CAM SWITCHES

T Series / G Series / R Series

T Series
12-40 A

Model RY/BY
Model RK/BK
Model RM/BM
Model RT/BT
Model RP/BP
Model RQ/BQ

G Series
12-630 A

Model GL
Model DI
Model LK
Model IK
Model TL
Model LL1
Model KS
Model CO

R Series
12-25 A

Model RY/BY
Model RK/BK
Model GL
Model LL1
Model TL
Model LK


VOLTMETER
RS ST TR
O
RN
1218
N/O
V/T2
R/L1 S/L2 T/L3
U/T1 V/T2 W/T3

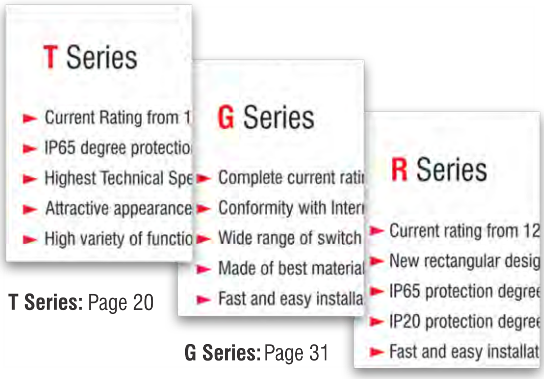
How to choose a proper cam switch model?

We recommend you to follow these simple steps to choose the best cam switch that suits your needs.

STEP 1:

Choose Series (T,G,R)

According to the General features sections (Pages 20,31 & 47),and also your general requirements and economical considerations choose your desired series.

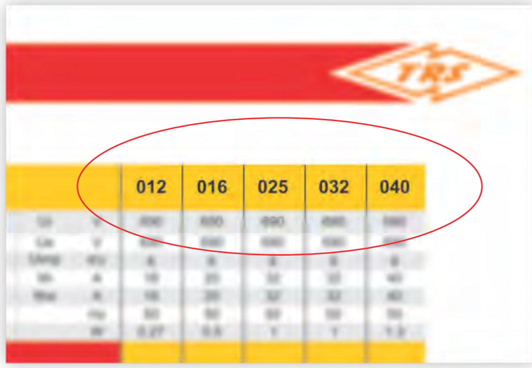


T Series: Page 20 **G Series:** Page 31 **R Series:** Page 47

STEP 2:

Choose the 3 Digit Amp Code

Keeping into account the load nature (resistive, inductive or mixed) and the load value and in accordance with the technical data tables (Pages 22,35 & 48) you can choose the 3 digit Amp code of the suitable switch, for instance 063 stands for 63 Amperes.

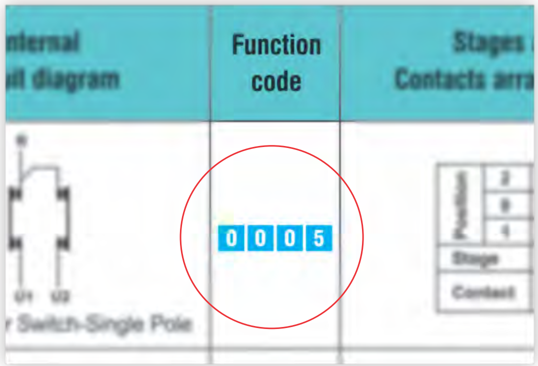


T Series: Page 22 **G Series:** Page 35 **R Series:** Page 50

STEP 3:

Choose the switch function code

Based on your requested function, number of poles and steps, external and internal connections of the cam switch, (according to pages 11 to 18) Choose the function code of your switch, which is a 4 character code. For instance 0010 stands for 3 pole Stardelta switch.

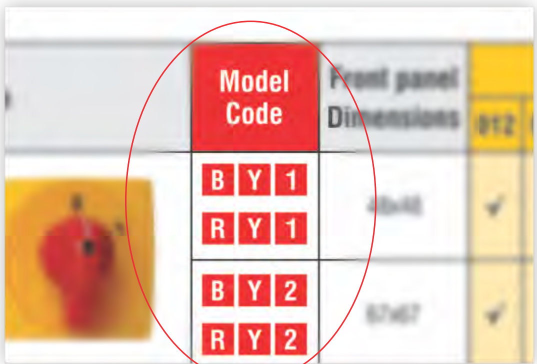


Page 11 to 18

STEP 4:

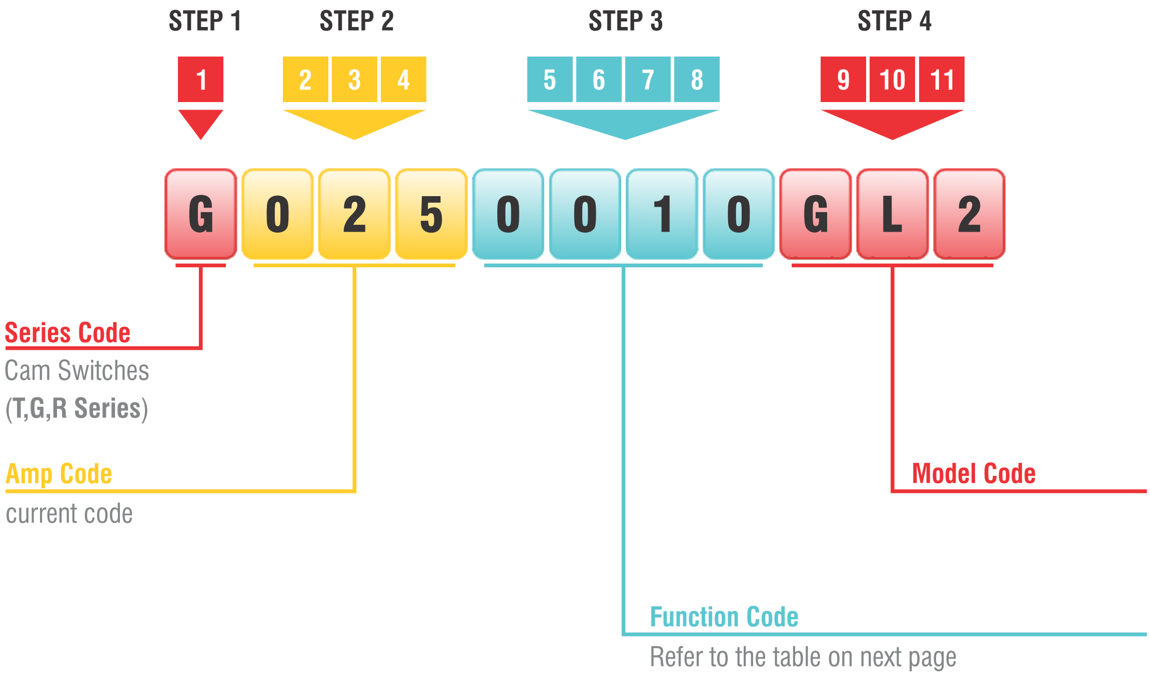
Choose the model code

Finally according to the mounting method of the switch (front mounting, surface mounting, interlocking with panel's door or enclosure), required degree of protection (IP), type and color of plate and knob, choose the appropriate version of the switch this is a 3 character code which is shown in Model selection tables and in the page of each model.



T Series: Page 23 **G Series:** Page 37 **R Series:** Page 51

Each Cam switch is defined using a unique 11 digit code:



Example:

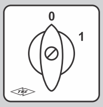
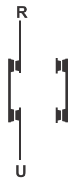
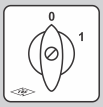
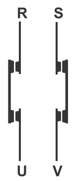
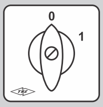
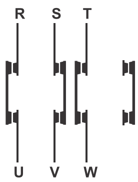
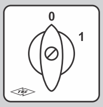
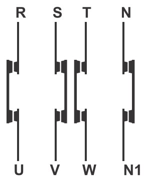
part number **G.025.0010.GL2** stands for G series Three poles 25A star-delta switch with black plate & knob in 75x75 mm size.

Note:

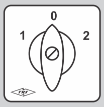
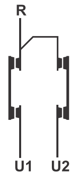
If your requested switch function is not present on the common functions table on pages 11 to 18 or you would like to fully configure your cam switch, you may order a custom made cam switch using our special ordering forms designed for this purpose on pages 60 & 61. TRS Co. is always ready to manufacture your special orders. TRS Co. factory has over 5000 custom made cam switch designed in its archives.

Cam Switch Functions Code Table

Rotary Cam Switches can be offered in a wide variety of functions. The most commonly used functions are introduced in the following table.
On each row one function is described, rotation angle, internal circuit diagram, function code, number of stages and contacts, terminal symbols are illustrated.
If your desired function is not present on this list, please refer to the customized switch ordering forms on pages (60 & 61).
Our tech dept. will always be ready to assist customers regarding their desired products.

Function code	Positions & Rotation Angles	Internal circuit diagram	Stages and Contacts arrangement	
0001	 60°	 ON/OFF Switch-Single Pole	Position 1: X, – Position 0: –, – Stage: 1 Contact: 1-2, 3-4	
0002	 60°	 ON/OFF Switch-2 Poles	Position 1: X, X Position 0: –, – Stage: 1 Contact: 1-2, 3-4	
0003	 60°	 ON/OFF Switch-3 Poles	Position 1: X, X, X, – Position 0: –, –, –, – Stage: 1, 2 Contact: 1-2, 3-4, 5-6, 7-8	
0004	 60°	 ON/OFF Switch-4 Poles	Position 1: X, X, X, X Position 0: –, –, –, – Stage: 1, 2 Contact: 1-2, 3-4, 5-6, 7-8	

Cam Switch Functions Code Table

<table>
<tr><th>Function code</th><th>Positions & Rotation Angles</th><th>Internal circuit diagram</th><th>Stages and Contacts arrangement</th><th></th></tr>
<tr><td>0005</td><td>60°</td><td>Change-Over Switch-Single Pole</td><td>
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<tr><td>1</td><td>X</td><td></td></tr>
<tr><td colspan="2">Stage</td><td colspan="2">1</td></tr>
<tr><td colspan="2">Contact</td><td>1-2</td><td>3-4</td></tr>
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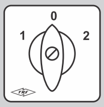
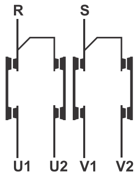
<tr><td>0006</td><td>60°</td><td>Change-Over Switch-2 Poles</td><td>
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<tr><td>1</td><td>X</td><td></td><td>X</td><td></td></tr>
<tr><td colspan="2">Stage</td><td colspan="2">1</td><td colspan="2">2</td></tr>
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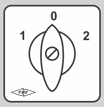
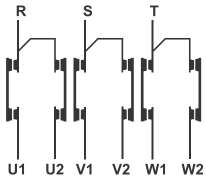
<tr><td>0007</td><td>60°</td><td>Change-Over Switch-3 Poles</td><td>
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<tr><td colspan="2">Contact</td><td>1-2</td><td>3-4</td><td>5-6</td><td>7-8</td><td>9-10</td><td>11-12</td></tr>
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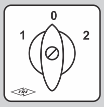
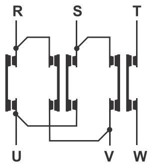
<tr><td>0008</td><td>60°</td><td>Reversing Switch-3 Poles</td><td>
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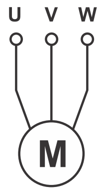
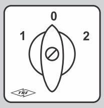
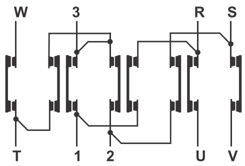
</table></td><td></td></tr>
<tr><td>0009</td><td>60°</td><td>Pole Changing Switch (Dahlander)</td><td>
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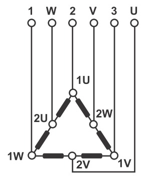
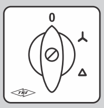
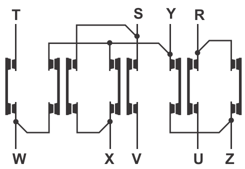
<tr><td colspan="2">Stage</td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">3</td><td colspan="2">4</td></tr>
<tr><td colspan="2">Contact</td><td>1-2</td><td>3-4</td><td>5-6</td><td>7-8</td><td>9-10</td><td>11-12</td><td>13-14</td><td>15-16</td></tr>
</table></td><td></td></tr>
<tr><td>0010</td><td>60°</td><td>⅄-Δ Starter</td><td>
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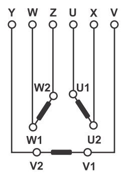
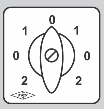
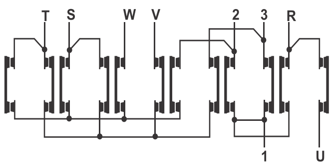
</table></td><td></td></tr>
<tr><td>0011</td><td>45°</td><td>Pole Change and Reversing Switch-3 Poles</td><td>
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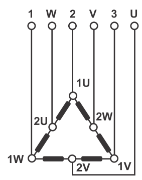
</table></td><td></td></tr>
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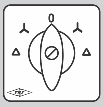
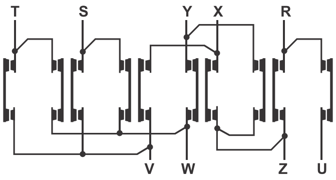
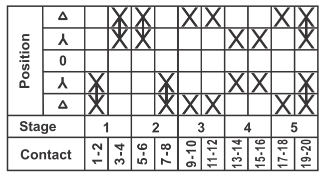
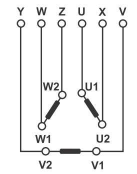
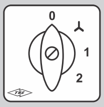
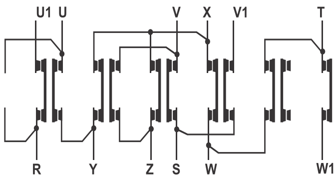
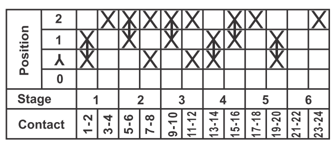
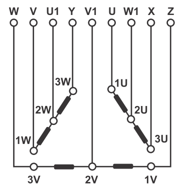
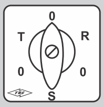
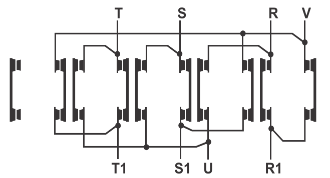
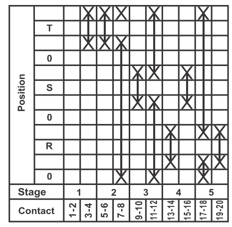
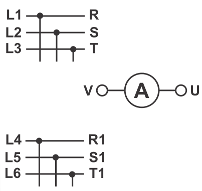
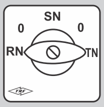
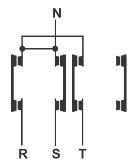
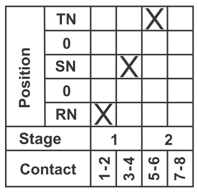
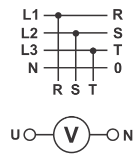
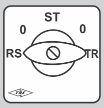
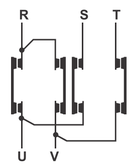
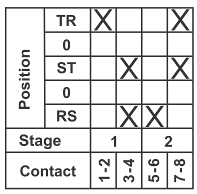
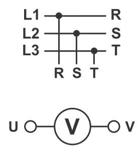
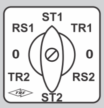
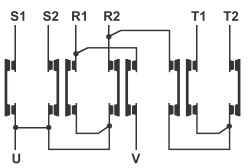
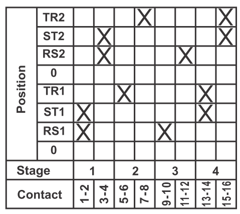
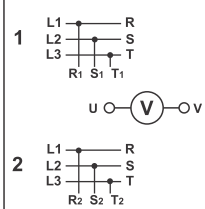
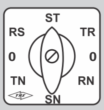
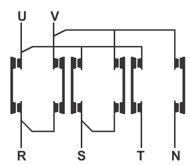
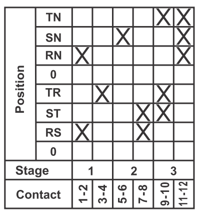
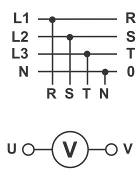
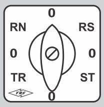
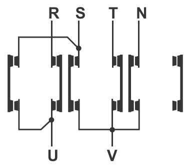
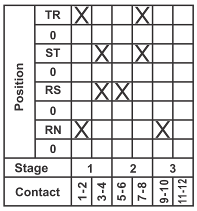
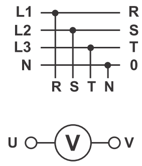
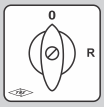
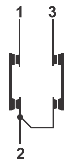
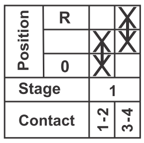
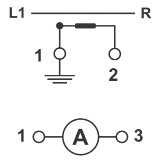
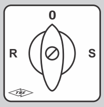
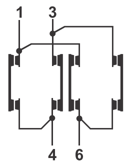
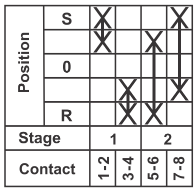
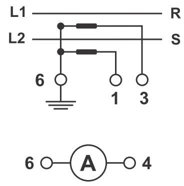
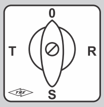
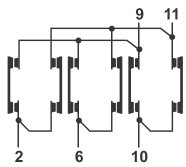
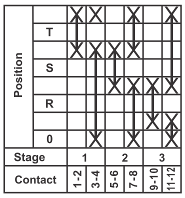
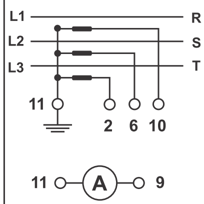
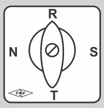
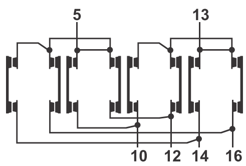
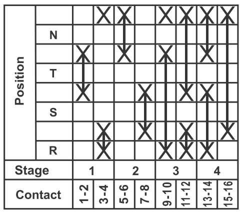
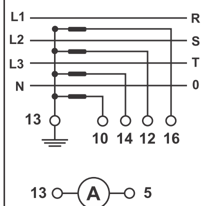
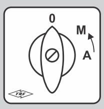
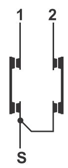
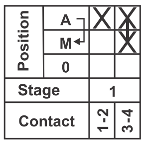
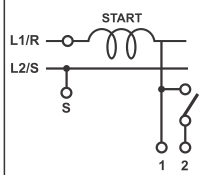
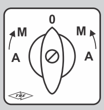
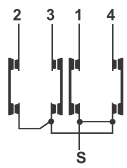
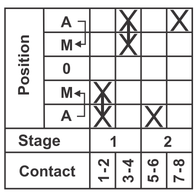
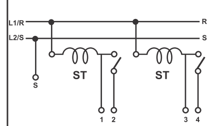
Cam Switch Functions Code Table

