

# HY-SQ5/305/255 series

## Cam switch

- Structural design that can check the contact operation state
- Electrical appliances Safety Certification
- Various surface (square, Ø25 round, Ø30 round)
- 3 types of operation handle (H type, R type, P type)
- Switch-board switch A/S, V/S, C/S standard manufacturing product
- Machine tools and various industrial electrical installation circuit formation (order-made)



### ☉ Suffix code

Model	Code					Description
Appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cam switch
	HY-SQ5					Square type cam switch
	HY-255					Ø25 type cam switch
	HY-305					Ø30 type cam switch
Contact type	S					Square type (standard type)
	C					Round type (for HY-SQ5)
Handle type	H					Standard type (standard industrial machine)
	R					Switch-board type (A/S, V/S)
	P					Control switch type (C/S)
Positions selection		2				2 positions selection
		3				3 positions selection
		4				4 positions selection
		5				5 positions selection
		6				6 positions selection
Number of contact unit (number of rows)		1				1 row
		2				2 rows
Serial number (contact formation diagram)		01				Label the serial number of contact formation
		02				diagram in case of order-made product

※ A/S : ammeter converting switch, V/S : voltmeter converting switch

※ Possible to manufacture 20A, 250V product only within the square type contact structure

## ●● Specification

### ■ Contact rating

Rated insulation voltage	600 V	
Rated electro current	10 A	
Contact structure	Double block slow-make 1 position 2 contacts, max line forming: 6 rows (auto-return: up to 3 positions)	
Operation type	Each position stopping type	Spring return type
Angle selection	30°, 45°, 60°, 90°	45°
Position selection	2 Positions ~ 12 Positions	2 Positions ~ 4 Positions
Insulation resistance	100 M $\Omega$ (500 V d.c)	
Dielectric strength	2500 V a.c, for 1min	
Mechanical life expectancy	500 thousand times	
Electrical life expectancy	100 thousand times	
Ambient temperature	-20 ~ 50 °C	
Ambient humidity	-	
Protective structure	305, 255 (Round type) : IP 65	SQ5 (Square type) : IP 40

### ■ Materials of each part

Classification	Materials
Body	Thermal resistance Polycarbonate (PC)
CAM	ACETAL
Contact	Ag + Ni
Terminal	BRASS
Bolt	SWRM
Spring	STAINLESS STEEL
HANDLE	PHENOL RESIN

