Cylinder switch variation

CKD cylinders with switches cover wide applications with miniature to large cylinders and rotary actuators. Refer to the variation table below to select the ideal product.

Proximity switch																																	Descriptions
M Series				R Series					T Series												K Series					F Series								
M2	M2WV	M3	M3WV	R1	R2	R2Y	R3	R3Y	T1	T2	T2J	T2Y	T2W	T2YL	T3	T3P	T3Y	T3W	T3YL	T2YD	K2	K2Y	K3	K3P	K3Y	F2	F2Y	F2S	F3	F3Y	F3P	F3S	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Grommet
				●	●	●	●	●																									Terminal box
●	●			●	●	●			●	●	●	●	●	●						●	●	●				●	●	●					2-wire
		●	●				●	●							●	●	●	●	●				●	●	●				●	●	●	●	3-wire
●	● *1	●	● *1	●	●	● *1	●	● *1	●	●	●	● *1	● *1	● *1	●	● *2	● *1	● *1	● *1	● *1	●	● *1	●	● *2	● *1	● *2	● *1	●	● *2	● *1	● *1	●	LED (Lit when ON)
																																	Neon light (Lit when OFF)
																																	No indicator lamp
	●		●			●		●				●	●	●			●	●	●	●		●			●		●			●			2-color LED
		●					●	●																									5 VDC
●	●				●	●				●	●	●	●	●						●	●	●				●	●	●					10 VDC to 30 VDC
		●	●				●	●							●	●	●	●	●				●	●	●				●	●	●	●	30 VDC or less
				●					●																								100 VAC
				●					●																								200 VAC
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Programmable controller
		●	●	●			●	●									●	●	●				●	●	●				●	●	●	●	IC circuit
		●	●	●			●	●	●								●	●	●				●	●	●				●	●	●	●	Compact relay, valve
																																	Large relay, valve

*1: LEDs are red/green.
*2: LEDs are yellow.
*3: LEDs are green.
*4: LEDs other than those in *1 to *3 are red.

Descriptions		Reed switch																		
		M Series		R Series				T Series			K Series		F Series	H Series		E Series		V Series		
		M0	M5	R0	R4	R5	R6	T0	T5	T8	K0	K5	F0	H0	H0Y	E0	ET0	V0		
Connection	Grommet	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●		
	Terminal box			●	●	●	●									●				
Number of connections	2-wire	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	3-wire																			
With indicator lamp	LED (Lit when ON)	●		●			●	●		●	●		● *2	● *3	● *1	●	● *2	●		
	Neon light (Lit when OFF)				●															
	No indicator lamp		●			●			●			●								
	2-color LED														●					
Working voltage	5 VDC		●			●			●			●								
	10 VDC to 30 VDC														●			●		
	30 VDC or less	●	●	●		●	●	●	●	●	●	●	●	●		●	●			
	100 VAC	●	●	●	●	●		●	●	●	●	●		●		●	●	●		
	200 VAC			●	●	●				●						●				
Applications	Programmable controller	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●		
	IC circuit		●			●			●			●								
	Compact relay, valve	●	●	●		●		●	●	●	●	●		●		●	●	●		
	Large relay, valve				●															

Cylinder with switch variations

CKD cylinders with switches cover wide applications with miniature to large cylinders and rotary actuators. Refer to the variation table below to select the ideal product.

Proximity switch																																		
F Series								M Series					R Series					T Series											K Series					
F2	F2Y	F2S	F3	F3Y	F3P	F3S	M2	M2WV	M3	M3P	M3WV	R1	R2	R2Y	R3	R3Y	T1	T2	T2J	T2W	T2Y	T2YL	T3	T3P	T3W	T3Y	T3YL	T2YD	K2	K2Y	K3	K3P	K3Y	
																		●		●			●	●	●									
																	●	●	●	●	●	▲	●	●	●	●	▲							
																	●	●	●	●	●		●	●	●	●	▲							
																	●	●	●	●	●		●	●	●	●	▲	●						
																	●	●	●	●	●	▲	●	●	●	●	▲	●						
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																	●	●	●	●	●		●	●	●	●		●						
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● *7	● *7	● *7	● *7	● *7	● *7	● *7											● *3	●	●	●	●	▲	●	●	●	●	▲	●						
● *7	● *7	● *7	● *7	● *7	● *7	● *7											● *3	●	●	●	●		●	●	●	●		●						
																	● *6	●	● *6	●	● *6	▲	●	●	●	● *6	▲	● *3						
●	●	●	●	●	●	●																												
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							● *8	●	● *8	● *8	●																								
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							● *8	●	● *8	● *8	●																								
																	●	●	●	●	●		●	●	●	●		●						

