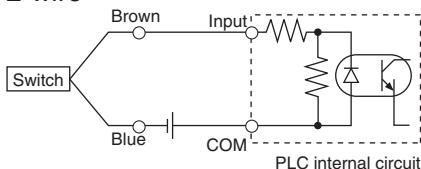
Example of Connection with PLC (Programmable Logic Controller)

• Sink input specifications

3-wire, NPN

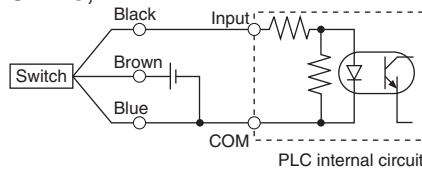


2-wire

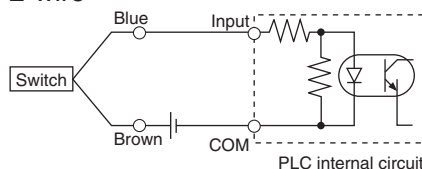


• Source input specifications

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.

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

-  **Caution:** Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
-  **Warning:** Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
-  **Danger:** Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

- *1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
- ISO 4413: Hydraulic fluid power – General rules relating to systems.
- IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
- ISO 10218-1: Manipulating industrial robots - Safety. etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2) Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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