

# TOYO

# CAM SWITCH



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## GENERAL

TOYO Cam Switch, small in size, is intended for switching various control circuits below 600 V requiring multinotch selection and many contacts in switchboards and control panels. The switch integrated with strict quality control and high-level technology has been manufactured in compliance with many standards.

## Applied Standards

JIS-C4520

JIS-C4522

IEC-60947

## Ratings

Rated Insulation Voltage	AC · DC600V		
Rated Thermal Current	CS	16A	(100A / 1 Sec.)
	CSH	20A	(100A / 2 Sec.)
	CSK	32A	(100A / 3 Sec.)

## RATED VOLTAGE & CURRENT

AC CURRENT (A) (AC11)							DC CURRENT (A) (DC12)						
Voltage (V)	Resistive load			Inductive load			Voltage (V)	Resistive load			Inductive load		
	CSK	CSH	CS	CSK	CSH	CS		CSK	CSH	CS	CSK	CSH	CS
110	32	20	16	20	15	12	24	20	15	12	15	10	8
220	16	15	10	12	10	8	125	4	3	2	2	0.5	1
440	5	4	3	4	3	2	220	1.5	1.2	1	1	0.8	0.5

## RATINGS & MATERIALS

Insulation Resistance		1000M $\Omega$ min. at 1000VDC
Dielectric Strength		2000VAC (50/60 HZ) for 1 min. (CSH / CSK TYPE 2500V)
Impulse voltage strength		$\pm$ 7000V 1.2/50 $\mu$ s
Contact Resistance		50 m $\Omega$ max. (initial value)
Vibration		2G
Shock		50G (500 m/S <sup>2</sup> )
Ambient Temperature		-25 ~ +60°C
Ambient Humidity		45 ~ 85% RH (not at frozen)
Life	Electrically	Above 500,000 operations (20 operations / min.)
	Mechanically	Above 5,000,000 operations (20 operations / min.)
Protection		IP 40
Materials	Contact	Silver Contact
	Contact Body	PC Resin (Transparent Shell)
	Front Panel	ABS Resin
	Name Plate	Aluminum

# MODEL

## CSH – H – 1001 – LP – I

- ①      ②      ③      ④      ⑤

① Basic type :

CS : 16A rating      CSH : 20A rating      CSK : 32A rating

② Cam switch type

- manual and automatic return type

Return Method	Angle	Symbol							
Manual return type (pull out handle type add "P" ex. : HP, TP)	90°	H	HB	HA	K	V			
Automatic return type	45°	T	TB	TA	F	E	G	J	O
Automatic return type	45°	C	CL	CRL					

- Key operation type add "K" , ex. : KH , KT , KC
- LR : lock out relay, must indicate voltage and contact (CSH type only)

③ Contact arrangement : see page 3 ~ 5

④ Handle type

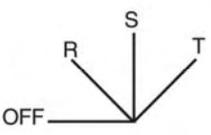
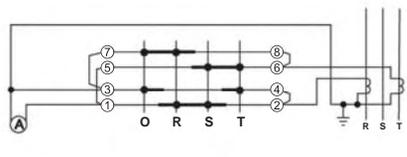
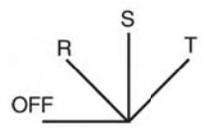
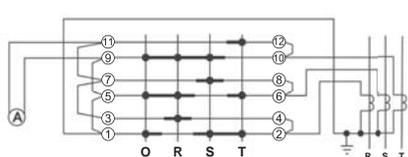
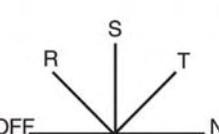
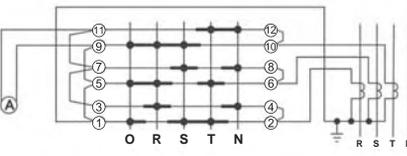
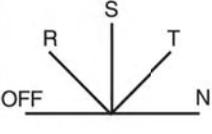
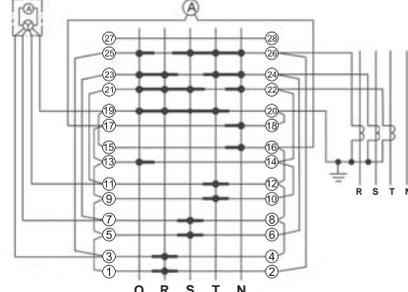
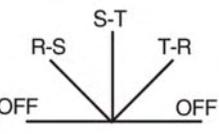
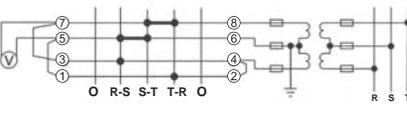
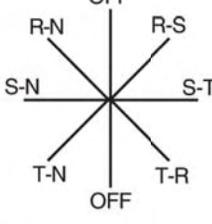
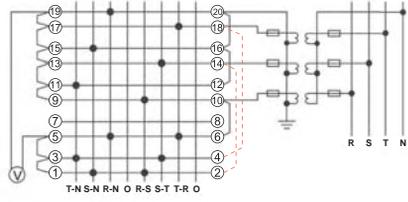
Type	LP	HDP	HFP	LS	LP(R)		
Shape							