Function code	Positions & Rotation Angles	Internal circuit diagram	Stages and Contacts arrangement	L1 L2 L3 – R S T
0012	 45°	 Reversing Switch with ⅄-△ Starter		
0013	 45°	 Pole Changing with ⅄-△ Starter	 Rotation 45°	
0014	 60°	 Ammeter Switch for direct measurement		
0015	 45°	 Voltmeter Switch with 3 (Ph-N)+off position		
0016	 45°	 Voltmeter Switch with 3 (Ph-Ph)+off position		
0017	 45°	 Voltmeter Switch with 3 (Ph-Ph)+off position for 2 systems		
0018	 45°	 Voltmeter Switch with 3 (Ph-N) and 3 (Ph-Ph) +off position		

Cam Switch Functions Code Table

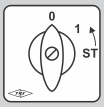
Cam Switches

Function code	Positions & Rotation Angles	Internal circuit diagram	Stages and Contacts arrangement	
0019	 45°	 Voltmeter Switch with 3 (Ph-Ph) and 1 (Ph-N) +off position		
0020	 90°	 Single Pole Ammeter Switch-1CT		
0021	 90°	 Single Pole Ammeter Switch-2CT		
0022	 90°	 Single Pole Ammeter Switch-3CT		
0023	 90°	 Single Pole Ammeter Switch-4CT		
0029	 45°	 Change-Over Switch contactor with self return A to M		
0030	 45°	 Reversing Change-Over Switch contactor with self return A to M		

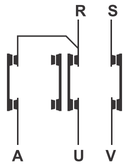
Cam Switch Functions Code Table

Function code	Positions & Rotation Angles	Internal circuit diagram	Stages and Contacts arrangement	L1 L2 L3 — R S T

0031

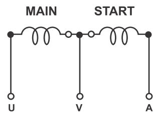


45°

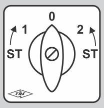


Starter for Single phase motor with Auxiliary phase

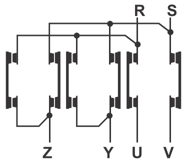
Position				
ST	X		X	X
1			X	X
0				
Stage	1		2	
Contact	1-2	3-4	5-6	7-8



0032

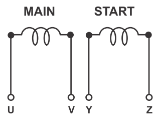


45°

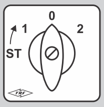


Reversing Starter for Single phase motor with Auxiliary phase

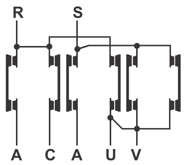
Position						
ST		X	X		X	X
2			X		X	X
0						
1				X	X	X
ST	X			X	X	X
Stage	1		2		3	
Contact	1-2	3-4	5-6	7-8	9-10	11-12



0033

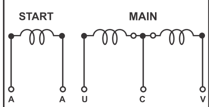


45°

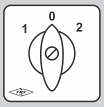


Pole changing switch for Single phase motor with Auxiliary phase,to start on the first speed

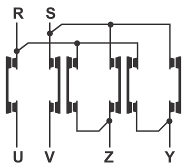
Position						
2	X	X			X	X
0						
1	X			X	X	
ST	X		X	X	X	
Stage	1		2		3	
Contact	1-2	3-4	5-6	7-8	9-10	11-12



0034

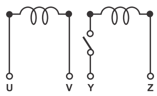


45°

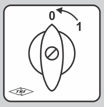


Reversing Switch for single phase motor

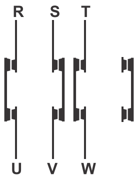
Position						
2	X	X		X	X	
0						
1	X	X	X			X
Stage	1		2		3	
Contact	1-2	3-4	5-6	7-8	9-10	11-12



0035



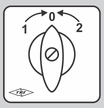
45°



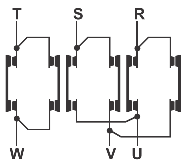
Three pole Switch with self return

Position				
1	X	X	X	
0				
Stage	1		2	
Contact	1-2	3-4	5-6	7-8

0036

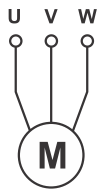


45°

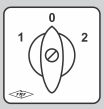


Reversing Switch for with self return

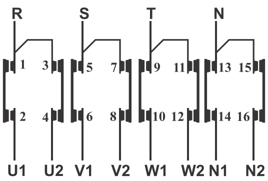
Position						
2		X	X			X
0						
1	X			X	X	
Stage	1		2		3	
Contact	1-2	3-4	5-6	7-8	9-10	11-12



0037



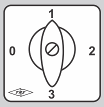
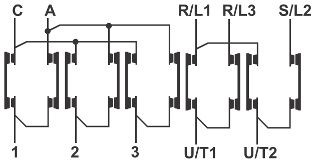
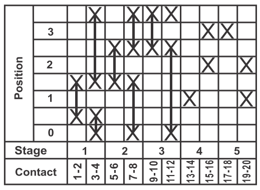
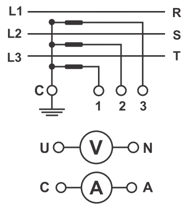
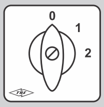
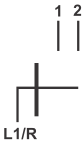
60°



Change-Over Switch - 4 Poles

Position								
2		X		X		X		X
0								
1	X		X		X		X	
Stage	1		2		3		4	
Contact	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16

Cam Switch Functions Code Table

<table>
<tr><th>Function code</th><th>Positions & Rotation Angles</th><th>Internal circuit diagram</th><th>Stages and Contacts arrangement</th><th></th></tr>
<tr><td>0060</td><td>
90°</td><td>
Ammeter Voltmeter</td><td></td><td></td></tr>
<tr><td>MZ12*</td><td>
45°</td><td>
1 Pole-2 Ways Selector Switch
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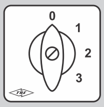
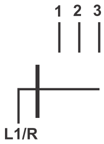
<tr><td>MZ13</td><td>
45°</td><td>
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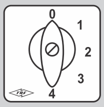
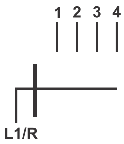
<tr><td>MZ14</td><td>
45°</td><td>
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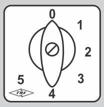
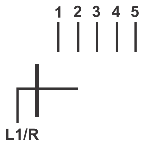
<tr><td>MZ15</td><td>
45°</td><td>
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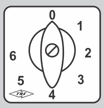
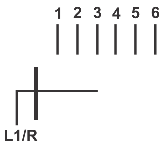
<tr><td>MZ16</td><td>
45°</td><td>
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<tr><td colspan="2">Contact</td><td>1-2</td><td>3-4</td><td>5-6</td><td>7-8</td><td>9-10</td><td>11-12</td></tr>
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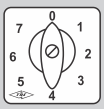
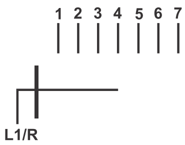
<tr><td>MZ17</td><td>
45°</td><td>
1 Pole-7 Ways Selector Switch
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</table>
</td><td></td></tr>
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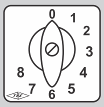
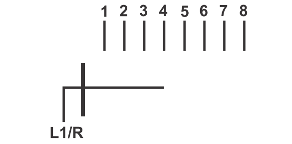
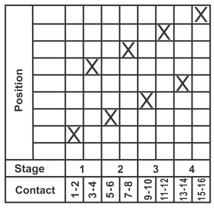
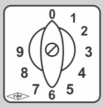
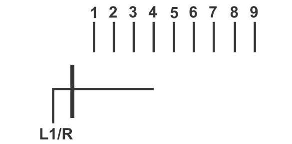
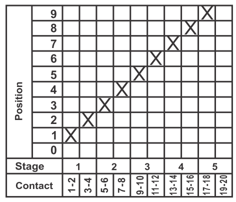
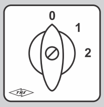
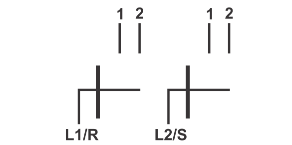
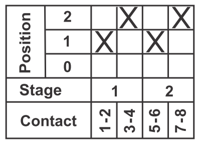
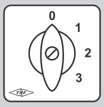
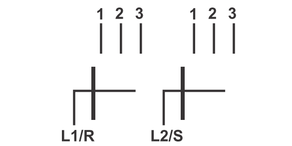
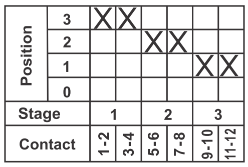
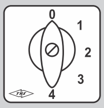
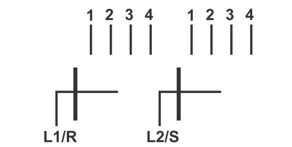
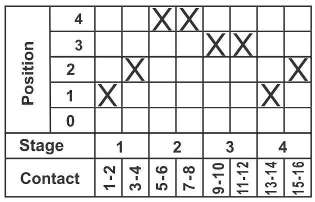
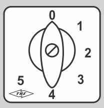
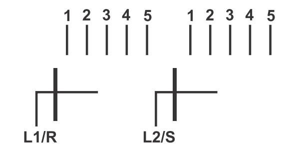
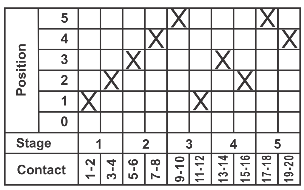
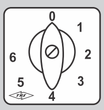
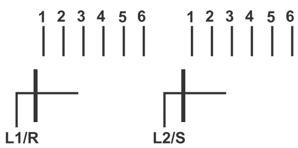
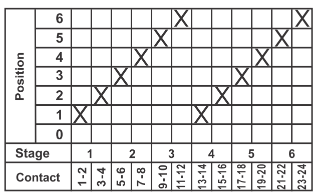
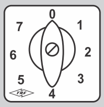
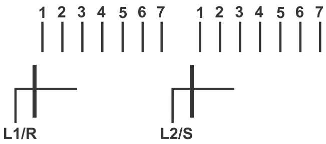
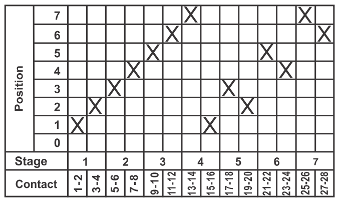
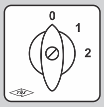
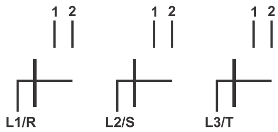
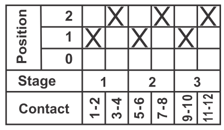
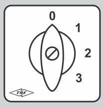
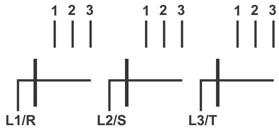
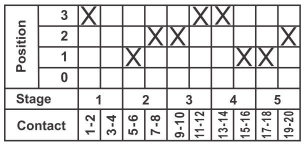
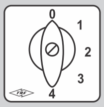
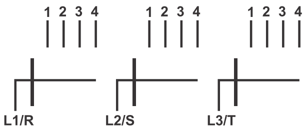
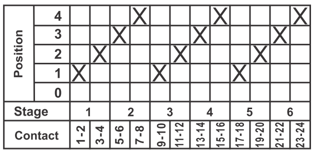
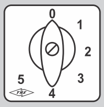
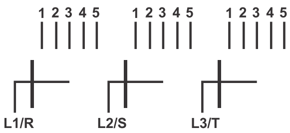
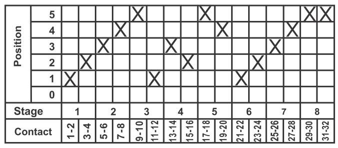
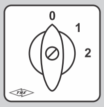
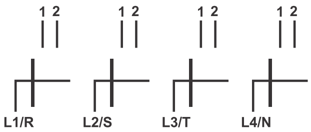
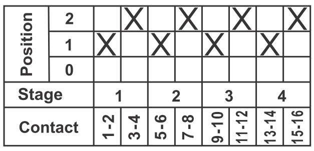
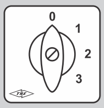
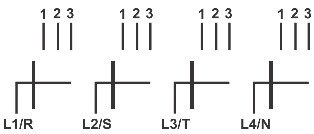
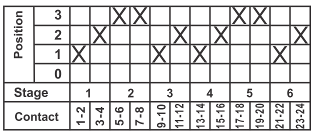
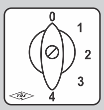
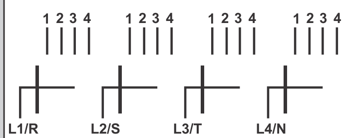
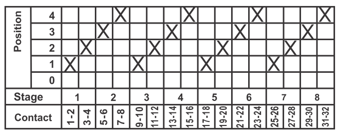
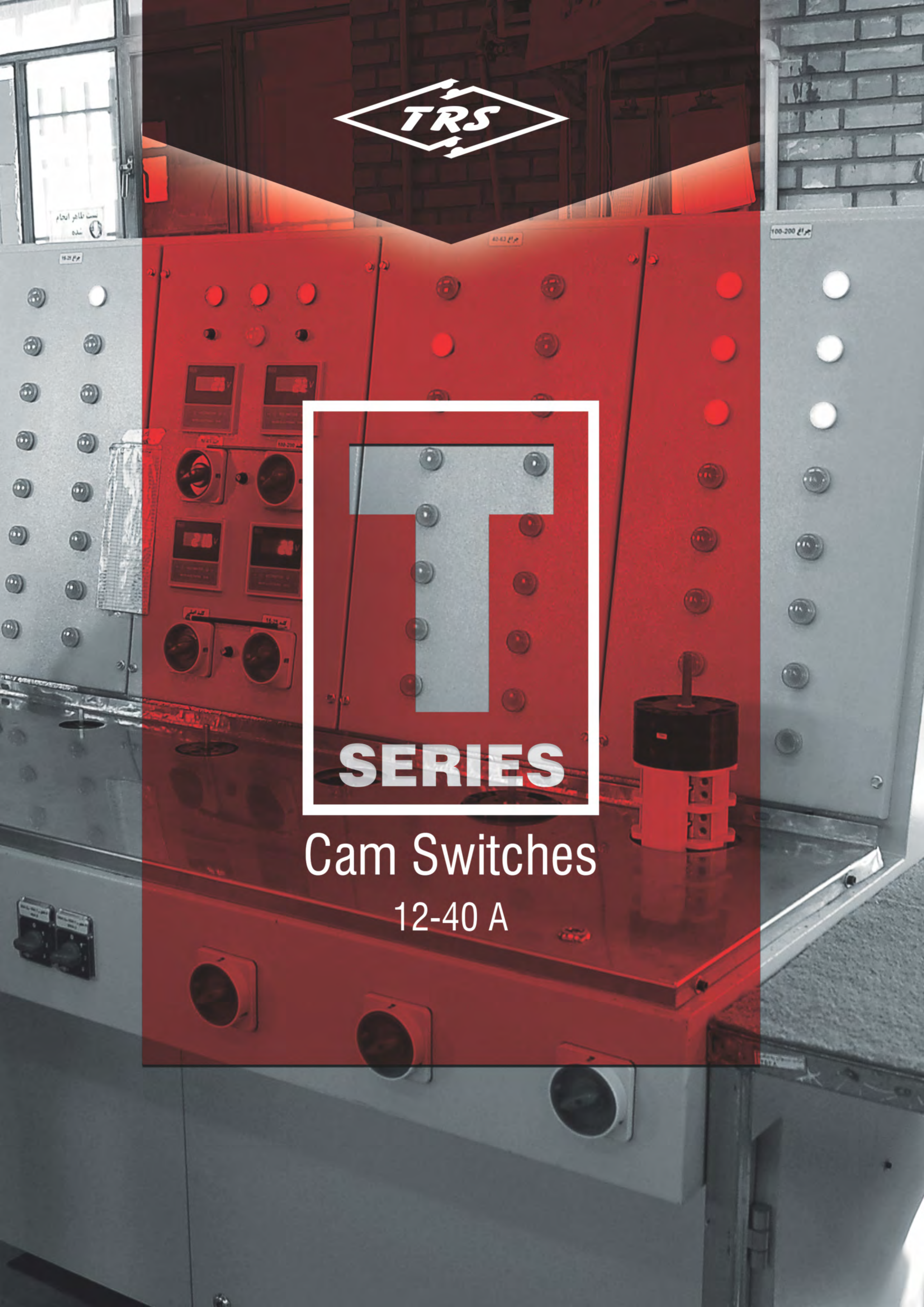
*. Function codes beginning with “MZ” start at “0” position. If you change “MZ” to “MN” The positions will start from “1”

Function code	Positions & Rotation Angles	Internal circuit diagram	Stages and Contacts arrangement	
MZ18	 30°	 1 Pole-8 Ways Selector Switch With "0" position		
MZ19	 30°	 1 Pole-9 Ways Selector Switch With "0" position		
MZ20	 45°	 2 Pole-2 Ways Selector Switch With "0" position		
MZ21	 45°	 2 Pole-3 Ways Selector Switch With "0" position		
MZ22	 45°	 2 Pole-4 Ways Selector Switch With "0" position		
MZ23	 45°	 2 Pole-5 Ways Selector Switch With "0" position		
MZ24	 45°	 2 Pole-6 Ways Selector Switch With "0" position		

Cam Switch Functions Code Table

Function code	Positions & Rotation Angles	Internal circuit diagram	Stages and Contacts arrangement	
M Z 2 7	 45°	 2 Pole-7 Ways Selector Switch With “0” position		
M Z 3 2	 45°	 3 Pole-2 Ways Selector Switch With “0” position		
M Z 3 3	 45°	 3 Pole-3 Ways Selector Switch With “0” position		
M Z 3 4	 45°	 3 Pole-4 Ways Selector Switch With “0” position		
M Z 3 5	 45°	 3 Pole-5 Ways Selector Switch With “0” position		
M Z 4 2	 45°	 4 Pole-2 Ways Selector Switch With “0” position		
M Z 4 3	 45°	 4 Pole-3 Ways Selector Switch With “0” position		
M Z 4 4	 45°	 4 Pole-4 Ways Selector Switch With “0” position		


TRS
T
SERIES
Cam Switches
12-40 A

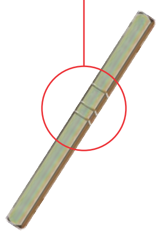
T Series

- Current Rating from 12A to 40A
- IP65 degree protection of front panel
- Highest Technical Specifications
- Attractive appearance & Modular design
- High variety of functions & models

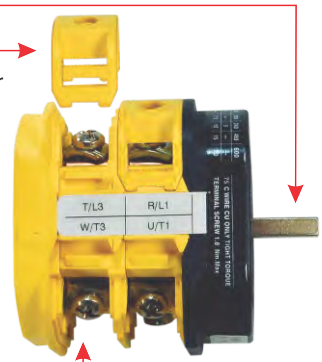
Model **RY** / **BY**
Model **RK** / **BK**
Model **RM** / **BM**
Model **RT** / **BT**
Model **RP** / **BP**
Model **RQ** / **BQ**

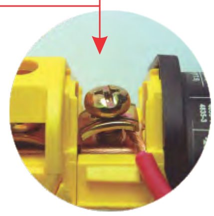
- Terminal protection degree IP20 (Finger Proof)
- Front panel protection degree IP65
- Rotation angles
  30°, 45°, 60°, 90°

- The length of the shaft that comes out of the cam switch is adjustable without any need to disassemble the switch. Using a simple mechanism, the shaft can be relased to stay out 7mm more, or 4mm less, from its orginal position.