Control  
switch  
Combination  
display light

Power switch  
Main switch  
Cam switch

Limit switch  
Micro switch

Hoist switch  
Foot switch  
Mono lever switch

Sign tower  
Signal light

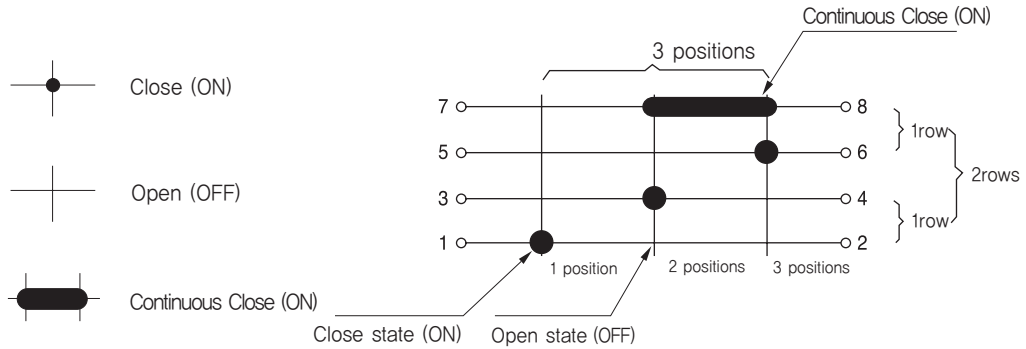
Buzzer  
Terminal block  
Fuse holder

Control box  
Cable connector

Discontinued  
Products

## ●● Operation signal of contact and standard connection diagram

■ Operation signal of contact ■ Standard connection diagram

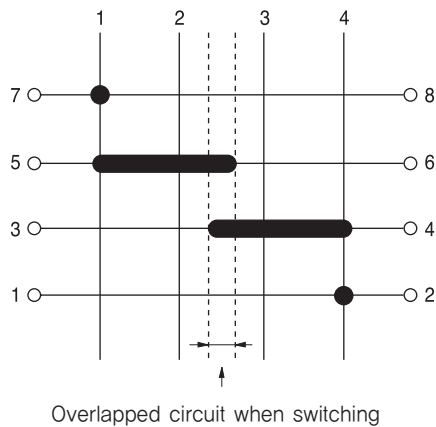


## ●● Terminology and circuit explanation

### • Overlapping circuit when switching

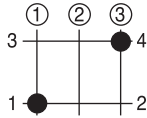
When ON/OFF the switch, it refers to the contact circuit that has an interval where the contact becomes opened in the closed state within the middle of 2<sup>nd</sup> stage and 3<sup>rd</sup> stage and the contact that has become closed in the opened state become closed synchronously.

So this is the circuit that becomes overlapped when switching.

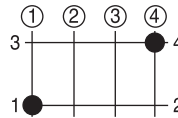


## ●● Precautions when structuring the contact

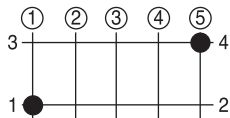
- 2 contacts that are built in the cam switch are arranged contrastably comparing to the cam so when the angle of handle rotates 180 degree then 2 contacts become opened or closed so please be cautious.



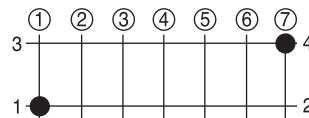
In case of 90° 3 positions switching



In case of 60° 4 positions switching

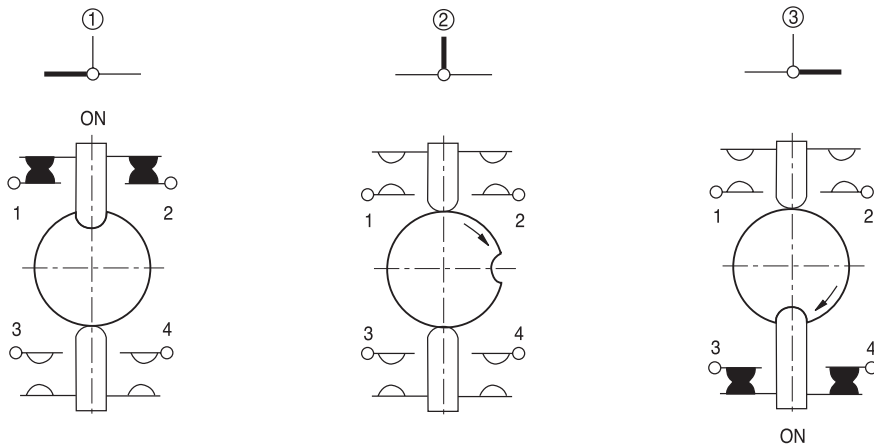


In case of 45° 5 positions switching



In case of 30° 7 positions switching

- Position of the built in cam, contact and handle (90 degree 3 positions)