*1: Including made-to-order products
*2: ▲ is mountable depending on variation. H type (L2), Coolant proof (G2/G3), etc.
*3: Excluding ø16 or less
*4: Excluding ø12, ø16, position locking all bore sizes
*5: Excluding ø40 or less
*6: ø12 and ø16 of standard, X, Y, O, F, B, W and M are L1

Cylinder model		Bore size	Mounting method			Compatibility with body	Reed switch															
							M Series		R Series				T Series			K Series		F Series	H Series		E Series	
			Band	Tie rod	Rail		M0	M5	R0	R4	R5	R6	T0	T5	T8	K0	K5	F0	H0	H0Y	E0	ET0
Pencil shaped cylinder	SCP*3	ø6 to ø16	●					●					●	●								
Medium bore size cylinder	CMK2	ø20 to ø40	●			Magnet provided as standard							●	●	●							
Medium bore size cylinder	CMA2	ø20 to ø40	●			Magnet provided as standard							●	●	●							
Round shaped cylinder	SCM	ø20 to ø100	●		●	Magnet provided as standard							●	●	● *5							
Global cylinder Tie rod cylinder	SCG	ø40 to ø100		●		Magnet provided as standard							●	●	●							
Medium bore size cylinder	SCA2	ø40 to ø100		●		Magnet provided as standard							●	●	●				▲	▲	▲	
Large bore size cylinder with valve	SCA2-V	ø40 to ø100		●		Magnet provided as standard							●	●								
Large bore size cylinder	SCS2	ø125 to ø250		●									●	●	●							
Small cylinder with valve	CKV2	ø20 to ø40	●			Magnet provided as standard							●	●	●							
Cylinder with valve	CAV2 COV2	ø50 to ø100		●		Magnet provided as standard							●	●	●							
Compact cylinder	SSD2	ø12 to ø200			●								●	●	● *9							▲
Guided super compact cylinder	SSG	ø12 to ø100			●								●	●	● *10							
Compact cylinder	SSD	ø12 to ø160			●								●	●	● *9							▲
Small direct mounting cylinder	MDC2	ø4 to ø10			●													●				
Small cylinder with suction pad	MVC	ø6, ø10			●	Magnet provided as standard												●				
Compact cylinder	SMG	ø6 to ø32			●											●	●					
Small compact cylinder	MSD	ø6 to ø16			●													●				
Small guided compact cylinder	MSDG	ø6 to ø16			●													●				
Flat compact cylinder	FC*	ø25 to ø63			●		● *8	● *8														
Stopper cylinder	STK	ø20 to ø50			●	Magnet provided as standard							●	●	●							
Brake cylinder	ULKP	ø16	●				● *8	● *8														
Brake cylinder	ULK	ø20 to ø40	●			Magnet provided as standard							●	●	●							
Brake cylinder	JSK2	ø20 to ø40	●			Magnet provided as standard							●	●	●							
Brake cylinder	JSM2	ø20 to ø40	●			Magnet provided as standard							●	●	●							
Tie rod cylinder with brake	JSG	ø40 to ø100		●		Magnet provided as standard							●	●	●							
Brake cylinder medium bore size	JSC3	ø40 to ø100		●		Magnet provided as standard							●	●	●				▲	▲		
Brake cylinder large bore size	JSC4	ø125 to ø180		●									●	●	●							
Position locking compact cylinder	USSD	ø40 to ø63			●								●	●	●							
Free position locking flat cylinder	UFCD	ø25 to ø63			●		● *8	● *8														
Free position locking Medium bore size cylinder	USC	ø40 to ø100		●		Magnet provided as standard							●	●	●				▲	▲		

*7: Mountable for ø20 and ø25 of SSD2. Mountable for ø25 of SSG
*8: Only V type (L-shaped lead wire) mountable
*9: Excluding ø12 to ø32 of L, XL, YL, OL, LF, BL, WL, ML, ø12 and ø16 of KL, DL, and ø16 of QL
*10: Excluding ø32 or less

Cylinder switch

Proximity switch																																		
F Series								M Series					R Series					T Series												K Series					
F2	F2Y	F2S	F3	F3Y	F3P	F3S	M2	M2WV	M3	M3P	M3WV	R1	R2	R2Y	R3	R3Y	T1	T2	T2J	T2Y	T2W	T2YL	T3	T3P	T3Y	T3W	T3YL	T2YD	K2	K2Y	K3	K3P	K3Y	
● *10	● *10	● *10	● *10	● *10		● *10												● *11			● *11		● *11			● *11								
● *10	● *10	● *10	● *10	● *10	● *10	● *10												● *11			● *11		● *11	● *11		● *11								
● *10	● *10	● *10	● *10	● *10	● *10	● *10												● *11			● *11		● *11	● *11		● *11								
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● *7	● *7	● *7	● *7	● *7	● *7	● *7											● *3	●	● *3	● *3	●		●	●	● *3	●		● *2						
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																	●	●	●	●	●		●	●	●	●								
							● *8		● *8	● *8																										