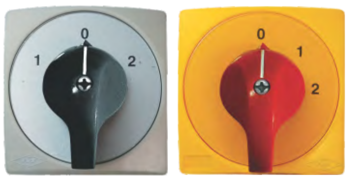
- Removable Terminal Cover





- Terminal screws equipped with self-raising washers to facilitate wiring.

(48 x 48mm)



(67 x 67mm)

(67 x 67mm)

(67 x 82mm)

(67 x 82mm)

- Front panel knob and plate are available in two colors and three sizes; normal or with padlock holes.

- Double-break bimetal contacts made of silver alloy and copper.

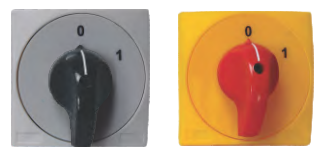
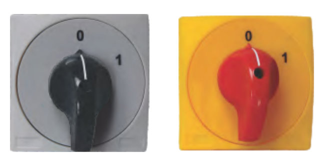
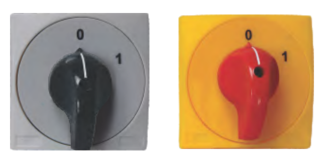
- Non-electrical parts of cam switch are manufactured by reinforced flame retardant class V-0 polyamide with UL94 flammability safety and high mechanical and electrical resistance.

Technical data table

Amper Code			012	016	025	032	040
Rated insulation voltage	Ui	V	690	690	690	690	690
Rated operating voltage	Ue	V	690	690	690	690	690
Rated impulse withstand voltage	Uimp	KV	6	6	6	6	6
Rated thermal current for open switch	Ith	A	16	20	32	32	40
Rated thermal current for enclosed switch	Ithe	A	16	20	32	32	40
Rated operating frequency		Hz	50	50	50	50	50
Rated dissipation for each pole		W	0.27	0.5	1	1	1.3
Rated operating current							
AC-21A Switching resistive loads, including moderate overloads	Ie	A	12	16	25	32	40
AC-22A Switching of mixed resistive and inductive loads, including moderate overloads	Ie	A	12	16	20	25	32
AC-20A Connecting and disconnecting under no load conditions			—	—	—	—	—
Rated operating power							
AC-23A Switching of motor loads or other highly inductive loads 3 phase-3pole	230V	Kw(A)	3(9)	4(14)	7.5(24)	8.5(27)	10(32)
	400V	Kw(A)	4(9)	7.5(14)	11(20)	15(27)	18.5(30)
	500V	Kw(A)	—	—	11(15)	15(22)	18.5(27)
	690V	Kw(A)	—	—	11(11)	15(16)	18.5(19)
AC-23A Switching of motor loads or other highly inductive loads 1 phase-2pole	110V	Kw(A)	0.75(8.5)	1.1(12)	2.2(25)	2.2(25)	3(34)
	230V	Kw(A)	1.5(8.5)	22(14)	3.7(20)	3.7(20)	5.5(30)
AC-3 Squirrel cage motors: Starting, switching off motors during running 3 phase-3 pole	230V	Kw(A)	22(7)	3.7(12)	5.5(17)	5.5(17)	7.5(24)
	400V	Kw(A)	3.5(7)	5.5(10)	9.5(16)	10(17)	15(27)
	500V	Kw(A)	—	—	9.5(12.5)	10(14)	15(22)
	690V	Kw(A)	—	—	8.5(10)	10(10)	16(16)
AC-3 Squirrel cage motors: Starting, switching off motors during running 1 phase-2 pole	110V	Kw(A)	0.37(4)	0.75(9)	1.5(17)	1.5(17)	22(25)
	230V	Kw(A)	1.1(6)	1.5(8)	3(17)	3(17)	4.5(25)
	400V	Kw(A)	—	—	—	—	—
AC-4 Squirrel cage motors: Starting, plugging, inching	230V	Kw(A)	—	—	22(7)	22(7)	3(10)
	400V	Kw(A)	—	—	3(5.5)	3(5.5)	5.5(10)
AC-15 Control of AC electromagnetic loads	230V	A	4	6	8	8	10
	400V	A	3	4	6	6	8
Rated breaking capability in category in AC-23A (cos φ =0.45)	230V	A	72	112	192	216	256
	400V	A	72	112	160	216	240
Short circuit protection							
Rated short time withstand current	Icw	A	150	240	400	400	500
Rated short-circuit make capacity	Icm	A	—	—	2000	2000	2000
Rated conditional short-circuit current		KA	4	4	10	10	10
With fuses class gG	500v	A	16	20	35	35	50
Protection against short circuit			NDZ	NDZ	NDZ	NDZ	DZ
Maximum current rapid and Time-delay fuses for open version		A	16	20	35	35	50
Maximum current for Time-delay fuses for version in box		A	—	16	25	25	40
Rated interruption power		A	96	128	260	260	400
		Vac	418	418	660	660	660
		Cos(φ)	0.65	0.65	0.35	0.35	0.35
Electrical life		Cyclesx10^6	0.5	0.8	1	1	0.3
Mechanical life		Cyclesx10^6	2	2	2	2	2
		Cycles/hour	120	120	120	120	120
Rated insulation voltage	UL	V	600	600	600	600	600
Rated operating voltage	UL	V	600	600	600	600	600
General Use Current	UL	A	12	16	25	32	40
Rated operating power							
1 phase - 2 pole	120V	Hp (A)	0.5	1	2	2	3
	240V	Hp (A)	1.5	2	3	3	5
3 phase - 3 pole	200V	Hp (A)	1.5	2	5	5	7.5
	240V	Hp (A)	2	3	5.5	7.5	10
	480V	Hp (A)	3	7.5	10	10	15
	600V	Hp (A)	5	7.5	15	15	20
Connections according to IEC 9471-1 AND EN 60947-1							
Connecting capability with flexible wires	Min-Max	mm2	2x1.5-4	2x1.5-4	2x2.5-10	2x2.5-10	2x2.5-10
	Min-Max	AWG	16-10	16-10	16-8	16-8	16-8
Connecting capability with soild wires	Min-Max	mm2	2x1.5-2.5	2x1.5-2.5	2x2.5-6	2x2.5-6	2x2.5-6
Connecting terminal screw dimensions		Type	M3.5x7	M3.5x7	M5x16	M5x10	M5x10
Screw tightening torque		Nm	1.0	1.0	1.7	1.7	1.7
Protection degree IEC 529 EN 60529							
Terminal		IP	00				
Ambient conditions							
Operating ambient temperature		°C	-25~+55				
Storage ambient temperature		°C	-30~+70				
Withstand to constant humid according to IEC 60068			2-78				
Withstand to cyclic humid according to IEC 60068			2-30				
Altitude		m	Max:2000m				
Humidity		Percent	Max:90%				
Pollution degree			3				
Installation Group			Ⅲ				

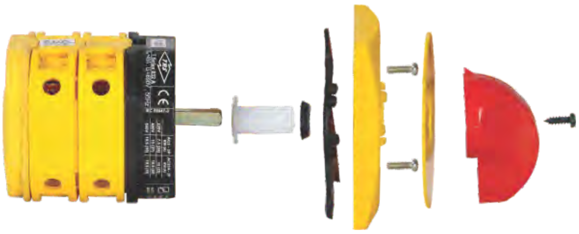
Model Selection Table

Cam Switches
T Series

Picture	Model Code	Front panel Dimensions	Amp Code 012	016	025	032	040	Ref. to Page	Short Description **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate
	BY1 RY1	48x48	✓	✓				25	Ip65 General use Attractive design Front & base mounting options DIN rail mounting option (optional adapter)
	BY2 RY2	67x67	✓	✓	✓	✓	✓		
	BY3 RY3	67x82	✓	✓	✓	✓	✓		
	BK2 RK2	67x67	✓	✓	✓	✓	✓	26	All RY/BY models Specifications + Lockable with a padlock
	BK3 RK3	67x82	✓	✓	✓	✓	✓		
	BM2 RM2	67x67			✓	✓	✓	27	All RY/BY models Specifications+ Panel door interlocking mechanism
	BM3 RM3	67x82			✓	✓	✓		
	BT1 RT1	48x48	✓	✓				28	All RY/BY modelsSpecifications+ Snap-on 22mm mounting hole Designed to be easily installable by hand only
	BT2 RT2	67x67	✓	✓	✓	✓	✓		
	BT3 RT3	67x82	✓	✓	✓	✓	✓		

Picture	Model Code	Front panel Dimensions	Amp Code 012	Amp Code 016	Amp Code 025	Amp Code 032	Amp Code 040	Ref. to Page	Short Description (B: Black knob & Gray rectangular plate; R: Red knob & Yellow rectangular plate)
	BP2 RP2	67x67			✓	✓	✓	29	All RY/BY models Specifications + Lockable with a padlock Panel door interlocking mechanism
	BP3 RP3	67x82			✓	✓	✓		
	BQ3 RQ2	67x67	✓	✓	✓	✓	✓	30	All RY/BY models Specifications + Lockable with a padlock Snapp-on 22mm mountin holes Easy to connect wires by hand only
	BQ3 RQ3	67x82	✓	✓	✓	✓	✓		

RY-BY Model



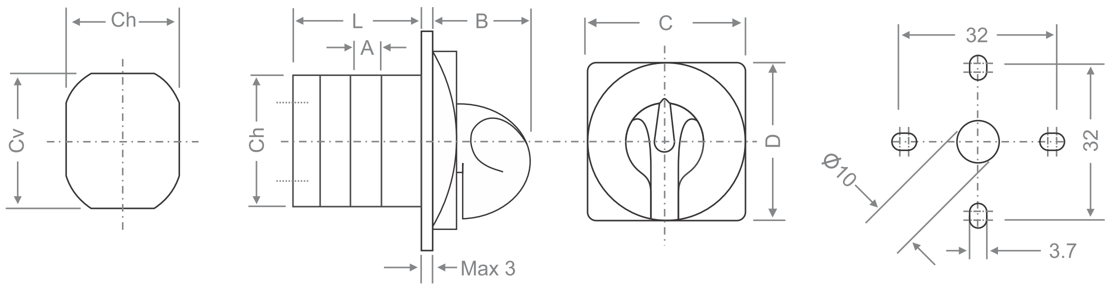
Features

- Most generally used model
- IP65 degree of protection against dust and water
- Attractive design
- Front & base mounting options
- DIN rail mounting option (optional adapter)
- **BY:** Black knob & Gray rectangular front plate
- **RY:** Red knob & Yellow rectangular front plate
- In comparison with BY2/RY2 model, the BY3/RY3 model, has an additional area for label stand, with a transparent protection cover

RY-BY Model Selection Table

Picture **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate	Model Code	Front panel Dimensions	Amp Code 012	Amp Code 016	Amp Code 025	Amp Code 032	Amp Code 040
 	BY1 RY1	48x48	✓	✓			
	BY2 RY2	67x67	✓	✓	✓	✓	✓
 	BY3 RY3	67x82	✓	✓	✓	✓	✓

Technical drawings & drilling guide:



RY&BY							
Switch Amp Code	Cv	Ch	NO.Of Stages 1	2	3	4	5
			L*				
012	53	43	39	51	63	75	87
016	53	43	39	51	63	75	87
025	64	54	44	60	76	92	108
032	64	54	44	60	76	92	108
040	64	54	44	60	76	92	108

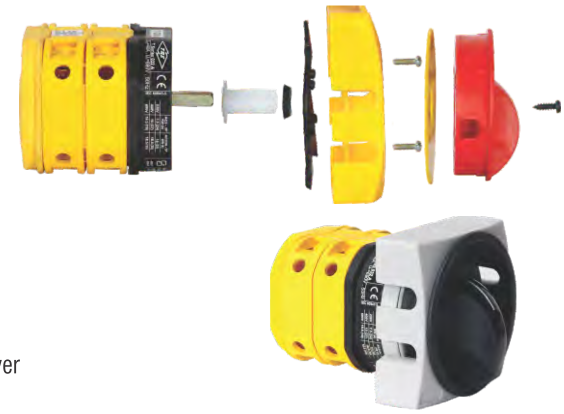
Model Code		A	B	C	D
RY1	BY1	12	37	48	48
RY2	BY2	16	39	68	68
RY3	BY3	16	39	68	83

*. For stages more than 5, please add one “A” for each stage, to the “L” of the cam switch.
LX=L1+(X-1)xA L1=L of a one-stage cam switch, X=Number of Stages, LX=L of a cam switch with X stages.

RK-BK Model

Features

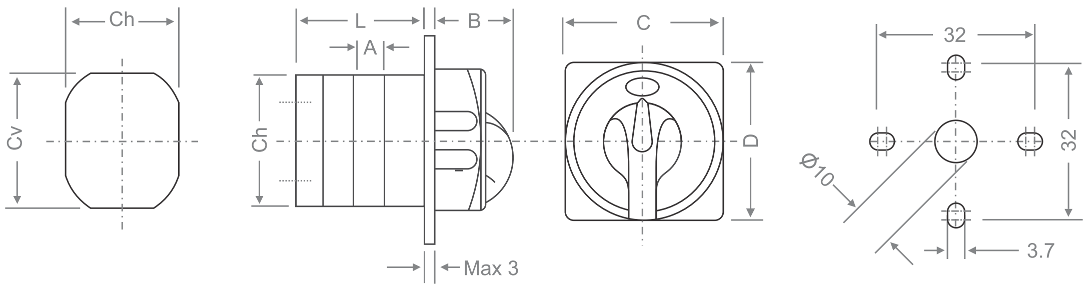
- Lockable with a small padlock in three positions
- IP65 degree of protection against dust and water
- Attractive design
- Front & base mounting options
- DIN rail mounting option (optional adapter)
- **BK**: Black knob & Gray rectangular front plate
- **RK:** Red knob & Yellow rectangular front plate
- In comparison with BK2/RK2 model, the BK3/RK3 model,
  has an additional area for label stand, with a transparent protection cover



RK-BK Model Selection Table

Picture **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate	Model Code	Front panel Dimensions	Amp Code 012	Amp Code 016	Amp Code 025	Amp Code 032	Amp Code 040
	BK2 RK2	67x67	✓	✓	✓	✓	✓
	BK3 RK3	67x82	✓	✓	✓	✓	✓

Technical drawings & drilling guide:



RK&BK							
Switch Amp Code	Cv	Ch	NO.Of Stages 1	2	3	4	5
			L*				
012	53	43	39	51	63	75	87
016	53	43	39	51	63	75	87
025	64	54	44	60	76	92	108
032	64	54	44	60	76	92	108
040	64	54	44	60	76	92	108

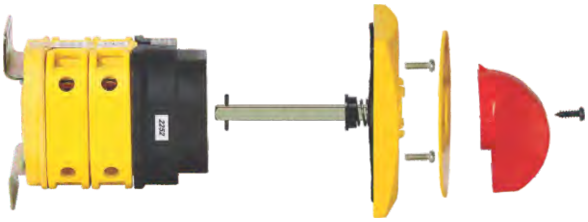
Model Code		A**	B	C	D
RK2	BK2	16	39	68	68
RK3	BK3	16	39	68	83

*. For stages more than 5, please add one "A" for each stage, to the "L" of the cam switch.
LX=L1+(X-1)xA L1=L of a one-stage cam switch, X=Number of Stages, LX=L of a cam switch with X stages.
**.For T012 & T016 dimension "A" is 12 mm..

RM-BM Model

Features

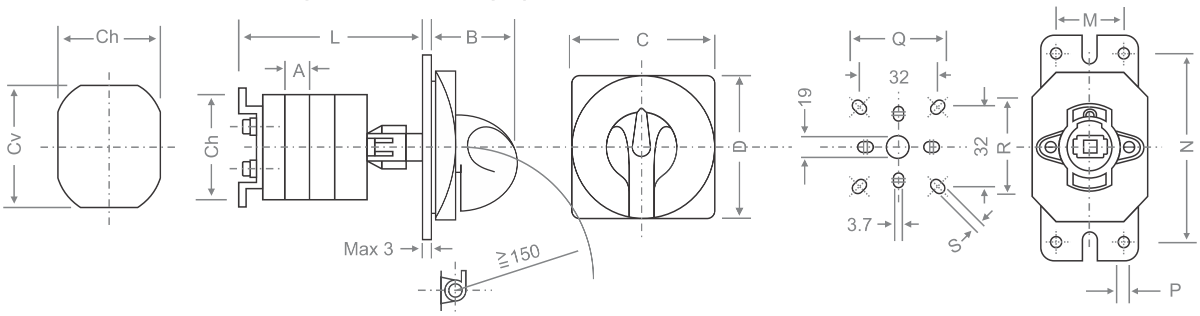
- In order to maintain safety, this model has an extended shaft and interlocking mechanism with the panel/box door, so it can be opened only when the cam switch is set to OFF position.
- IP65 degree of protection against dust and water
- Attractive design
- Front & base mounting options
- DIN rail mounting option (optional adapter)
- **BM:** Black knob & Gray rectangular front plate
- **RM:** Red knob & Yellow rectangular front plate
- In comparison with BM2/RM2 model, the BM3/RM3 model, has an additional area for label stand, with a transparent protection cover



RM-BM Model Selection Table

Picture **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate		Model Code	Front panel Dimensions	Amp Code 012	016	025	032	040
		BM2 RM2	67x67			✓	✓	✓
		BM3 RM3	67x82			✓	✓	✓

Technical drawings & drilling guide:



RM&BM

Switch Amp Code	Cv	Ch	M	N	P	NO.Of Stages 1 (L*)	2	3	4	5
025	64	54	18	72	4.3	96	112	128	144	160
032	64	54	18	72	4.3	96	112	128	144	160
040	64	54	18	72	4.3	96	112	128	144	160

Model Code		A	B	C	D	Q	R	S
RM2	BM2	16	39	68	68	36-38	36-38	3.5
RM3	BM3	16	39	68	83	36-48	36-48	3.7

*. For stages more than 5, please add one "A" for each stage, to the "L" of the cam switch.

LX=L1+(X-1)xA L1=L of a one-stage cam switch, X=Number of Stages, LX=L of a cam switch with X stages.