Control switch  
Combination  
display light

Power switch  
Main switch  
Cam switch

Limit switch  
Micro switch

Hoist switch  
Foot switch  
Mono lever switch




























Sign tower  
Signal light

Buzzer  
Terminal block  
Fuse holder

Control box  
Cable connector

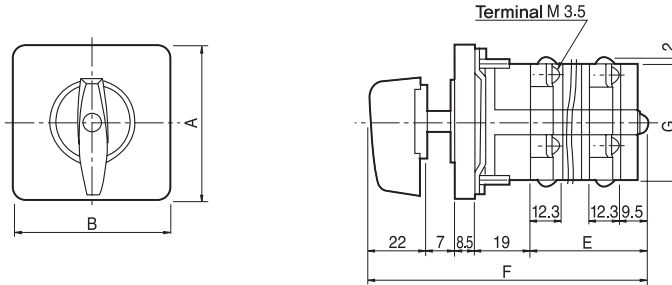
Discontinued  
Products

## ●● Handle operation position

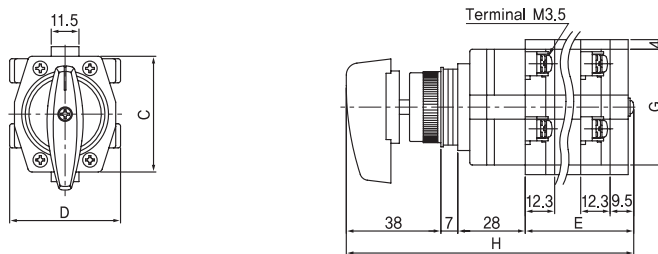
Return method	Switching angle	Handle position
Manual return type (Symbol : MR)	90°	   <p style="text-align: right;">※P:Positions</p>
	60°	   
	45°	     
	30°	    
		  
Auto return type (Symbol : AR)	45°	 <p>The handle automatically returns to the middle from 1<sup>st</sup> and 2<sup>nd</sup> position</p>
Handle suspending type (Symbol : LR)	45°	 <p>The handle automatically returns to the middle from 1<sup>st</sup> and 2<sup>nd</sup> position (but when operating the handle, please pull it and use it)</p>
Mixed return type (Symbol : C)	45°	 <p>Auto-return from 1<sup>st</sup> position to the 2<sup>nd</sup> position Manual return from 3<sup>rd</sup> position to 2<sup>nd</sup> position</p>
		 <p>Auto-return from 3<sup>rd</sup> position to the 2<sup>nd</sup> position Manual return from 1<sup>st</sup> position to 2<sup>nd</sup> position</p>
		 <p>Auto-return from 1<sup>st</sup> position to the 2<sup>nd</sup> position Manual return from 2<sup>nd</sup> position to 4<sup>th</sup> position</p>
		 <p>Auto-return from 4<sup>th</sup> position to the 2<sup>nd</sup> position Manual return from 1<sup>st</sup> position to 3<sup>rd</sup> position</p>

●● Dimension and panel cutout (unit : mm)

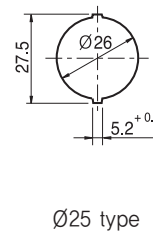
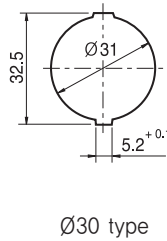
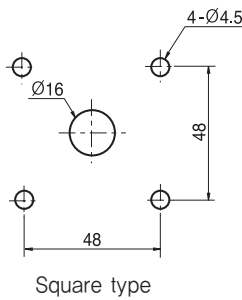
■ Square type



■ Round type (waterproof type)



■ Panel cutout



Number of rows	A	B	C	D	E	F	G	H	rotational angle
1	65	65	48	48	21.8	78.8	48	94.8	30° 45° 60° 90°
2					34.1	91.1		107.1	
3					46.4	103.4		119.4	
4					58.7	115.7		131.7	
5					71	128		144	
6					83.3	140.3		156.3	
7					95.6	152.6		168.6	
8					107.9	164.9		180.9	
9					120.2	177.2		193.2	
10					132.5	189.5		205.5	

Control switch  
Combination display light

Power switch  
Main switch  
Cam switch

Limit switch  
Micro switch

Hoist switch  
Foot switch  
Mono lever switch


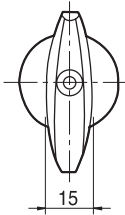
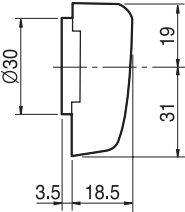

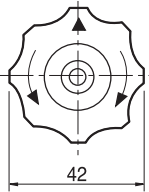
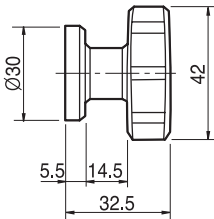

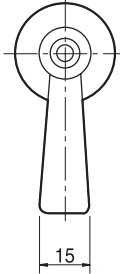
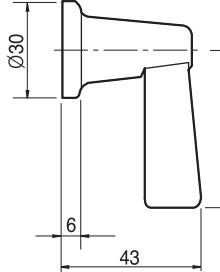
Sign tower  
Signal light