*1: Including made-to-order products
*2: ▲ is mountable depending on variation. H type (L2), Coolant proof (G2/G3), etc.
*3: Excluding ø16 or less
*4: Excluding ø12, ø16, position locking all bore sizes
*5: Excluding ø40 or less
*6: ø12 and ø16 of standard, X, Y, O, F, B, W and M are L1

Cylinder model		Bore size	Mounting method			Compatibility with body	Reed switch																
							M Series		R Series				T Series			K Series		F Series	H Series		E Series	
			Band	Tie rod	Rail		M0	M5	R0	R4	R5	R6	T0	T5	T8	K0	K5	F0	H0	H0Y	E0	ET0
	Linear slide cylinder	LCW			●	Magnet provided as standard							●*11	●*11								
	Linear slide cylinder	LCR			●	Magnet provided as standard							●*11	●*11								
	Linear slide cylinder	LCG			●	Magnet provided as standard							●*11	●*11								
	Thin linear slide cylinder	LCX			●	Magnet provided as standard							●	●								
	Linear slide cylinder	LCM			●																	
	Guided cylinder	STM			●	Magnet provided as standard																
	Global cylinder Guided cylinder	STG			●	Magnet provided as standard							●	●	●*4							
	Guided cylinder	STS/L			●	Magnet provided as standard							●	●	●*3							
	Twin rod cylinder	STR2			●	Magnet provided as standard										●	●					
	Unit cylinder	UCA2			●								●	●								
	High energy absorption cylinder	HCM			●	Magnet provided as standard							●	●	●							
	High speed cylinder	HCA	●			Magnet provided as standard			●	●	●	●										
	Rodless cylinder	SRL3			●	Magnet provided as standard	●	●														
	High precision guided rodless cylinder	SRG3			●		●	●														
	High precision guided rodless cylinder	SRM3			●								●	●	●							
	Rodless cylinder with brake	SRT3			●	Magnet provided as standard	●	●														
	Magnet rodless cylinder	MRL2			●																	
	Magnet rodless cylinder with high precision guide	MRG2			●	Magnet provided as standard							●	●								
	Clamp cylinder	CAC4		●		Magnet provided as standard							●	●	●				▲	▲		
	Position locking clamp cylinder	UCAC2		●		Magnet provided as standard							●	●	●				▲	▲		
	Lightweight clamp cylinder	CAC-N		●		Magnet provided as standard							●	●	●							
	Position locking clamp cylinder	UCAC-N		●		Magnet provided as standard							●	●	●							
	Rotary clamp cylinder	RCS2			●	Magnet provided as standard							●	●	●*12							
	Rotary clamp cylinder	RCC2			●	Magnet provided as standard							●	●								
	Robot cylinder	MFC		●					●	●	●	●										
	High power cylinder	SHC		●		Magnet provided as standard			●	●	●	●							▲			
	Mechanical power cylinder	MCP	For actual thrust 2 t, 5 t		●	●	Magnet provided as standard						●	●	●							
	Guideless cylinder	GLC	ø40 to ø100		●		Magnet provided as standard		●	●	●	●							▲			
	Rotary actuator	RRC	Size: 8, 32, 63			●	Magnet provided as standard						●	●	●							
	Table rotary actuator	GRC	Size: 5 to 80			●	Magnet provided as standard															
	Rotary actuator	RV3*	Size: 50 to 300				●*8	●*8														
	Hand-chuck		Hand : Cylinders II P786-P789 Chuck: Cylinders II P956-P957 Reference																			

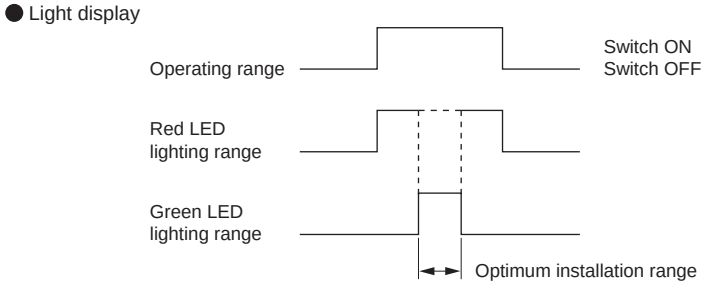
*7: Mountable for ø20 and ø25.
*8: Only V type (L-shaped lead wire) mountable
*9: Excluding ø12 to ø32 of L, XL, YL, OL, LF, BL, WL, ML, ø12 and ø16 of KL, DL, and ø16 of QL
*10: Excluding ø16 and over
*11: Excluding ø12 or less
*12: Excluding ø12 and ø16