RT-BT Model

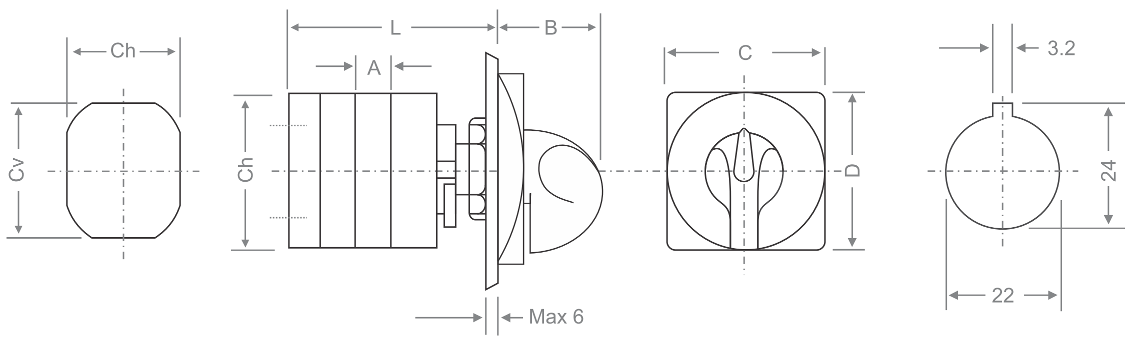
Features

- Snap-on 22mm mounting hole
- Designed to be easily installable by hand only
- IP65 degree of protection against dust and water
- Attractive design
- Front & base mounting options
- DIN rail mounting option (optional adapter)
- **BT:** Black knob & Gray rectangular front plate
- **RT:** Red knob & Yellow rectangular front plate
- In comparison with BT2/RT2 model , the BT3/RT3 model, has an additional area for label stand, with a transparent protection cover

RT-BT Model Selection Table

Picture (B: Black knob & Gray rectangular plate; R: Red knob & Yellow rectangular plate)		Model Code	Front panel Dimensions	Amp Code 012	Amp Code 016	Amp Code 025	Amp Code 032	Amp Code 040
		BT1 RT1	48x48	✓	✓			
		BT2 RT2	67x67	✓	✓	✓	✓	✓

Technical drawings & drilling guide:



RT&BT

Switch Amp Code	Cv	Ch	NO.Of Stages 1 (L*)	2	3	4	5
012	53	43	65	77	89	102	Max 6
016	53	43	65	77	89	102	Max 6

Model Code		A	B	C	D
RT1	BT1	12	37	48	48
RT2	BT2	12	39	68	68
RT3	BT3	12	39	68	83

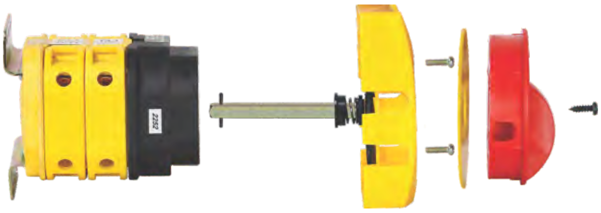
*. For stages more than 5, please add one “A” for each stage, to the “L” of the cam switch.

LX=L1+(X-1)xA L1=L of a one-stage cam switch, X=Number of Stages, LX=L of a cam switch with X stages.

RP-BP Model

Features

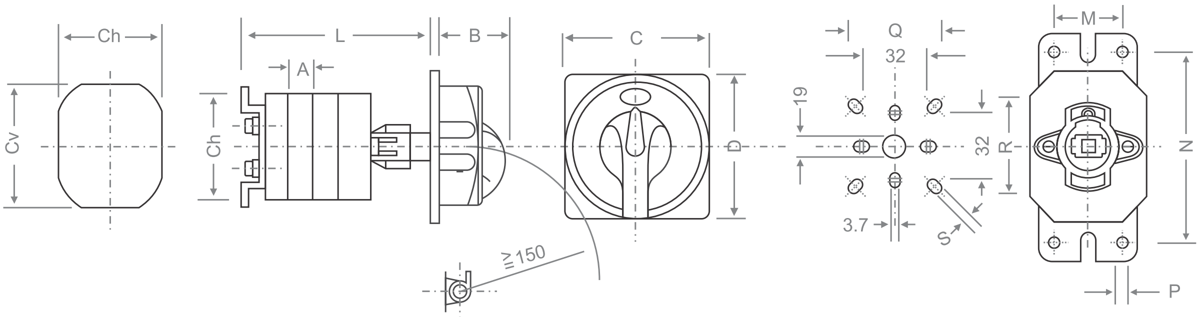
- In order to maintain safety, this model has an interlocking mechanism with the panel/box door, so it can be opened only when the cam switch is set to OFF position.
- Lockable with a small padlock in three positions
- IP65 degree of protection against dust and water
- Attractive design
- Front & base mounting options
- DIN rail mounting option (optional adapter)
- **BP:** Black knob & Gray rectangular front plate
- **RP:** Red knob & Yellow rectangular front plate
- In comparison with BP2/RP2 model , the BP3/RP3 model, has an additional area for label stand, with a transparent protection cover



RP-BP Model Selection Table

Picture **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate	Model Code	Front panel Dimensions	Amp Code 012	016	025	032	040
	BP2 RP2	67x67			✓	✓	✓
	BP3 RP3	67x82			✓	✓	✓

Technical drawings & drilling guide:



RP&BP

Switch Amp Code	Cv	Ch	M	N	P	NO.Of Stages L* 1	2	3	4	5
025	64	54	18	72	4.3	96	112	128	144	160
032	64	54	18	72	4.3	96	112	128	144	160
040	64	54	18	72	4.3	96	112	128	144	160

Model Code		A	B	C	D	Q	R	S
RP2	BP2	16	39	68	68	36-38	36-38	3.5
RP3	BP3	16	39	68	83	36-48	36-48	3.7

*. For stages more than 5, please add one “A” for each stage, to the “L” of the cam switch.
LX=L1+(X-1)xA L1=L of a one-stage cam switch, X=Number of Stages, LX=L of a cam switch with X stages.

RQ-BQ Model

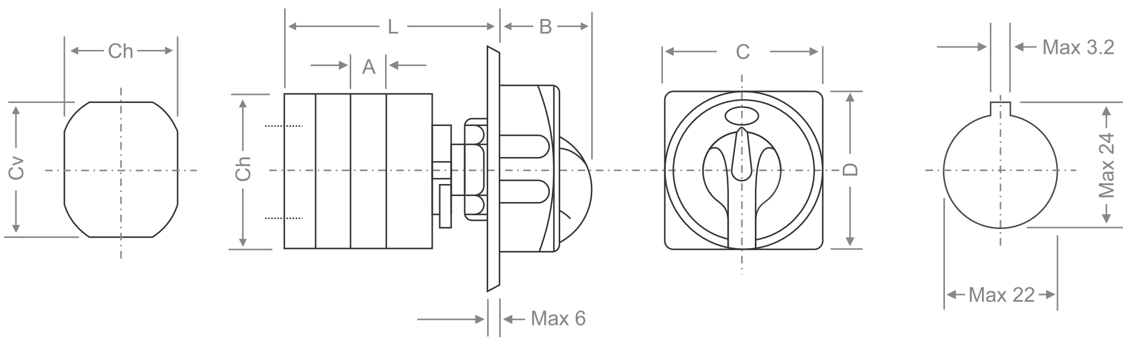
Features

- In order to maintain safety, this model has an interlocking mechanism with the panel/box door, so it can be opened only when the cam switch is set to OFF position.
- Snap-on 22mm mounting holes
- Easy to connect wires by hand only
- IP65 degree of protection against dust and water
- Attractive design
- Front & base mounting options
- DIN rail mounting option (optional adapter)
- **BQ:** Black knob & Gray rectangular front plate
- **RQ:** Red knob & Yellow rectangular front plate
- In comparison with BQ2/RQ2 model , the BQ3/RQ3 model, has an additional area for label stand, with a transparent protection cover

RQ-BQ Model Selection Table

Picture **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate	Model Code	Front panel Dimensions	Amp Code 012	016	025	032	040
	BQ3 RQ2	67x67	✓	✓	✓	✓	✓
	BQ3 RQ3	67x82	✓	✓	✓	✓	✓

Technical drawings & drilling guide:



RQ&BQ							
Switch Amp Code	Cv	Ch	NO.Of Stages 1	2	3	4	5
			L*				
012	53	43	65	77	89	102	Max 6
016	53	43	65	77	89	102	Max 6

Model Code		A	B	C	D
RQ2	BQ2	12	39	68	68
RQ3	BQ3	12	39	68	83

*. For stages more than 5, please add one “A” for each stage, to the “L” of the cam switch.
LX=L1+(X-1)xA L1=L of a one-stage cam switch, X=Number of Stages, LX=L of a cam switch with X stages.

G SERIES

Cam Switches

12-630 A

G Series

- Complete current rating range from 12A to 630A
- Conformity with International standards IEC60947-1,3 & ISIRI48350-1,3
- Wide range of switch functions for resistive, inductive or capacitive loads
- Made of best material, with high mechanical, electrical & thermal resistance
- Fast and easy installation

Model **GL**
Model **DI**
Model **LK**
Model **IK**
Model **TL**
Model **LL1**
Model **KS**
Model **CO**

G Series Cam Switches

DI Model

TL Models

GL Model

LL1 Model

IK Models

LK Models

CO Model

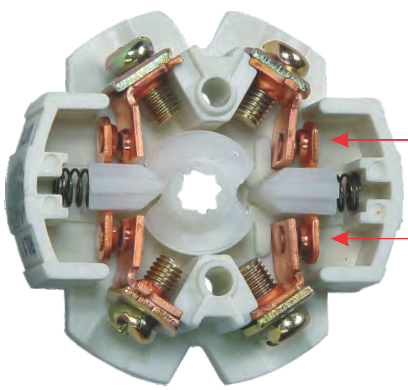
CO Model

KS Model

- Degree of protection for the operating handle is IP40 (*)
- Fixing the contact stages by means of long bolts and nuts.
- For 12A up to 100A Cam Switches, terminals are equipped with cable clamps
  For 125A and above, terminals have proper connections for cable shoes
- Degree of protection for the terminal is IP00(*)

Different Switching angles
30°, 45°, 60°, 90°

- Manufactured from heat resistant and self flame extinguishing materials, which have long mechanical and electrical life.
- Available in ratings from 12 to 630 A



- Double-break bimetal contacts made of silver alloy and copper.

* The degree of protection can be increased by means of optional protective parts.

Technical data table

Amper Code			012	016	025	032
Rated insulation voltage	Ui	V	690	690	690	690
Rated operating voltage	Ue	V	690	690	690	690
Rated impulse withstand voltage	Uimp	KV	6	6	6	6
Rated thermal current for open switch	Ith	A	16	20	32	32
Rated thermal current for enclosed switch	Ithe	A	16	20	32	32
Rated operating frequency		Hz	50	50	50	50
Rated dissipation for each pole		W	0.27	0.5	0.4	1
Rated operating current						
AC-21A Switching resistive loads, including moderate overloads	Ie	A	12	16	25	32
AC-22A Switching of mixed resistive and inductive loads, including moderate overloads	Ie	A	12	16	20	25
AC-20A Connecting and disconnecting under no load conditions			—	—	—	—
Rated operating power						
AC-23A Switching of motor loads or other highly inductive loads 3 phase-3pole	230V	Kw(A)	3(9)	4(14)	7.5(24)	8.5(27)
	400V	Kw(A)	4(9)	7.5(14)	11(20)	15(27)
	500V	Kw(A)	—	—	11(15)	15(22)
	690V	Kw(A)	—	—	11(11)	15(16)
AC-23A Switching of motor loads or other highly inductive loads 1 phase-2pole	110V	Kw(A)	0.75(8.5)	1.1(12)	2.2(25)	2.2(25)
	230V	Kw(A)	1.5(8.5)	22(14)	3.7(20)	3.7(20)
AC-3 Squirrel cage motors: Starting, switching off motors during running 3 phase-3 pole	230V	Kw(A)	22(7)	3.7(12)	5.5(17)	5.5(17)
	400V	Kw(A)	3.5(7)	5.5(10)	9.5(16)	10(17)
	500V	Kw(A)	—	—	9.5(12.5)	10(14)
	690V	Kw(A)	—	—	8.5(10)	10(10)
AC-3 Squirrel cage motors: Starting, switching off motors during running 1 phase-2 pole	110V	Kw(A)	0.37(4)	0.75(9)	1.5(17)	1.5(17)
	230V	Kw(A)	1.1(6)	1.5(8)	3(17)	3(17)
	400V	Kw(A)	—	—	—	—
AC-4 Squirrel cage motors: Starting, plugging, inching	230V	Kw(A)	—	—	22(7)	22(7)
	400V	Kw(A)	—	—	3(5.5)	3(5.5)
AC-15 Control of AC electromagnetic loads	230V	A	4	6	8	8
	400V	A	3	4	6	6
Rated breaking capability in category in AC-23A (cos$^{\varphi}$=0.45)	230V	A	72	112	192	216
	400V	A	72	112	160	216
Short circuit protection						
Rated short time withstand current	Icw	A	150	240	400	400
Rated short-circuit make capacity	Icm	A	—	—	2000	2000
Rated conditional short-circuit current		KA	4	4	10	10
With fuses class gG	500v	A	16	20	35	35
Protection against short circuit			NDZ	NDZ	NDZ	NDZ
Maximum current rapid and Time-delay fuses for open version		A	16	20	35	35
Maximum current for Time-delay fuses for version in box		A	—	16	25	25
Rated interruption power		A	96	128	260	260
		V_{ac}	418	418	660	660
		Cos(φ)	0.65	0.65	0.35	0.35
Electrical life		Cycles$\times10^6$	0.5	0.8	1	1
		Cycles$\times10^6$	2	2	1.5	1.5
Mechanical life		Cycles/hour	120	120	120	120
Rated insulation voltage	Ui	UL/CSA V	600/ -	600/ -	600/600	600/600
Rated operating voltage	Ue	UL/CSA V	600/ -	600/ -	600/600	600/600
General Use Current	Ie	UL/CSA A	12	16	25/25	35/25
Short Circuit Rating@600Vac		Arms	5000	5000	—	—
Fuse size (Class RK5, 600Vac, 200kA A.I.C.)		A	60	25 (30)	—	—
Rated operating power						
1 phase - 2 pole	120V	Hp (A)	0,5 (9,8)	1 (16)	2/ -	2/ -
	240V	Hp (A)	1,5 (10)	2 (12)	3/ 6	5/ -
3 phase - 3 pole	200V	Hp (A)	1,5 (6,9)	2 (7,8)	5/ -	7,5/5
	240V	Hp (A)	2 (6,8)	3 (9,6)	7,5/ -	10/ -
	480V	Hp (A)	3 (4,8)	7,5 (11)	10/ -	15/ -
	600V	Hp (A)	5 (6,1)	7,5 (9)	10/15	15/ 17
Connections according to IEC 9471-1 AND EN 60947-1						
Connecting capability with flexible wires	Min-Max	mm^2	2x1.5-4	2x1.5-4	2x2.5-10	2x2.5-10
	Min-Max	AWG	16-10	16-10	16-8	16-8
Connecting capability with soild wires	Min-Max	mm^2	2x1.5-6	2x1.5-6	2x2.5-16	2x2.5-16
Connecting terminal screw dimensions		Type	M3.5x7	M3.5x7	M5x10	M5x10
Screw tightening torque		Nm	1.0	1.0	1.0	1.0
Protection degree IEC 529 EN 60529						
Terminal		IP				
Ambient conditions						
Operating ambient temperature		°C				
Storage ambient temperature		°C				
Withstand to constant humid according to IEC 60068						
Withstand to cyclic humid according to IEC 60068						
Altitude		m				
Humidity		Percent				
Pollution degree						
Installation Group						

040	050	063	080	100	125	200	250	400	500	630
690	690	690	690	690	690	690	690	690	690	690
690	690	690	690	690	690	690	690	690	690	690
6	6	6	6	6	6	6	6	6	6	6
40	50	75	80	115	125	200	250	400	500	630
40	50	50	60	100	115	160	—	—	—	—
50	50	50	50	50	50	50	50	50	50	50
1.3	1.6	2.5	3	3.7	5	7	11	15	25	30
40	50	75	100	115	130	160	190	—	—	—
32	40	63	80	110	125	160	190	—	—	—
—	—	—	—	—	—	—	—	400	500	630
10(32)	15(48)	18.5(58)	22.3(74)	30(95)	35(113)	40(125)	—	—	—	—
18.5(30)	25(45)	30(54)	39(78)	40(85)	51(96)	59(106)	—	—	—	—
18.5(27)	32(48)	22(32)	27(38)	30(40)	54(81)	75(108)	—	—	—	—
18.5(19)	22(23)	—	—	—	—	—	—	—	—	—
3(34)	3.7(42)	5.5(63)	7.4(82)	9(102)	10(112)	11(125)	—	—	—	—
5.5(30)	7.5(40)	10(32)	13(55)	15(82)	18(103)	22(120)	—	—	—	—
7.5(24)	11(35)	15(47)	19(59)	22(70)	26(82)	30(95)	—	—	—	—
15(27)	18(33)	22(40)	31(53)	37(67)	40(72)	45(82)	—	—	—	—
15(22)	22(32)	22(32)	26(36)	30(40)	48(65)	59(85)	—	—	—	—
16(16)	20(20)	—	—	—	—	—	—	—	—	—
22(25)	3.7(42)	4(45)	6.2(65)	7.5(85)	8.3(94)	9(102)	—	—	—	—
4.5(25)	7.5(40)	7.5(40)	9.2(50)	11(60)	13(72)	15(82)	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
3(10)	3.7(12)	5.5(17)	6.5(52)	7.5(85)	—	—	—	—	—	—
5.5(10)	6(11)	7.5(14)	9.5(18)	11(20)	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—
256	384	464	612	760	890	1000	—	—	—	—
240	360	432	580	680	720	848	—	—	—	—
500	600	800	1200	1500	1800	2000	2500	—	—	—
2000	2000	2500	2500	3000	3000	3000	3000	—	—	—
10	15	15	15	15	15	15	15	—	—	—
50	50	63	90	125	160	200	250	—	—	—
DZ	DZ	DZ	DZ	ZH	ZH	ZH	ZH	—	—	—
50	50	80	80	125	125	200	200	—	—	—
40	40	63	63	100	100	200	200	—	—	—
400	400	600	600	720	720	720	720	—	—	—
660	660	660	660	660	660	660	660	—	—	—
0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	—	—	—
0.3	0.3	0.3	0.3	0.05	0.05	0.05	0.05	0.05	0.05	0.05
1.5	1.5	1	1	0.3	0.3	0.1	0.1	0.2	0.2	0.2
120	120	120	120	30	30	30	30	30	30	30
600/600	600/600	600/600	600/600	600/600	600/600	600/-	600/-	600/-	600/-	600/-
600/600	600/600	600/600	600/600	600/600	600/600	600/-	600/-	600/-	600/-	600/-
40/32	60/40	85/63	125/100	180/150	240/-	320/-	320/-	400/-	500/-	630/-
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
3/ 2,5	5/ -	7,5/ -	10/5	12/5	—	—	—	—	—	—
7,5/ 4,5	10/ -	10/ -	15/12	15/12	—	—	—	—	—	—
10/ -	15/ -	20/ -	20/-	20/-	—	—	—	—	—	—
15/ 9,5	20/ -	20/ -	25/24	25/24	—	—	—	—	—	—
20/ 20	30/ -	30/ -	40/50	40/50	—	—	—	—	—	—
20/ 25	30/32,5	40/50	50/65	50/65	—	—	—	—	—	—
2×2.5-10	2×2.5-6	6-16	6-16	10-25	10-25	50-70	50-70	—	—	—
16-8	14-8	10-6	10-6	10-3	10-3	1/0-2/0	1/0-2/0	—	—	—
2×2.5-16	2×4-10	10-25	10-25	10-25	10-25	16-35	16-35	—	—	—
M5×12	M5×12	M5×14	M5×14	M8×20	M8×20	M10×16	M10×16	M12×20	M12×20	M16×25
2.8	2.8	2.8	2.8	2.8	2.8	23	23	40	40	98