Buzzer  
Terminal block  
Fuse holder

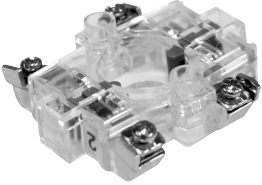





Control box  
Cable connector

Discontinued Products

●● Handle types

Symbol	Appearance	Usage	Materials (colors)	Dimension	
H type		Selector S/W	Phenol Resin (black)		
R type		AS, VS Selector S/W	Phenol Resin (black)		
P type		C.S	Phenol Resin (black)		

●● Contact and connecting terminal

		Standard type (S type)	Round type (C type)
Contact low part		 <p>S-10</p>	 <p>C-10</p>
Connecting terminal	Horizontal	 <p>S-20</p>	 <p>C-20</p>
	Vertical	 <p>S-30</p>	 <p>C-30</p>

Control switch  
Combination display light


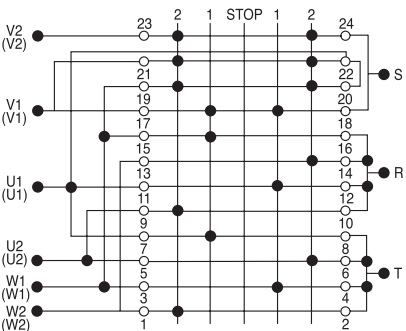

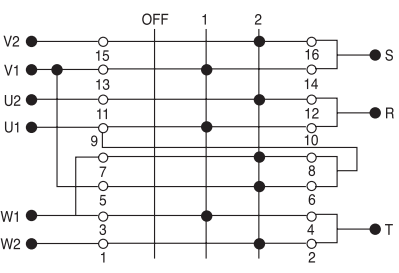
Power switch  
Main switch  
Cam switch

Limit switch  
Micro switch

Hoist switch  
Foot switch  
Mono lever switch

●● Standard types

■ Industrial switch

Model and usage	Appearance	Standard circuit diagram
<p>HY-148R (4P, 8P FOR, REV Polarity changing switch)</p>		
<p>HY-148P (4P, 8P Polarity changing switch)</p>		