⑤ Close indicator      I : with indicator (control switch only)

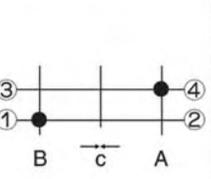
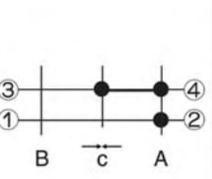
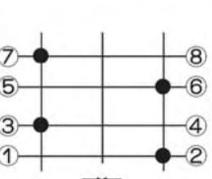
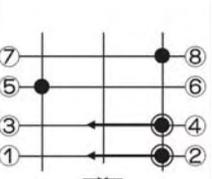
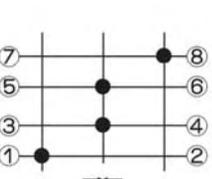
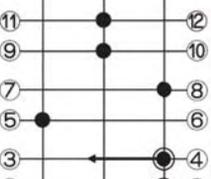
blank : without indicator

# CONTACT ARRANGEMENT

## • Amp switch / voltage switch

<p><b>A332</b></p> 		<p><b>A333</b></p> 	
<p><b>A343</b></p> 		<p><b>A7</b></p> 	
<p><b>V33</b></p> 		<p><b>V34</b></p> 	 <p>★ Points ②—⑭、④—⑱ are to be connected by customers themselves.</p>

## • Auto return

type	C1001 (C1)	C1002	C2001 (C2)	CA2001 (C1A)	C2002	CA3001 (C3A)
						
type	CL1001 (CL1)	CL1002	CL2001 (CL2)	CLA2001 (CL1A)	CL2002	CLA3001 (CL3A)
	Same as C1001 but pull operation	Same as C1002 but pull operation	Same as C2001 but pull operation	Same as CA1001 but pull operation	Same as C2002 but pull operation	Same as C3001 but pull operation

• Manual return

<p>H1001</p>	<p>H1002</p>	<p>H1003</p>	<p>H2001</p>	<p>H2002</p>	<p>H2003</p>
<p>H2004</p>	<p>H2005</p>	<p>H3001</p>	<p>H3002</p>	<p>H3003</p>	<p>H3004</p>
<p>H4001</p>	<p>H4002</p>	<p>H4003</p>	<p>H4004</p>	<p>H5001</p>	<p>H6001</p>
<p>T1001</p>	<p>T1002</p>	<p>T2001</p>	<p>T2002</p>	<p>T2003</p>	<p>T2004</p>
<p>T3001</p>	<p>T3002</p>	<p>T3003</p>	<p>T4001</p>	<p>T4002</p>	<p>T4003</p>

• Manual return

F2001	F2002	F3001	F4001
E2001	E3001	E3002	E4001
G3001	G3002	E3003	T4007

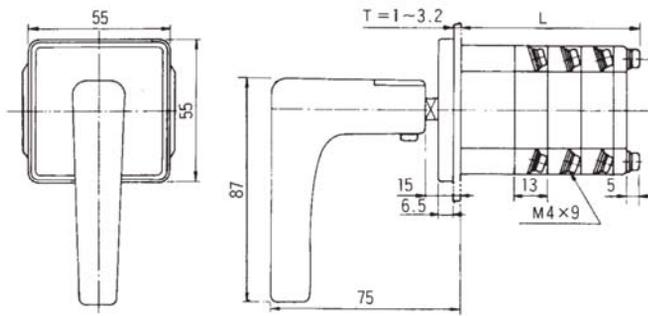
• Auto return

C1101	C2004	C3001	CA3002
CL1101	CL2004	CL3001	CLA3002
Same as C1101 but pull operation	Same as C2004 but pull operation	Same as C3001 but pull operation	Same as CA3002 but pull operation