2-color LED proximity cylinder switch

Overview

Conventionally, the pneumatic cylinder position detection switch required installation and adjustment because of the operating range and hysteresis. With the 2-color LED proximity cylinder switch, the optimum installation position is instantly indicated by the green LED lighting at the optimum installation position, and the red LED lighting at the normal operating range. This eliminates the time and hassle required to adjust the switch and prevents setting errors, allowing high-reliability equipment to be configured.

● Light display



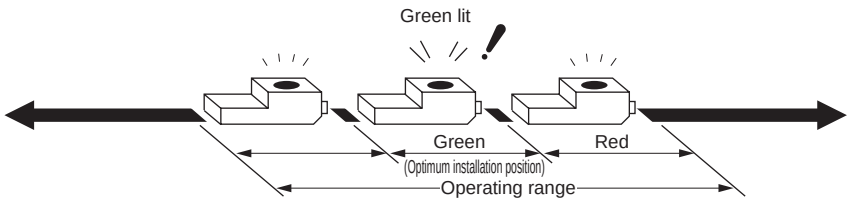
Features

● Easy installation and adjustment

Since the green LED lights at the optimal installation position, the switch can be installed and adjusted very easily.

● High reliability

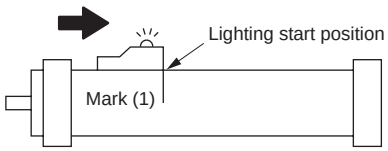
The switch uses our original hybrid IC integrated magnetic resistance element, making it even more reliable.



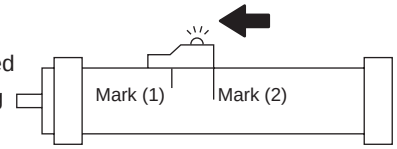
● Comparison of cylinder and switch setting

[Conventional] ——————————→ [2-color LED switch]

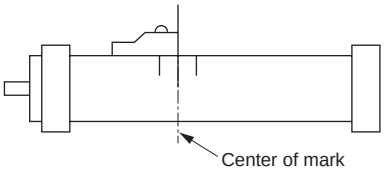
(1) The switch is moved in one direction and the lighting start position is marked.



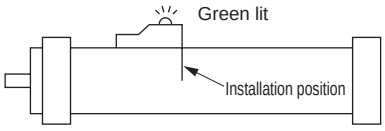
(2) In the same manner, the switch is moved from the other direction, and the lighting start position is marked.



(3) The end of the switch is set and fixed at the center of the two marks.

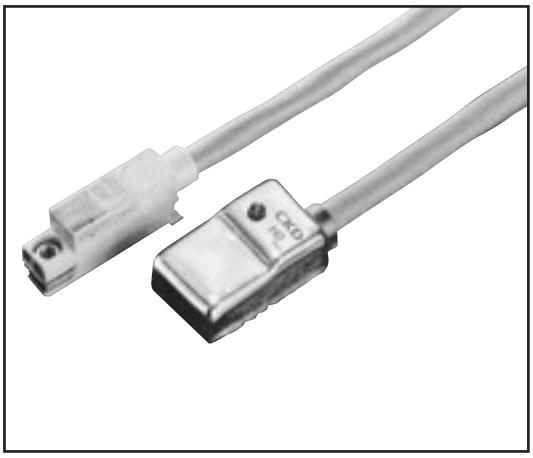


(1) The switch is moved in only one direction, and is fixed at the position where the green LED lights.



2-color LED switch is
(1) Quick to install
(2) Easy to install
(3) Free of setting errors

Strong magnetic field proof cylinder switch



Overview

This cylinder switch is used in environments having strong magnetic fields, such as near spot welding machines and magnetizing units in automotive plants, etc.

Features

● Easy installation/position adjustment (V0, T2YD)
Uses the rail mounting method. Mountable with a single set screw, and with easy position adjustment.