00

-25 ~ +55

-30 ~ +70

2-78

2-30

Max:2000m

Max:90%

3

Ⅲ

Model Selection Table

Cam Switches
G Series

Picture	Model Code	Front panel Dimensions
	GL1	52x52
	GL2	75x75
	GL3	105x105
	GL4	130x130
	GL5	130x130
	DI2	75x75
	DI3	105x105
	DI4	130x130
	DI5	130x130
	LK2	75x75
	LK3	105x105
	LK4	130x130
	IK2	75x75
	IK3	105x105
	IK4	130x130
	TL1	52x52
	TL2	75x75
	LL1	52x70
	KS	75x75
	CO	

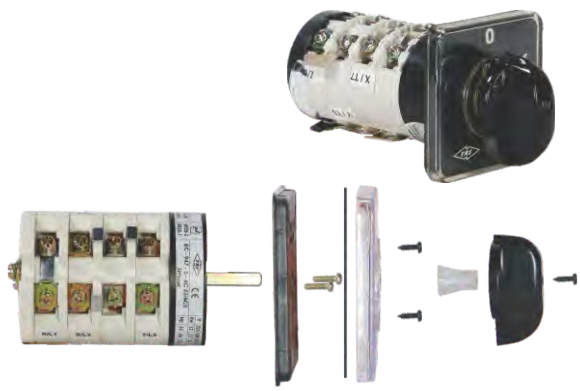
Model Selection Table

Amp Code															Ref. to Page	Short Description
012	016	025	032	040	050	063	080	100	125	200	250	400	500	630		All models available with black or red knob and black or yellow legend plate color
✓	✓														39	IP 40 General application Full amp range Front & base mounting options
✓	✓	✓	✓	✓												
			✓	✓	✓	✓	✓									
								✓	✓	✓	✓					
												✓	✓	✓		
		✓	✓	✓											40	IP 40 General application Panel door interlocking mechanism
			✓	✓	✓	✓	✓									
								✓	✓	✓	✓					
												✓	✓	✓		
✓	✓	✓	✓	✓											41	IP 54 General application Full amp range Lockable with a padlock
			✓	✓	✓	✓	✓									
								✓	✓	✓	✓	✓	✓	✓		
		✓	✓	✓											42	IP 54 General application Lockable with a padlock Panel door interlocking mechanism
			✓	✓	✓	✓	✓									
								✓	✓	✓	✓					
✓	✓														43	Same as GL1 & GL2 with a different knob design
✓	✓	✓	✓	✓												
✓	✓														44	Same as GL1 with protected label area on front plate
✓	✓														45	Control switch panel mount Mountable on standard 22mm hole Key control switch can be taken out only at "0" position IP65 protection degree KS Model
Configuration based on request															46	A combination of co-axial cam switches with Power & Signal contacts together. Best economical & technical solution instead of two signal and power cam switches.

GL Model

Features

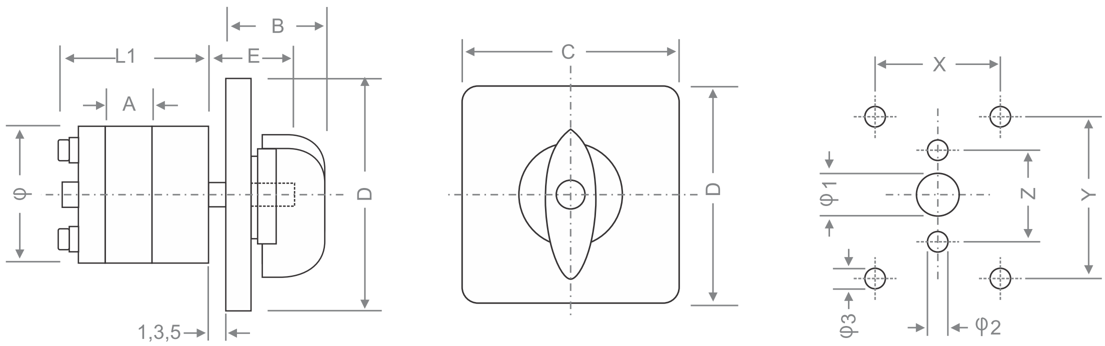
- General use and application
- Full amp range
- IP40 degree protection of front panel against dust and water
- Front & base mounting options
- DIN rail mounting option (optional adapter)



GL Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code														
			012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
	GL1	52x52	✓	✓													
	GL2	75x75	✓	✓	✓	✓	✓										
	GL3	105x105				✓	✓	✓	✓	✓							
	GL4	130x130									✓	✓	✓	✓			
	GL5	130x130													✓	✓	✓

Technical drawings & drilling guide:



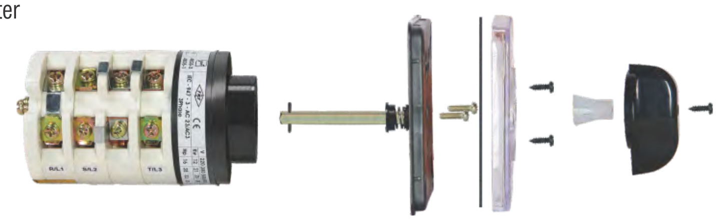
GL														
Model Code	Amp. Code	φ	L1*	A	B	C	D	E	$φ_1$	$φ_2$	$φ_3$	X	Y	Z
GL1	012	40	40	12	30	52.5	52.5	22	10	3.7	—	—	—	28
	016	40	40	12	30	52.5	52.5	22	10	3.7	—	—	—	28
GL2	012	40	40	12	32	75	75	22	10	3.7	—	—	—	28
	016	40	40	12	32	75	75	22	10	3.7	—	—	—	28
	025	58	48	17	32	75	75	26	10	3.7	—	—	—	28
	032	58	48	17	32	75	75	26	10	3.7	—	—	—	28
GL3	040	74	53	19	44	105.5	105.5	33	14	5.5	—	—	—	40
	050	74	53	19	44	105.5	105.5	33	14	5.5	—	—	—	40
	063	84	62	25	44	105.5	105.5	33	14	5.5	—	—	—	40
	080	84	62	25	44	105.5	105.5	33	14	5.5	—	—	—	40
GL4	100	110	81	30	62	130	130	44	20	—	5.5	30	90	—
	125	110	81	30	62	130	130	44	20	—	5.5	30	90	—
	200	110	90	39	62	130	130	44	20	—	5.5	30	90	—
	250	110	90	39	62	130	130	44	20	—	5.5	30	90	—
GL5	400	110	129	78	72	130	130	54	20	—	5.5	30	90	—
	500	110	129	78	72	130	130	54	20	—	5.5	30	90	—
	630	110	168	117	84	130	130	67	20	—	5.5	30	90	—

*. L1 is the length of a one stage cam switch. For more stages, please add one "A" for each stage, to the "L1" of the cam switch.
LX=L1+(X-1)xA X=Number of Stages, LX=L of a cam switch with X stages.

DI Model

Features

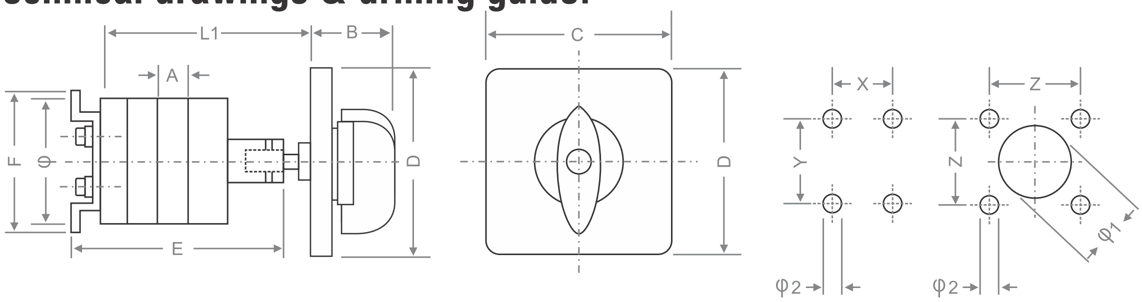
- In order to maintain safety, this model has an interlocking mechanism with the panel/box door, so it can be opened only when the cam switch is set to OFF position.
- General use and application
- IP40 degree protection of front panel against dust and water
- Front & base mounting options
- DIN rail mounting option (optional adapter)



DI Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code														
			012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
 	DI2	75x75			✓	✓	✓										
	DI3	105x105				✓	✓	✓	✓	✓							
	DI4	130x130									✓	✓	✓	✓			
 	DI5	130x130													✓	✓	✓

Technical drawings & drilling guide:



DI													
Model Code	Amp. Code	F	L1*	A	B	C	D	E	φ	$φ_1$	$φ_2$	X	Y	Z
DI2	025	73.5	103	17	32	75	75	95.5	58	27	4.3	18	61	58-60
	032	73.5	103	17	32	75	75	95.5	58	27	4.3	18	61	58-60
DI3	032	100	120	19	44	105.5	105.5	108	74	40	5.3	26	87	65-85
	040	100	120	19	44	105.5	105.5	108	74	40	5.3	26	87	65-85
	050	100	120	19	44	105.5	105.5	108	74	40	5.3	26	87	65-85
	063	100	130	25	44	105.5	105.5	123	84	40	5.3	26	87	65-85
	080	100	130	25	44	105.5	105.5	123	84	40	5.3	26	87	65-85
DI4	100	124-130	150	30	62	130	130	150	110	50	5.3	94-110	94-110	94-110
	125	124-130	150	30	62	130	130	150	110	50	5.3	94-110	94-110	94-110
	200	124-130	159	39	62	130	130	167	110	50	5.3	94-110	94-110	94-110
	250	124-130	159	39	62	130	130	167	110	50	5.3	94-110	94-110	94-110
DI5	400	124-130	—	78	72	130	130	244	110	50	5.3	94-110	94-110	94-110
	500	124-130	—	78	72	130	130	244	110	50	5.3	94-110	94-110	94-110
	630	124-130	—	117	72	130	130	321	110	50	5.3	94-110	94-110	94-110

*. L1 is the length of a one stage cam switch. For more stages, please add one “A” for each stage, to the “L1” of the cam switch.
LX=L1+(X-1)xA X=Number of Stages, LX=L of a cam switch with X stages.

LK Model

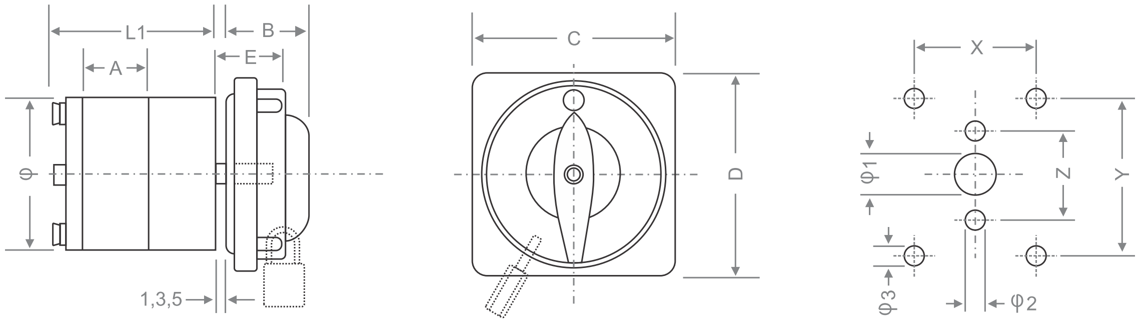
Features

- Lockable with a small padlock in three positions
- General use and application
- Full amp range
- IP54 degree protection of front panel against dust and water
- Front & base mounting options
- DIN rail mounting option (optional adapter)

LK Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code 012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
	LK2	75x75	✓	✓	✓	✓	✓										
	LK3	105x105				✓	✓	✓	✓	✓							
	LK4	130x130									✓	✓	✓	✓	✓	✓	✓

Technical drawings & drilling guide:



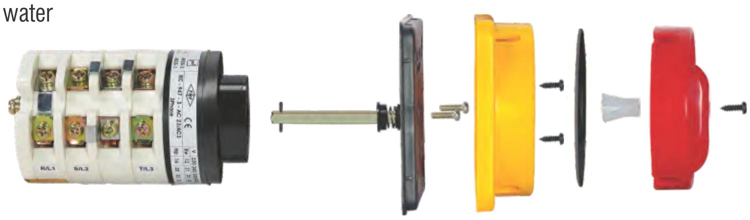
LK													
Model Code	**Amp. Code**	φ	L1*	A	B	C	D	E	φ_1	φ_2	φ_3	X	Y	Z
LK2	012	40	40	12	32	75	75	21	10	3.7	—	—	—	28
	016	40	40	12	32	75	75	21	10	3.7	—	—	—	28
	025	58	48	17	32	75	75	24	10	3.7	—	—	—	28
	032	58	48	17	32	75	75	24	10	3.7	—	—	—	28
LK3	040	74	53	19	44	105.5	105.5	32	14	5.5	—	—	—	40
	050	74	53	19	44	105.5	105.5	32	14	5.5	—	—	—	40
	063	84	62	25	44	105.5	105.5	32	14	5.5	—	—	—	40
	080	84	62	25	44	105.5	105.5	32	14	5.5	—	—	—	40
LK4	100	110	81	30	62	130	130	43	20	—	5.5	30	90	—
	125	110	81	30	62	130	130	43	20	—	5.5	30	90	—
	200	110	90	39	62	130	130	43	20	—	5.5	30	90	—
	250	110	90	39	62	130	130	43	20	—	5.5	30	90	—

*. L1 is the length of a one stage cam switch. For more stages, please add one “A” for each stage, to the “L1” of the cam switch.
LX=L1+(X-1)xA X=Number of Stages, LX=L of a cam switch with X stages.

IK Model

Features

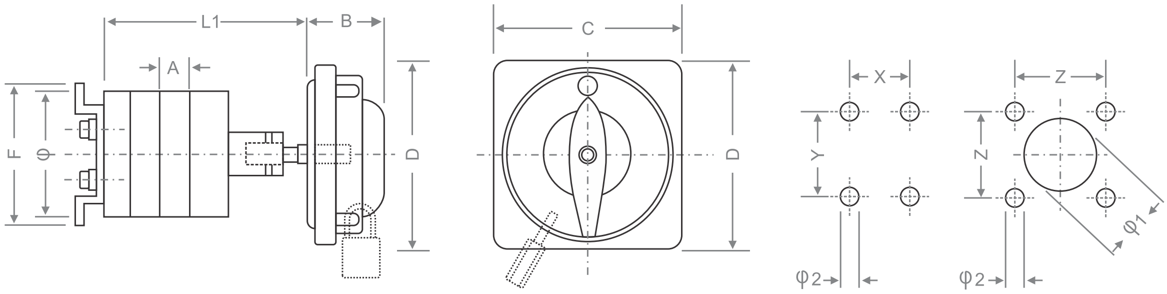
- Lockable with a small padlock in three positions
  In order to maintain safety, this model has an interlocking mechanism with the panel/box door, so it can be opened only when the cam switch is set to OFF position.
- General use and application
- IP54 degree protection of front panel against dust and water
- Front & base mounting options
- DIN rail mounting option (optional adapter)



IK Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code 012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
	IK2	75x75			✓	✓	✓										
	IK3	105x105				✓	✓	✓	✓	✓							
	IK4	130x130									✓	✓	✓	✓			

Technical drawings & drilling guide:



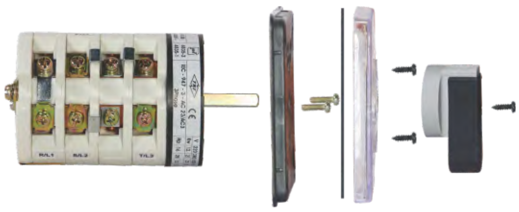
IK														
Version	Amp. Code	φ	L1*	A	B	C	D	E	F	$φ_1$	$φ_2$	$φ_3$	X	Y	Z
IK2	025	58	103	17	32	75	75	24	73.5	27	4.3	—	18	61	58-60
	032	58	103	17	32	75	75	24	73.5	27	4.3	—	18	61	58-60
IK3	040	74	120	19	44	105.5	105.5	32	100	40	5.3	—	26	87	65-85
	050	74	120	19	44	105.5	105.5	32	100	40	5.3	—	26	87	65-85
	063	84	130	25	44	105.5	105.5	32	100	40	5.3	—	26	87	65-85
	080	84	130	25	44	105.5	105.5	32	100	40	5.3	—	26	87	65-85
IK4	100	110	150	30	62	130	130	43	124-130	50	5.3	—	94-110	94-110	94-110
	125	110	150	30	62	130	130	43	124-130	50	5.3	—	94-110	94-110	94-110
	200	110	159	39	62	130	130	43	124-130	50	5.3	—	94-110	94-110	94-110
	250	110	159	39	62	130	130	43	124-130	50	5.3	—	94-110	94-110	94-110

*. L1 is the length of a one stage cam switch. For more stages, please add one “A” for each stage, to the “L1” of the cam switch.
LX=L1+(X-1)xA X=Number of Stages, LX=L of a cam switch with X stages.