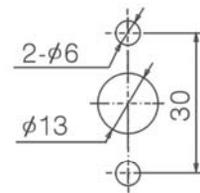
## Dimension

Manual return type  
(H,K,V,T,F,E,G,O)

Automatic return type  
(C)

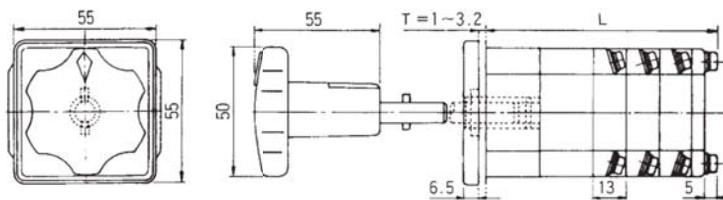


### Mounting holes

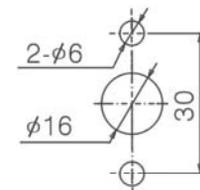


Unit No.	1	2	3	4	5	6	7	8	9	10
L(mm)	43	56	69	82	95	108	121	134	147	160

Pull out handle type (HP,TP)



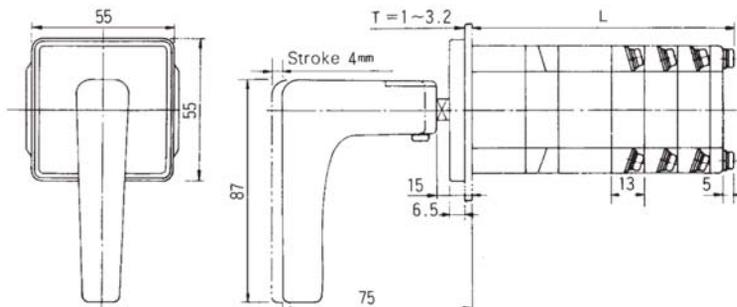
### Mounting holes



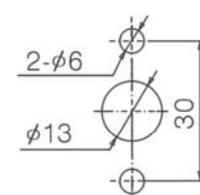
Unit No.	1	2	3	4	5	6	7	8	9	10
L(mm)	64	77	90	103	116	129	142	155	168	181

Pull and turn type (CL)

Pull to lock type (CRL)

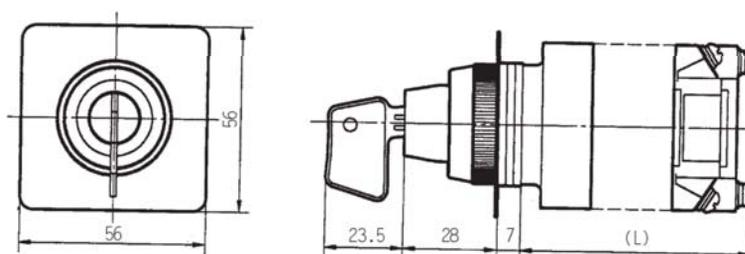


### Mounting holes

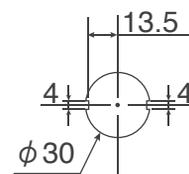


Unit No.	1	2	3	4	5	6
L(mm)	77	90	103	116	129	142

Key operation type (KC, KH, KT)