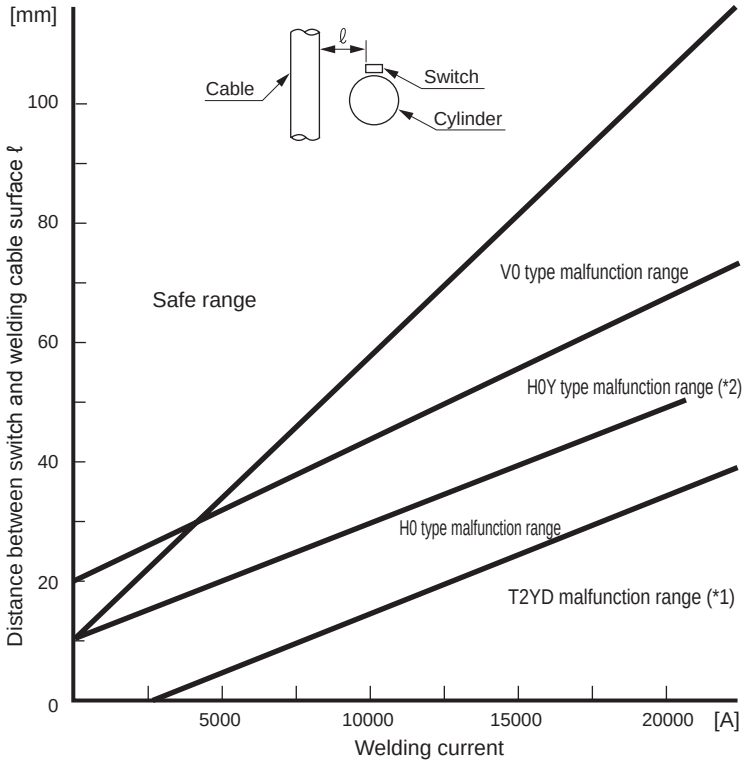
● Heat resistant material
Metal (H0, H0Y) and self-extinguishing resin UL94-V0 (V0, T2YD) body, and flame-resistant lead wires (optional for T2YD) have been adopted. Prevents body and lead wire burning or welding due to spatter.

● No polarity (H0, T2YD, H0Y)
Integrated diode bridge eliminates polarity. Eliminates the time required for checking positive and negative polarity, preventing connection errors.

● 2-color LED for easy installation adjustment (T2YD, H0Y)
Since the green LED lights at the optimal installation position, the switch can be installed and adjusted very easily.

⚠CAUTION

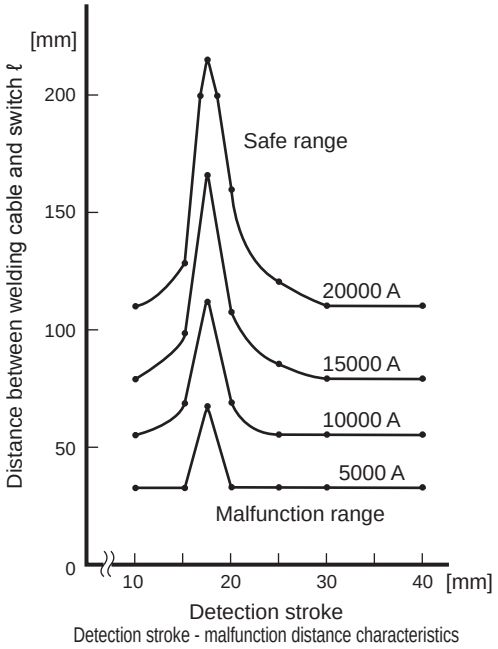
(1) Spot welding current - malfunction distance characteristics
(For detection stroke 30 mm and over for V0 switch)



The above external magnetic field resistance properties apply when H0 is installed within the "max. sensitivity position ±1 mm," within the "max. sensitivity position ±1.5 mm" for V0, and within the "optimum installation range" for H0Y. Install switches within this range. Do not apply welding current to flow during movement of the cylinder piston.
If 2 or more welding cables are energized simultaneously, the magnetic flux will increase due to the synergistic effect of the cables. Contact CKD before use. Note that the switch cannot be set within the cable loop.

*1: Indicates malfunction occurring when the cylinder piston magnet is degaussed by a welding field.
*2: Malfunction of H0Y indicates output malfunction.
*3: T2YD is a switch dedicated for AC magnetic field.

(2) SSD detection stroke - malfunction distance characteristics
(V0 switch)



Detection stroke - malfunction distance characteristics

When using with the detection stroke set to 30 mm or less, provide the distance in the figure above between the welding cable and switch.

(3) H type cylinder switch
Magnetic performance near spot welding

Degaussing occurs when an alternating current magnetic field is applied to the magnet. Measures have been taken for the cylinder with H type switch magnet. While degaussing does not occur up to 15,000 A, at over 15,000 A, provide the above distance between the cylinder tube and welding cable surfaces.