TL Model

Features

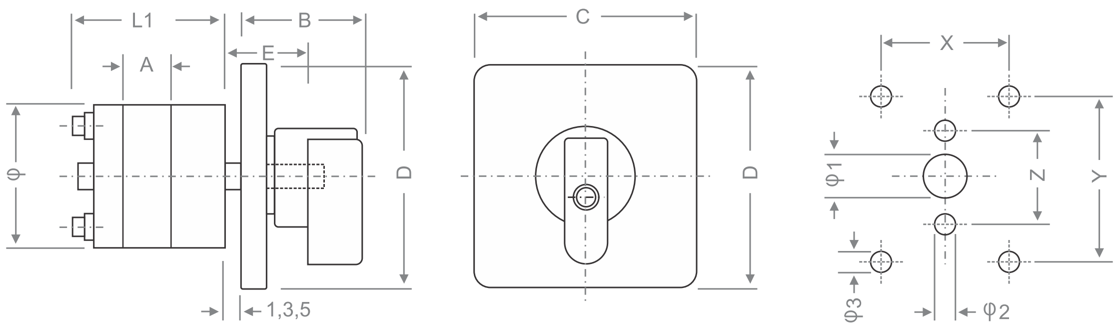
- Same as GL1 & GL2 with a different knob design
- IP40 degree protection of front panel against dust and water
- Front & base mounting options
- DIN rail mounting option (optional adapter)



TL Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code														
			012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
	TL1	52x52	✓	✓													
	TL2	75x75	✓	✓	✓	✓	✓										

Technical drawings & drilling guide:



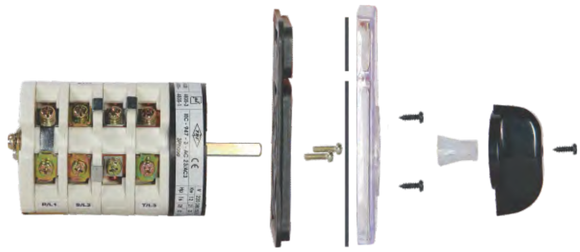
TL														
Model Code	Amp. Code	φ	L1*	A	B	C	D	E	$φ_1$	$φ_2$	$φ_3$	X	Y	Z
TL1	012	40	40	12	33	52.5	52.5	22	10	3.7	—	—	—	28
	016	40	40	12	33	52.5	52.5	22	10	3.7	—	—	—	28
TL2	012	40	40	12	34.5	75	75	22	10	3.7	—	—	—	28
	016	40	40	12	34.5	75	75	22	10	3.7	—	—	—	28
	025	58	48	17	34.5	75	75	26	10	3.7	—	—	—	28
	032	58	48	17	34.5	75	75	26	10	3.7	—	—	—	28

*. L1 is the length of a one stage cam switch. For more stages, please add one “A” for each stage, to the “L1” of the cam switch.
LX=L1+(X-1)xA X=Number of Stages, LX=L of a cam switch with X stages.

LL1 Model

Features

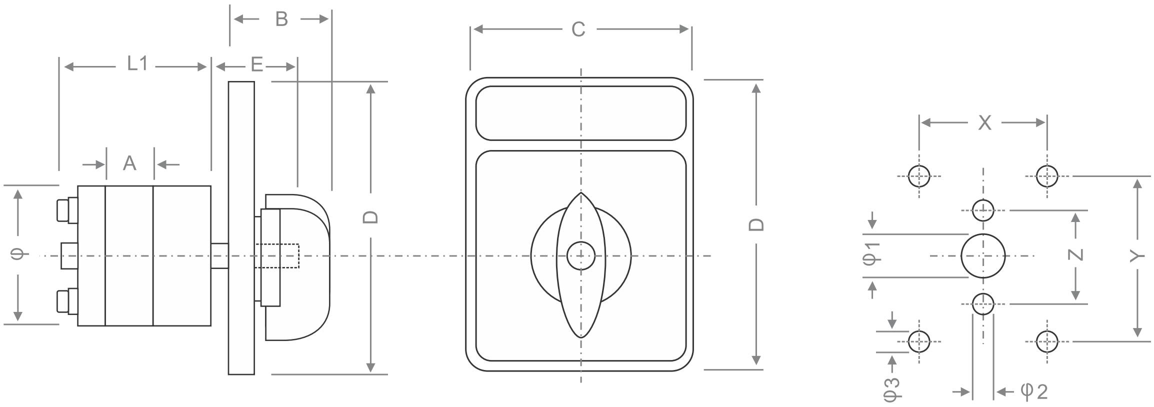
- Same as GL1 model with protected label area on front plate
- General use and application
- IP40 degree protection of front panel against dust and water
- Front & base mounting options
- DIN rail mounting option (optional adapter)



LL1 Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code														
			012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
	L L 1	52x52	✓	✓													

Technical drawings & drilling guide:



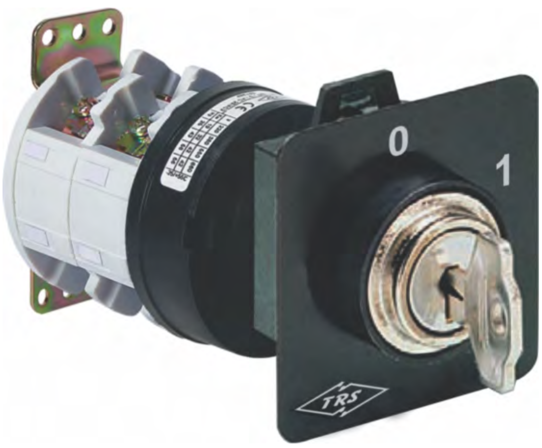
LL1														
Model Code	Amp. Code	φ	L1*	A	B	C	D	E	$φ_1$	$φ_2$	$φ_3$	X	Y	Z
L L 1	0 1 2	40	40	12	30	52.5	70.5	22	10	3.7	—	—	—	28
	0 1 6	40	40	12	30	52.5	70.5	22	10	3.7	—	—	—	28

*. L1 is the length of a one stage cam switch. For more stages, please add one "A" for each stage, to the "L1" of the cam switch.
LX=L1+(X-1)xA X=Number of Stages, LX=L of a cam switch with X stages.

KS Model

Features

- Control switch panel mount
- Mountable on standard 22mm hole
- Key control switch can be taken out only at "0" position
- IP65 protection degree



KS Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code														
			012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
	K S	75x75	✓	✓													

CO Model

Features

In some applications, the user needs to be able to control signal contacts along with power contacts in one cam switch. Using extra power contacts for signal is not an economic way and makes the cam switch unnecessarily heavier and rather not economic. At TRS Mfg Co. we have developed the CO model cam switch in which signal contacts can be combined with power contacts. Therefore the user will be able to control signal and power contacts in one economical and technically appropriate cam switch.
For any combination you require, please contact us and our technical dept. will help you with the best possible solutions.

CO Model Selection Table

Picture	Model Code	Front panel Dimensions	Amp Code
	C O	Configuration based on request	Configuration based on request


TRS
R
SERIES
Cam Switches
12-25 A

R Series

- Current rating from 12 to 25 A
- New rectangular design of selected models of G & T series
- IP65 protection degree of front panel
- IP20 protection degree of terminals section
- Fast and easy installation
- High variety of functions for resistive, inductive or capacitive loads
- Made of best material, with high mechanical, electrical & thermal resistance

Model **RY** / **BY**
Model **RK** / **BK**
Model **GL**
Model **LL1**
Model **TL**
Model **LK**

Cam Switches(R Switches)

General features

- New rectangular design of selected models from G & T series The new design allows the connected wire terminals to be hold firmly in place and connected easily without the terminal neck being bent Terminal Screws have fixed serrated washers that eases the wire &
- terminal connection significantly
- Current rating from 12A to 25A
- IP65 protection of front panel and IP20 protection degree of terminals section
- High variety of functions for resistive, inductive or capacitive loads
- Made of best material, with high mechanical, electrical & thermal resistance
- Fast and easy installation

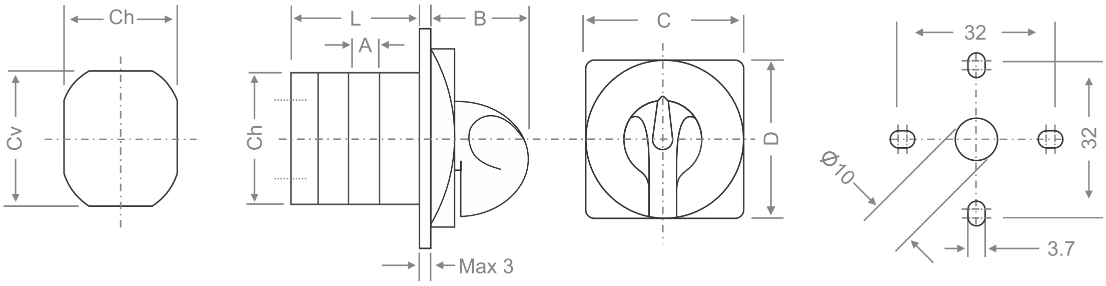
Amper Code			012	016	025
Rated insulation voltage	Ui	V	690	690	690
Rated operating voltage	Ue	V	690	690	690
Rated impulse withstand voltage	Uimp	KV	6	6	6
Rated thermal current for open switch	Ith	A	16	20	32
Rated thermal current for enclosed switch	Ithe	A	16	20	32
Rated operating frequency		Hz	50	50	50
Rated dissipation for each pole		W	0.27	0.5	1
Rated operating current					
AC-21A Switching resistive loads, including moderate overloads	Ie	A	12	16	25
AC-22A Switching of mixed resistive and inductive loads, including moderate overloads	Ie	A	12	16	20
AC-20A Connecting and disconnecting under no load conditions			—	—	—
Rated operating power					
AC-23A Switching of motor loads or other highly inductive loads 3 phase-3pole	230V	Kw(A)	3(9)	4(14)	7.5(24)
	400V	Kw(A)	4(9)	7.5(14)	11(20)
	500V	Kw(A)	—	—	11(15)
	690V	Kw(A)	—	—	11(11)
AC-23A Switching of motor loads or other highly inductive loads 1 phase-2pole	110V	Kw(A)	0.75(8.5)	1.1(12)	2.2(25)
	230V	Kw(A)	1.5(8.5)	22(14)	3.7(20)
AC-3 Squirrel cage motors: Starting, switching off motors during running 3 phase-3 pole	230V	Kw(A)	22(7)	3.7(12)	5.5(17)
	400V	Kw(A)	3.5(7)	5.5(10)	9.5(16)
	500V	Kw(A)	—	—	9.5(12.5)
	690V	Kw(A)	—	—	8.5(10)
AC-3 Squirrel cage motors: Starting, switching off motors during running 1 phase-2 pole	110V	Kw(A)	0.37(4)	0.75(9)	1.5(17)
	230V	Kw(A)	1.1(6)	1.5(8)	3(17)
	400V	Kw(A)	—	—	—
AC-4 Squirrel cage motors: Starting, plugging, inching	230V	Kw(A)	—	—	22(7)
	400V	Kw(A)	—	—	3(5.5)
AC-15 Control of AC electromagnetic loads	230V	A	4	6	8
	400V	A	3	4	6
Rated breaking capability in category in AC-23A (cos φ =0.45)	230V	A	72	112	192
	400V	A	72	112	160
Short circuit protection					
Rated short time withstand current	Icw	A	150	240	400
Rated short-circuit make capacity	Icm	A	—	—	2000
Rated conditional short-circuit current		KA	4	4	10
With fuses class gG	500v	A	16	20	35
Protection against short circuit			NDZ	NDZ	NDZ
Maximum current rapid and Time-delay fuses for open version		A	16	20	35
Maximum current for Time-delay fuses for version in box		A	—	16	25
Rated interruption power		A	96	128	260
		Vac	418	418	660
		Cos(φ)	0.65	0.65	0.35
Electrical life		Cycles$\times10^6$	0.5	0.8	1
Mechanical life		Cycles$\times10^6$	2	2	2
		Cycles/hour	120	120	120
Rated insulation voltage	UL	V	600	600	600
Rated operating voltage	UL	V	600	600	600
General Use Current	UL	A	12	16	25
Rated operating power					
1 phase - 2 pole	120V	Hp (A)	0.5	1	2
	240V	Hp (A)	1.5	2	3
3 phase - 3 pole	200V	Hp (A)	1.5	2	5
	240V	Hp (A)	2	3	5.5
	480V	Hp (A)	3	7.5	10
	600V	Hp (A)	5	7.5	15
Connections according to IEC 9471-1 AND EN 60947-1					
Connecting capability with flexible wires	Min-Max	mm2	2x1.5-4	2x1.5-4	2x2.5-10
	Min-Max	AWG	16-10	16-10	16-8
Connecting capability with soild wires	Min-Max	mm2	2x1.5-2.5	2x1.5-2.5	2x2.5-6
Connecting terminal screw dimensions		Type	M3.5x7	M3.5x7	M5x16
Screw tightening torque		Nm	1.0	1.0	1.7
Protection degree IEC 529 EN 60529					
Terminal		IP		00	
Ambient conditions					
Operating ambient temperature		°C		-25~+55	
Storage ambient temperature		°C		-30~+70	
Withstand to constant humid according to IEC 60068				2-78	
Withstand to cyclic humid according to IEC 60068				2-30	
Altitude		m		Max:2000m	
Humidity		Percent		Max:90%	
Pollution degree				3	
Installation Group				III	

* The degree of protection can be increased by means of suitable protections

Model selection table

Picture	Model Code	Front panel Dimensions	Amp Code 0 1 2	Amp Code 0 1 6	Ref. to Page	Short Description **B:** Black knob & Gray rectangular plate **R:** Red knob & Yellow rectangular plate
 	BY1 RY1	48x48	✓	✓	52	Ip65 General use Attractive design Front & base mounting options DIN rail mounting option (optional adapter)
	BY2 RY2	67x67	✓	✓		
 	BK2 RK2	67x67	✓	✓	52	All RY/BY models Specs + Lockable with a padlock
 	BK3 RK3	67x82	✓	✓		
 	GL1	52x52	✓	✓	53	Ip40 General application Full amp range Front & base mounting options
	GL2	75x75	✓	✓		
 	LL1	52x70	✓	✓	53	Same as GL1 with protected label area on front plate
	TL1	52x52	✓	✓	54	Same as GL1 & GL2 with a different knob design
	TL2	75x75	✓	✓		
 	LK2	75x75	✓	✓	54	Ip54 General application Full amp range Lockable with a padlock

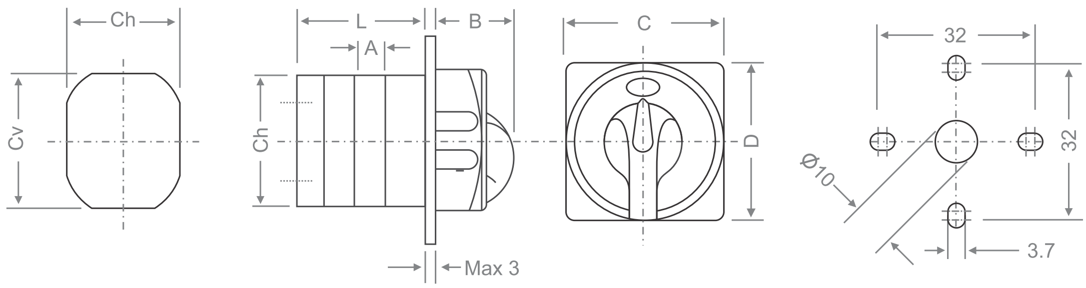
RY,BY



RY&BY							
Switch Amp Code	Cv	Ch	NO.Of Stages				
			1	2	3	4	5
			L				
012	47	45	37	49	61	73	85
016	47	45	37	49	61	73	85

Model Code		A	B	C	D
RY1	BY1	12	37	48	48
RY2	BY2	12	39	68	68

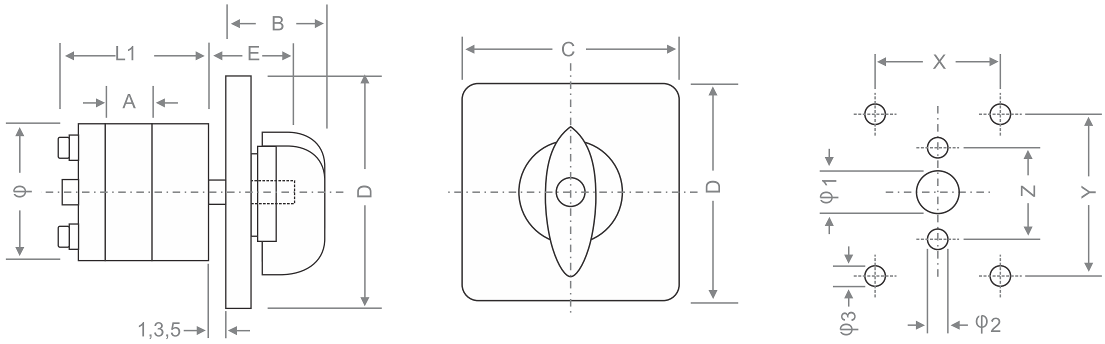
RK,BK



RK, BK							
Switch Amp Code	Cv	Ch	NO.Of Stages				
			1	2	3	4	5
			L				
012	47	45	37	49	61	73	85
016	47	45	37	49	61	73	85

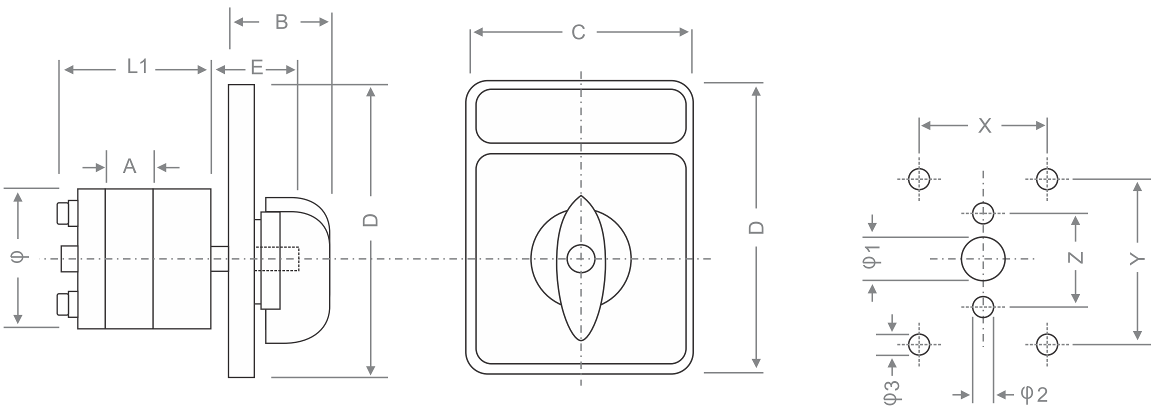
Model Code		A	B	C	D
RK2	BK2	12	39	68	68
RK3	BK3	12	39	68	83

GL



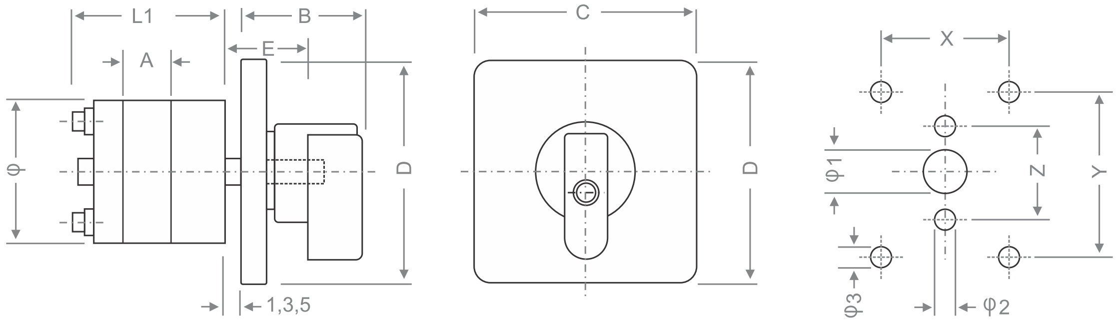
Model Code	Amp. Code	Cv	Ch	L	A	B	C	D	E
GL1	012	47	45	37	12	30	52.5	52.5	22
	016	47	45	37	12	30	52.5	52.5	22
GL2	012	47	45	37	12	32	75	75	22
	016	47	45	37	12	32	75	75	22