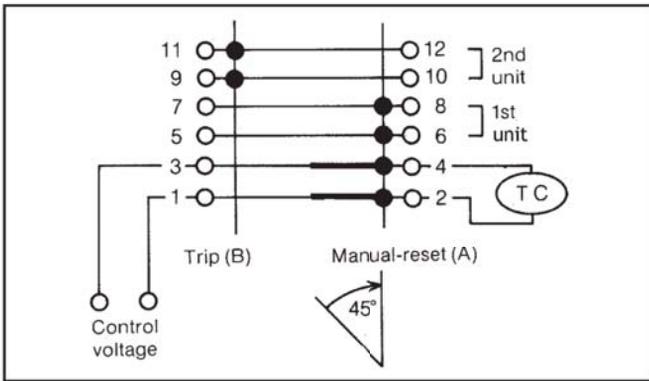
### Mounting holes



Unit No.	1	2	3	4	5	6
L(mm)	43	56	69	82	95	108

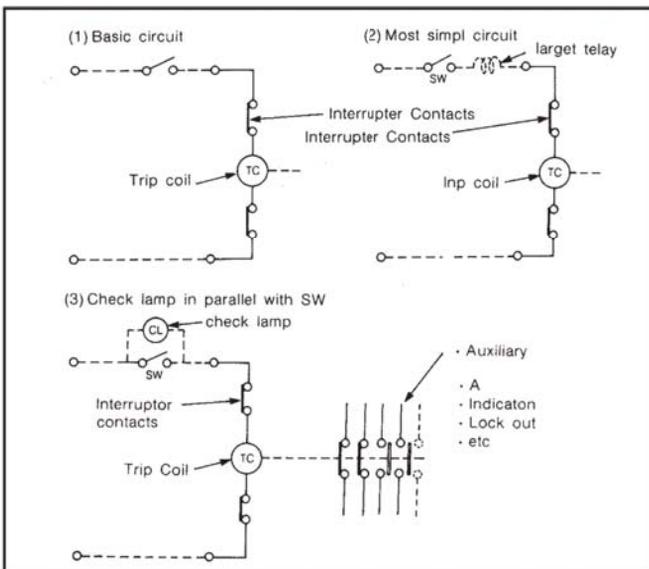
## Lock Out Relay (CSH-LR)

### • Contact Diagram



- \* The fig shows an example of contact diagram for an auxiliary relay.
- \* Position B.....The handle is trip position. the terminals (N.O) 9-10, 11-12 are closed.
- \* Position A.....The handle is trip position. the terminals (N.O) 5-6, 7-8 are closed.
- \* A unit has two circuit and they are insulated from each other.
- \* TC: Trip coil.

### Example of control diagram



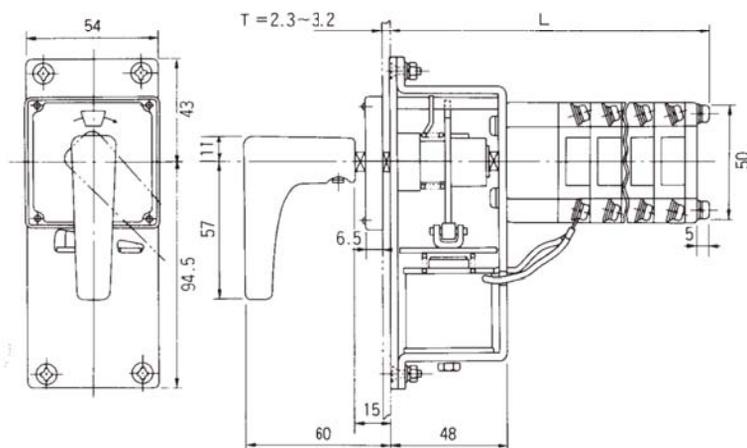
### Resistance of trip coils

The trip circuits of Lock-out Relay are self-interrupting to insure that the control circuit is "on" only a predetermined time. This protects the Lock-out Relay trip coil and other components that may be in the circuit. It also gives a positive indication that tripping did, in fact, take place.

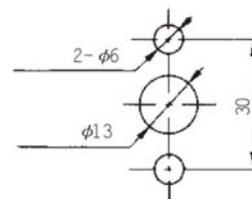
Voltage	DC24V	DC48V	DC100V	DC125V	DC200V
Coil resistance	5.3 Ω	25 Ω	55 Ω	80 Ω	350 Ω

Voltage	AC110V	AC220V
Coil resistance	16.5 Ω	40 Ω

### • Dimension



### Mounting holes



Unit No.	1	2	3	4	5	6	7	8
L(mm)	104	117	130	143	156	169	182	195



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