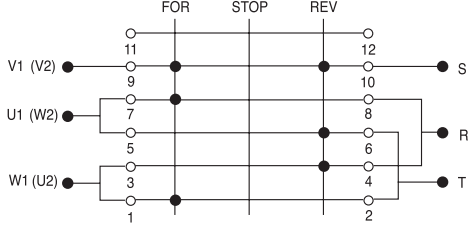

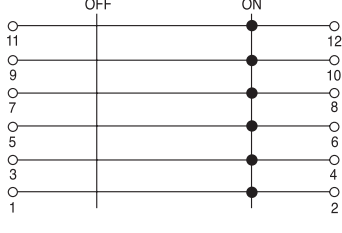

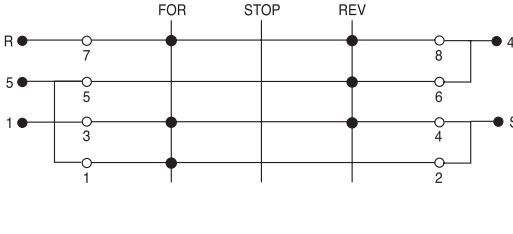

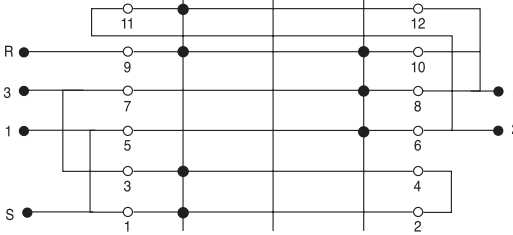

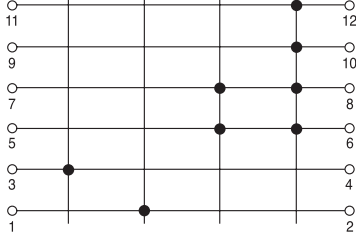
Sign tower  
Signal light

Buzzer  
Terminal block  
Fuse holder


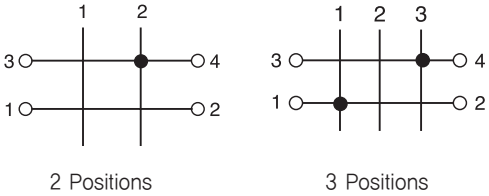
Control box  
Cable connector

Discontinued Products


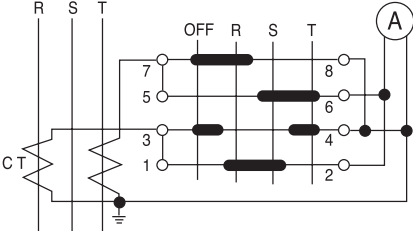

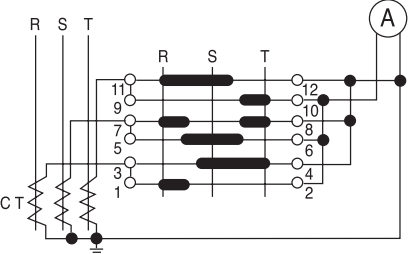

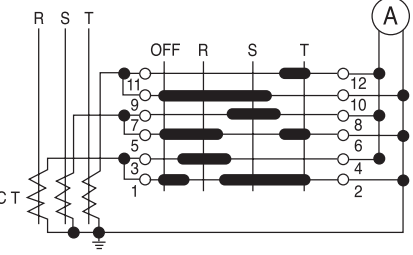


Model and usage	Appearance	Standard circuit diagram
<p>HY-140R (4P FOR, REV switch)</p>		
<p>HY-140P (ON/OFF switch)</p>		
<p>HY-124A (Single phase 4P FOR, REV switch)</p>		
<p>HY-124B (Single phase 4P FOR, REV switch)</p>		
<p>HY-430S (Operation selecting switch)</p>		

SQ5/305/255 series

Model and usage	Appearance	Standard circuit diagram
HY-255SH2103(Ø25) HY-305SH2103(Ø30) (Selector switch)		

■ Ammeter circuit (A.S)

Model and usage	Appearance	Standard circuit diagram
HY-A332 (3P 3W 2 C.T)		
HY-A333 (3P 3W 3 C.T)		
HY-A343 (3P 3W 3 C.T)		

Control switch  
Combination  
display light

Power switch  
Main switch  
Cam switch

Limit switch  
Micro switch

Hoist switch  
Foot switch  
Mono lever switch

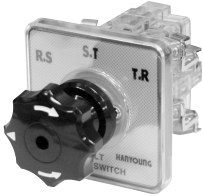
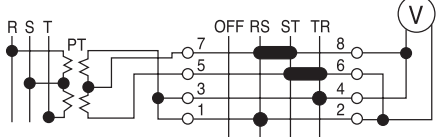
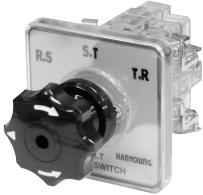
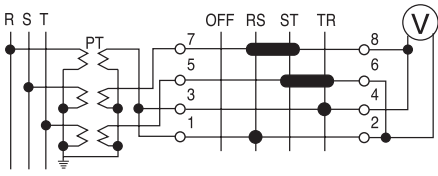
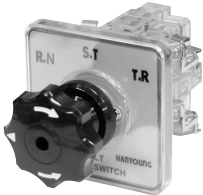
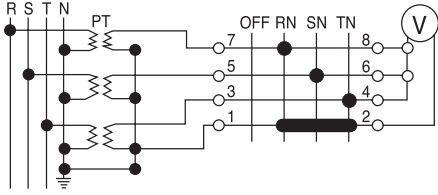
Sign tower  
Signal light

Buzzer  
Terminal block  
Fuse holder


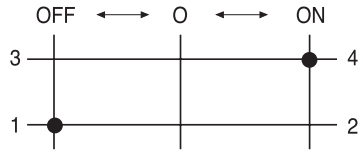
Control box  
Cable connector

Discontinued  
Products

■ Voltmeter circuit (V.S)

Model and usage	Appearance	Standard circuit diagram
HY-V332 (3P 3W 2 P.T)		
HY-V332B (3P 3W 3 P.T)		
HY-V343 (3P 4W 3 P.T)		

■ Circuit Breaker Control

Model and usage	Appearance	Standard circuit diagram
HY-CS1 (Auto-return type)		
HY-CSL (Handle suspending type)		