LL1



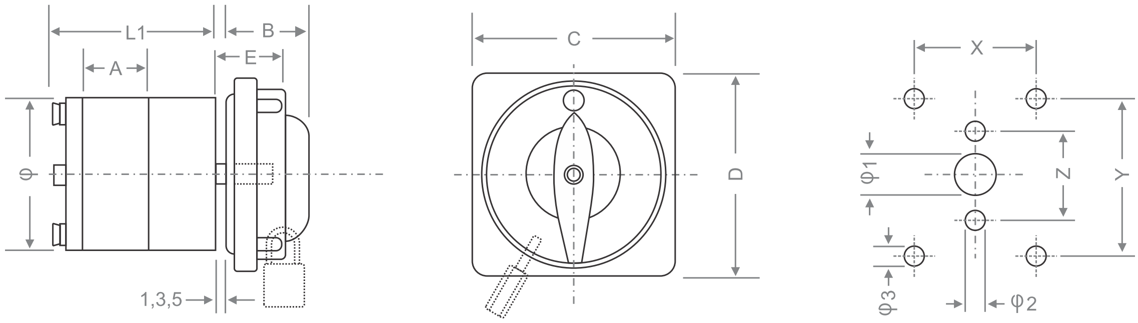
Model Code	Amp. Code	Cv	Ch	L	A	B	C	D	E
LL1	012	47	45	37	12	30	52.5	70.5	22
	016	47	45	37	12	30	52.5	70.5	22

TL

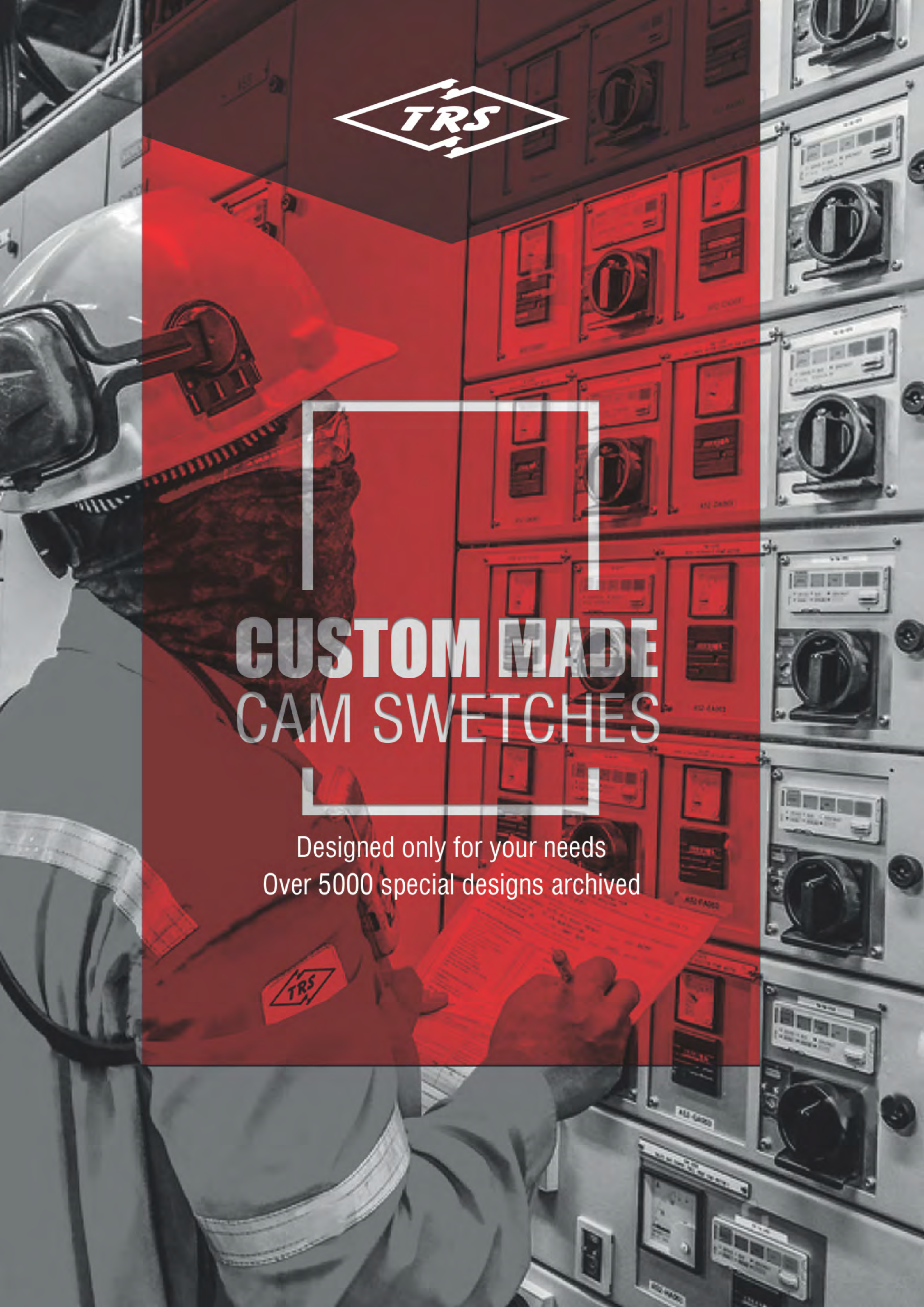


GL										
Model Code	Amp. Code	Cv	Ch	L	A	B	C	D	E
TL1	012	47	45	37	12	33	52.5	52.5	22
	016	47	45	37	12	33	52.5	52.5	22
TL2	012	47	45	37	12	34.5	75	75	26
	016	47	45	37	12	34.5	75	75	26

LK



LL1										
Model Code	Amp. Code	Cv	Ch	L	A	B	C	D	E
LK2	012	47	45	37	12	32	75	75	21
	016	47	45	37	12	32	75	75	21

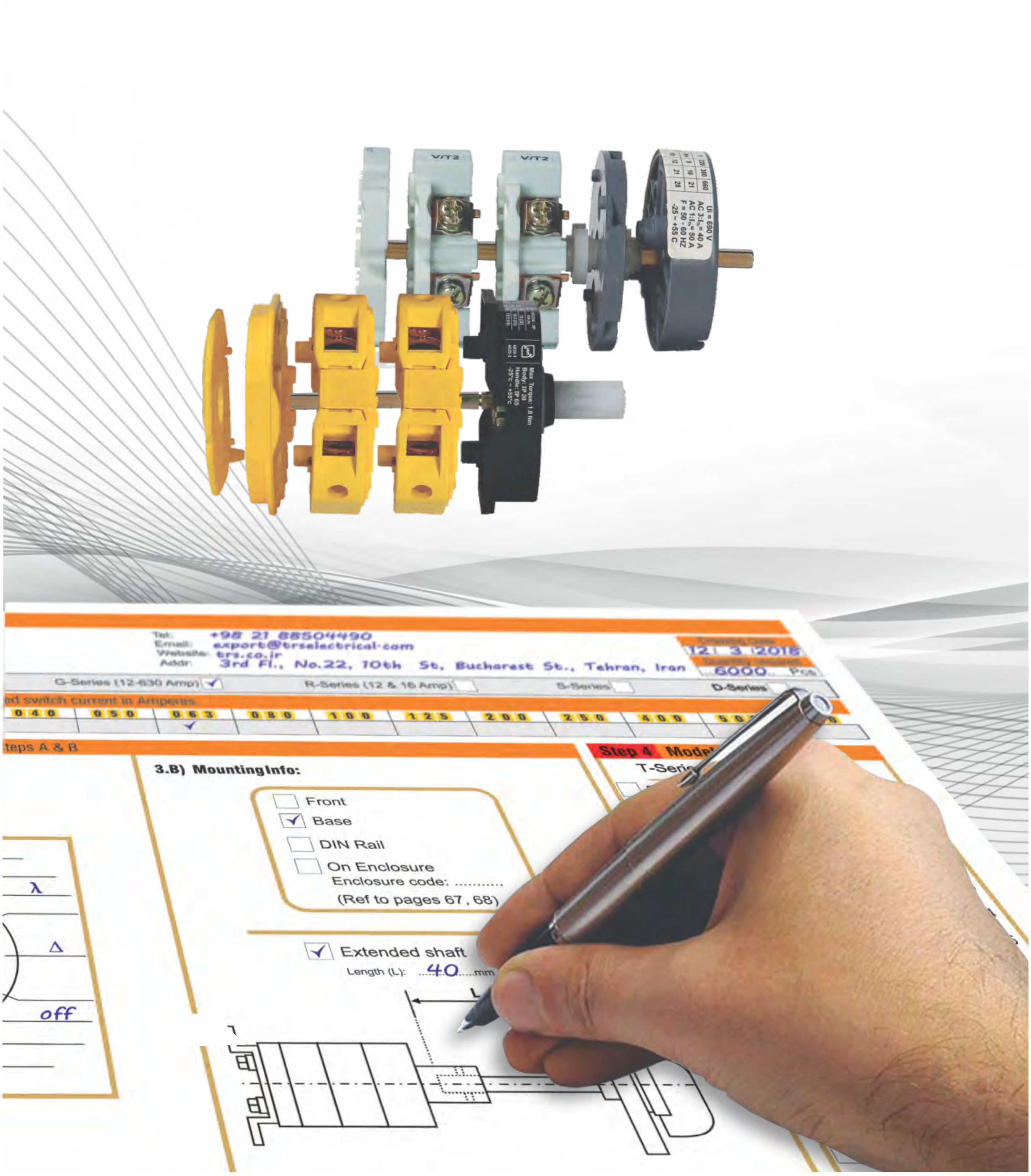

TRS
CUSTOM MADE
CAM SWETCHES
Designed only for your needs
Over 5000 special designs archived

How to Order a Special Cam Switch?

Modular structure and unique design of TRS Mfg. Co. Cam Switches along with having various types of accessories, enables TRS Mfg. Co. to manufacture any type of Cam Switches based on customer's requirements. These customized types have a high variety in number of poles, positions, rotation angles, internal & external connection, functions and methods of installation. These Cam Switches are called Special or Customized Cam Switches, which no function codes mentioned in this catalogue are related to them.

Customers who need Special Cam Switches have to fill out the Order sheet on next page which is arranged and designed specially for this purpose, and then send it to TRS Mfg. Co.

Engineering department of TRS Mfg. Co. is always ready to offer helpful guides to customers in this regard to finalize the "Order sheet" according to our company capabilities. After getting customer's technical points, the best design will be prepared and a "Function Code" will be assigned to that case. It makes it faster & easier to order that Cam Switch by referring to that "Function Code" in the future.



Customized Order Form

Customer Info

Name:
Company:
Position:
Customer No.:

Tel:
Email:
Website:
Addr:

Drawing Date
/ /

Quantity required
.... Pcs

Step 1 Series: T-Series (12-40 Amp) ☐ G-Series (12-630 Amp) ☐ R-Series (12 & 16 Amp) ☐ S-Series ☐ D-Series ☐

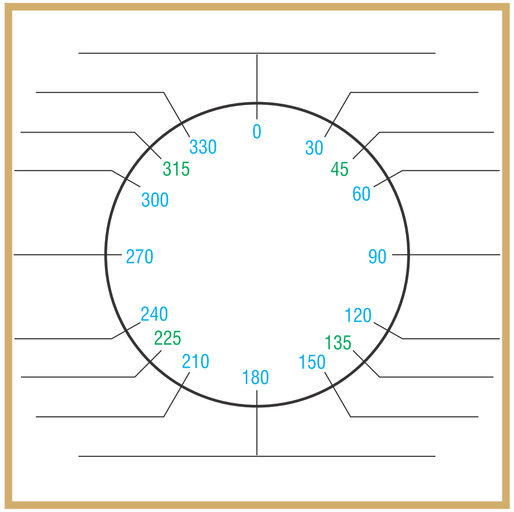
Step 2 Amp Code: Please select your required switch current in Amperes.

012	016	025	032	040	050	063	080	100	125	200	250	400	500	630

Step 3 Mounting: Please complete below steps A & B

3.A) Front plate:

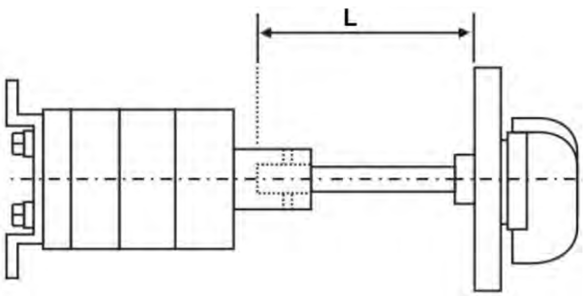
Position angles and position text (1 to 3 letters)
Rotation steps must be 30,45,60 or 90 degrees.



3.B) Mounting Info:

☐ Front
☐ Base
☐ DIN Rail
☐ On Enclosure
Enclosure code: ....
(Ref to pages 67, 68)

☐ Extended shaft
Length (L): ....mm



Step 4 Model Selection

T-Series

☐ BY1	☐ RY1
☐ BY2	☐ RY2
☐ BY3	☐ RY3
☐ BK2	☐ RK2
☐ BK3	☐ RK3
☐ BM2	☐ RM2
☐ BM3	☐ RM3
☐ BT1	☐ RT1
☐ BT2	☐ RT2
☐ BT	☐ RT
☐ BP2	☐ RP2
☐ BP3	☐ RP3
☐ BQ2	☐ RQ2
☐ BQ3	☐ RQ3

G-Series

Knob: Black ☐ Red ☐
Plate: Black ☐ Yellow ☐

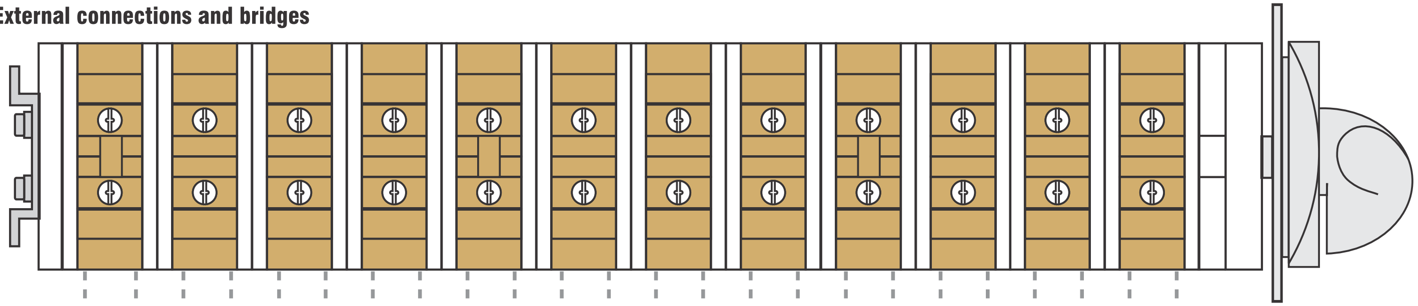
☐ TL	☐ GL1
☐ TL2	☐ GL2
☐ LK2	☐ GL3
☐ LK3	☐ GL4
☐ LK4	☐ GL5
☐ DI2	☐ LL1
☐ DI3	☐ IK2
☐ DI4	☐ IK3
☐ DI5	☐ IK4

LL1 Lable:

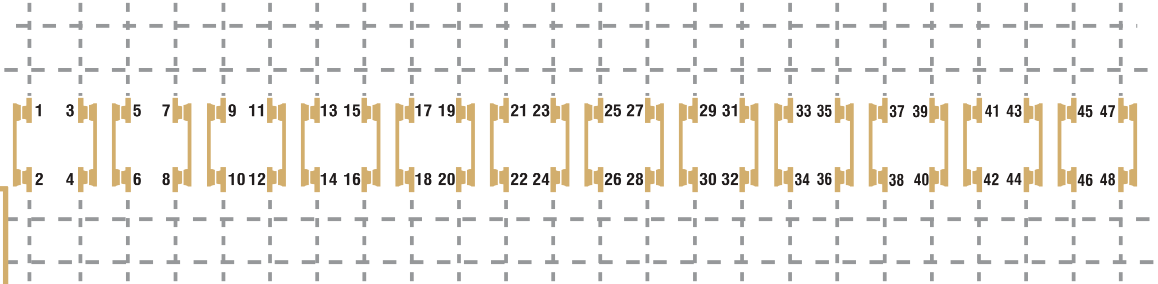
In case you have chosen LL1 model above, we can print your required text on the label area:
....

Step 5: Switch Function

B.1) External connections and bridges



B.2) Internal function



Positions ⇩																								
Stages ⇨	1		2		3		4		5		6		7		8		9		10		11		12	
Contacts ⇨	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-56	47-48

Sometimes customer drawings are not 100% correct or not technically possible to manufacture. The drawings corrected and confirmed by TRS Co. Technical department will be effective.

Drawing code:

This field Will be filled by TRS Co. Technical Department.

Self-Return Contact	☐ Open Contact
Make befor Break	☒ Closed Contact
Early-Make Contact	Break before Make
Late-Break Contact	No Interruption during change over

Additional notes:

....
....
....
....
....
....
....
....
....
....

Customer Info

Name:	Sam Ava	Tel:	+98 21 88504490
Company:	TRS Mfg Co.	Email:	export@trselectrical.com
Position:	Procurement Dept. officer	Website:	trs.co.ir
Customer No.:	354217-IR	Addr:	3rd Fl., No.22, 10th St, Bucharest St., Tehran, Iran

Drawing Date: 12 / 3 /2018
Quantity required: ...6000.. Pcs

Step 1 Series: T-Series (12-40 Amp) ☐ G-Series (12-630 Amp) ☑ R-Series (12 & 16 Amp) ☐ S-Series ☐ D-Series ☐

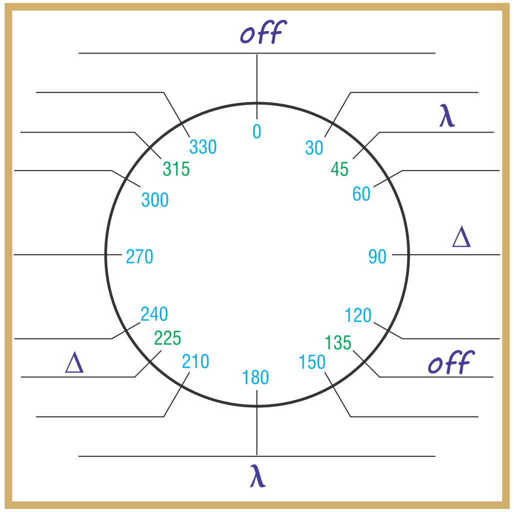
Step 2 Amp Code: Please select your required switch current in Amperes.

012	016	025	032	040	050	063	080	100	125	200	250	400	500	630
						✓								

Step 3 Mounting: Please complete below steps A & B

3.A) Front plate:

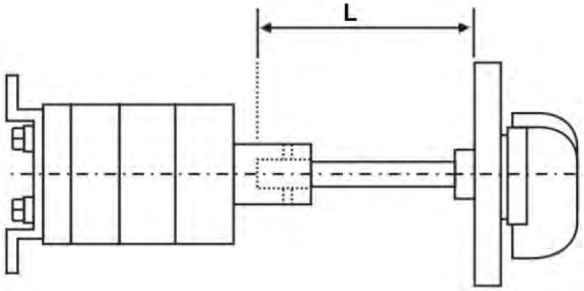
Position angles and position text (1 to 3 letters)
Rotation steps must be 30,45,60 or 90 degrees.



3.B) Mounting Info:

- ☐ Front
- ☑ Base
- ☐ DIN Rail
- ☐ On Enclosure
  Enclosure code: ....
  (Ref to pages 67, 68)

☑ Extended shaft
Length (L): ...40.....mm



Step 4 Model Selection

T-Series

☐ BY1	☐ RY1
☐ BY2	☐ RY2
☐ BY3	☐ RY3
☐ BK2	☐ RK2
☐ BK3	☐ RK3
☐ BM2	☐ RM2
☐ BM3	☐ RM3
☐ BT1	☐ RT1
☐ BT2	☐ RT2
☐ BT	☐ RT
☐ BP2	☐ RP2
☐ BP3	☐ RP3
☐ BQ2	☐ RQ2
☐ BQ3	☐ RQ3

G-Series

Knob: Black ☑ Red ☐
Plate: Black ☑ Yellow ☐

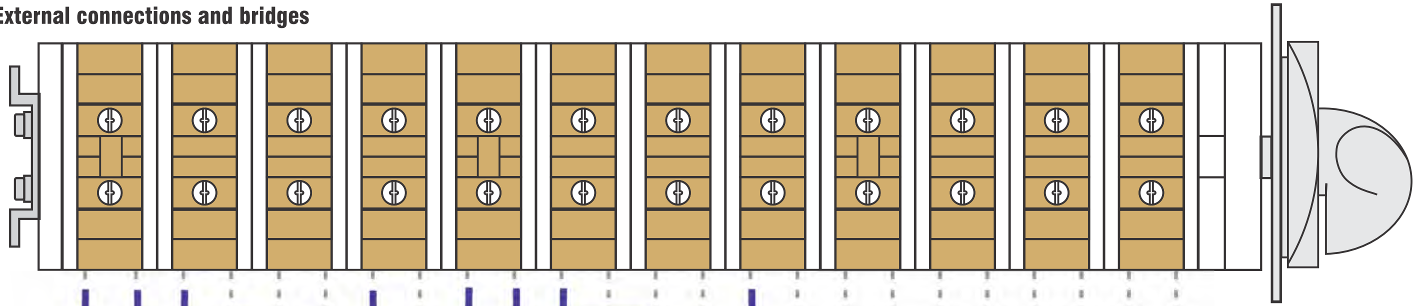
☐ TL	☐ GL1
☐ TL2	☐ GL2
☐ LK2	☐ GL3
☐ LK3	☐ GL4
☐ LK4	☐ GL5
☐ DI2	☐ LL1
☑ DI3	☐ IK2
☐ DI4	☐ IK3
☐ DI5	☐ IK4

LL1 Lable:

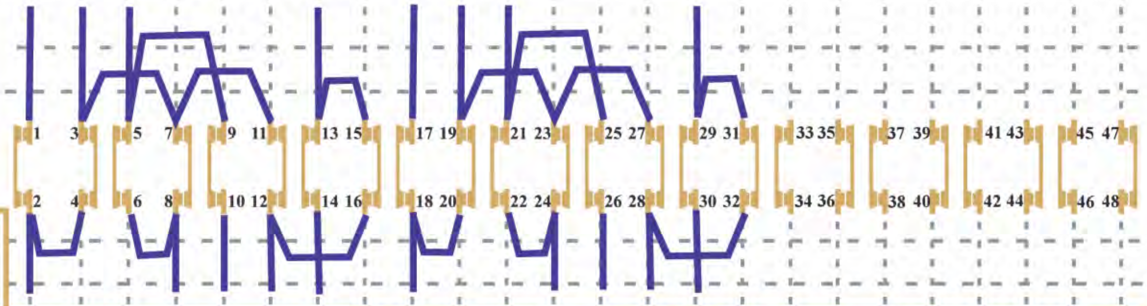
In case you have chosen LL1 model above, we can print your required text on the label area:
....

Step 5: Switch Function

B.1) External connections and bridges



B.2) Internal function



Positions ⇩																								
Δ									X	X	X				X									
λ									X			X	X	X	X									
off																								
Δ	X	X	X		X		X	X																
λ	X			X	X	X	X																	
off																								
Stages ⇨	1		2		3		4		5		6		7		8		9		10		11		12	
Contacts ⇨	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-56	47-48

Sometimes customer drawings are not 100% correct or not technically possible to manufacture. The drawings corrected and confirmed by TRS Co. Technical department will be effective.

Drawing code:

This field Will be filled by TRS Co. Technical Department.

Self-Return Contact	Open Contact
Make befor Break	Closed Contact
Early-Make Contact	Break before Make
Late-Break Contact	No Interruption during change over

Additional notes:

....

....

....

....

....

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....

....

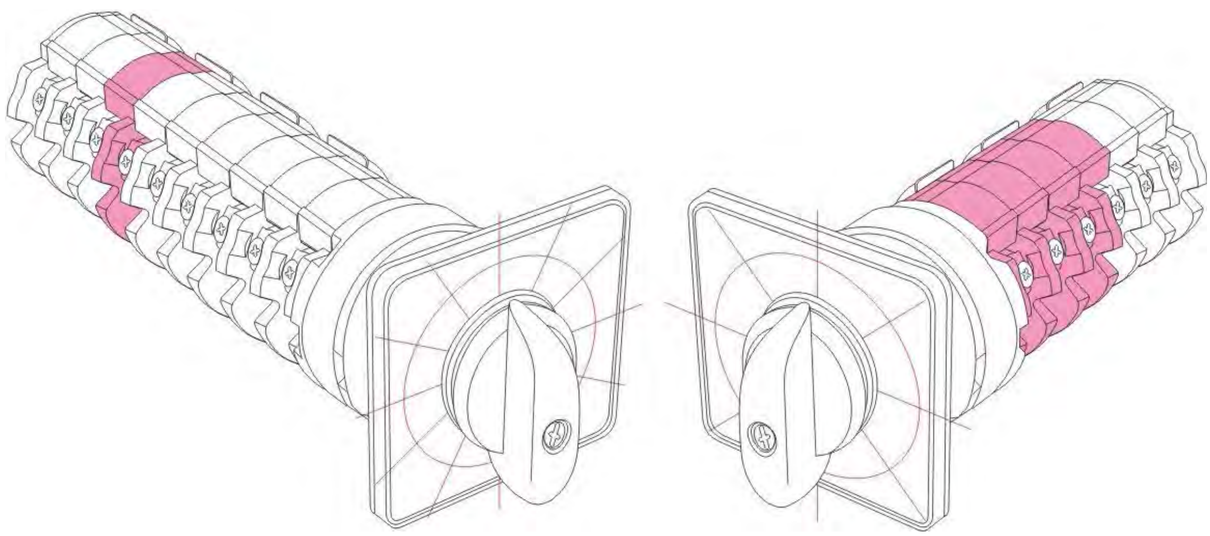
DC Switching

Making & Breaking of DC (Direct Current)

All of the information and specifications about Cam Switches in this catalogue are concerned with AC (Alternating Current). But TRS Mfg. Co. Cam Switches can be used for DC switching in battery charges DC motors, DC relays, Solenoids and Magnets as well, with some consideration.
Since in DC supply, voltage does not pass through the zero point, in a long period the arc between moving & fixed contacts will heat up the metals of contacts and would result in permanent contact damage. Connecting contacts in series, using Snap Action Latching Mechanism to reduce the time taken for contacts to reach fully opened position, having wide contact distance are factors which can effectively reduce the arc intensity. Electrical life of contact in DC switching is shorter than its electrical life in AC switching.
One of the most important factors to choose the appropriate Cam Switch, is maximum number of making & breaking per hour. As the number of making & breaking per hour increases the contacts of the Cam Switch must be stronger.
In order to select an appropriate Cam Switch for DC loads, it is important to determine the usage:

1. Only for making of DC loads.
2. Only for breaking of DC loads.
3. For both making and breaking of DC loads.

The DC making capacity is independent from DC voltage value and is much higher than the DC breaking capacity . If the Cam Switch is used for making of DC loads, under no circumstances can be used for breaking of DC loads. Breaking of the circuit must be done by other disconnectors or contactors.
For these Cam Switches which are used for making DC loads there is no necessity to Break DC loads, and as a result ,their contacts should not be connected in series. The DC breaking capacity of a Cam Switch depends on the DC voltage supply, DC load current and the type of load. However in low voltage breaking capacity for DC loads is generally the same as breaking capacity for AC loads. Obviously as the DC voltage increases, the DC breaking capacity decreases.Using Snap Action Latching Mechanism and increasing the distance of contacts in open position are effective factors in breaking capacity of Cam Switches.
Please don't hesitate to contact us in case you need more information about DC switching and choosing the best Cam Switch for DC applications.



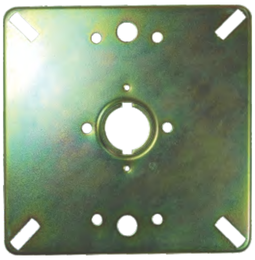
Many spare parts can be supplied as accessories for cam switches. Followings are a few:

Fixing plates:

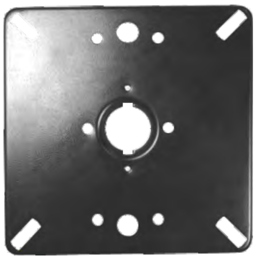
Metal & plastic fixing plates are suitable for cam switches base mounting.
DIN adapters are for fixing on standard 35mm DIN rails.

MK2

MK3



MK4



PK4

DK1

Shafts:

Extended Shafts in various lengths for interlocking switches.
Lengths: 175, 300, 500 mm

Wheel handle:

Black steering wheel for operating G series cam switches.

GL5

Other:

All Knobs and plates introduced in all models can be supplied.

TRS

ENCLOSED CAM SWITCHES

12-630 A

Enclosed
Cam Switches

Enclosed Cam Switches

General features

TRS Co. provides many types of enclosed cam switches. These products are very common in operational areas in factories, workshops & etc. and are often used as load break switches, machine controllers or generally as main control switches. In some areas, TRS enclosed switches are used to connect/disconnect, local power/diesel generators to the consumption area in case of network power failure or black out. The general features of these products are:

- Wide range of application in Industrial facilities
- Wide range of 12 – 630 A
- Any TRS cam switch can be used with enclosures
- Easy and quick installation
- Water & dust protection: IP40, IP54, IP65
- Enclosures made of ABS or Metal
- Glands & grommet installation on any side
- Other necessary circuitry can be installed inside the enclosure

Coding System

Each Enclosed cam switch can be defined using a **14 letter code** which is the combination of the Cam switch code and the enclosure code required for it. Enclosure codes are shown in the "Enclosure selection table" on next page.

Enclosed cam switch code: **Cam switch code (page 10)** + **Enclosure code (next page)**

1	2	3	4	5	6	7	8	9	10	11	+	12	13	14
G	0	4	0	0	0	0	3	H	N	D		P	S	B

Series
G, T, R

Amp Code
Current Code (Ref. to page 9)

Function Code
Function Code (Ref. to pages 11 to 18)

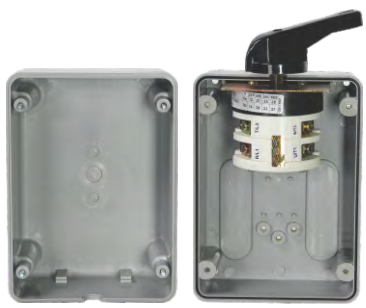
Model Code
Model Code (Ref. to page 9)

One Exception:
If you require handle operated cam switch, you have to write **"HND"** in the above **"Model"** field.

Enclosure Code
Refer to the table on next page

Example 1:
The code **G.032.0003.GL3.PTA** belongs to a G.032.0003.GL3 cam switch mounted on a code "PTA" enclosure.

Example 2:
The code **G.040.0003.HND.PSB** belongs to a handle operated G.040.0003 cam switch, mounted on a code "PSB" enclosure.



Enclosure Selection Table

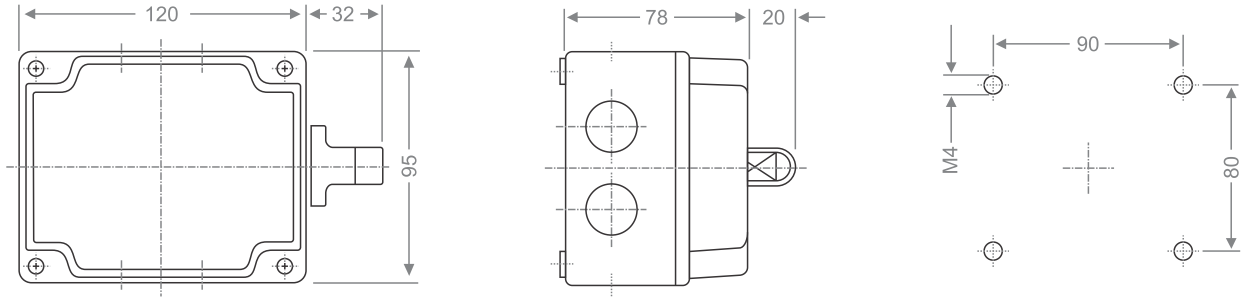
Enclosure Code	Dimensions(mm)	Description	Examples of final products
P S A	120x95x78	ABS Plastic IP 65	
P T A	120x95x78	ABS Plastic IP 65	
P S B	155x117x104	ABS Plastic IP 65	
P S C	184x130x122	ABS Plastic IP 65	

Enclosure Selection Table

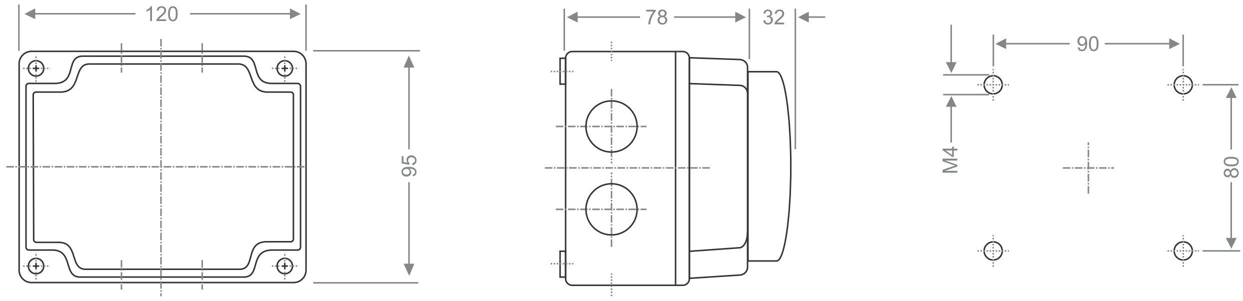
Enclosure Code	Dimensions(mm)	Description	Examples of final products
P T C	184x130x122	**ABS Plastic** **IP 65**	
M S D	350x250x190	**Metal enclosure** **IP 54**	
M S E	520x400x220	**Metal enclosure** **IP 54**	

Enclosed Cam Switches

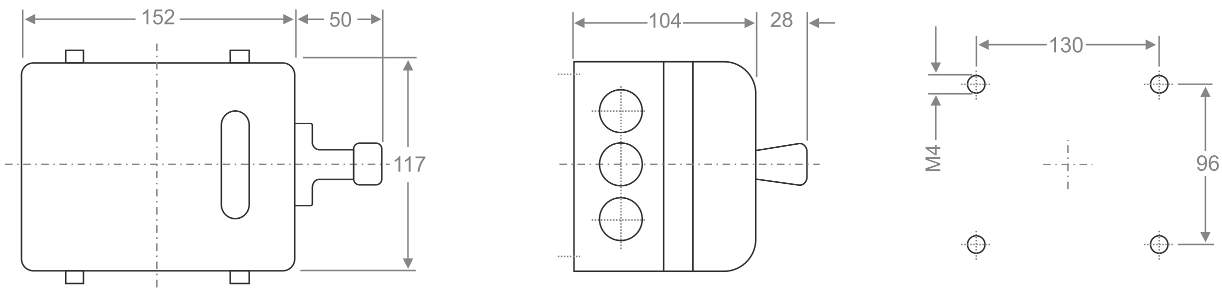
PSA



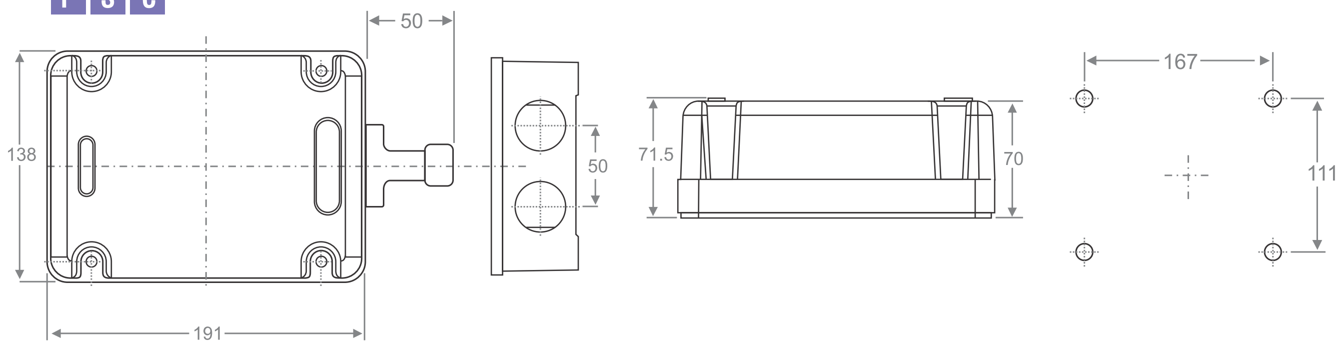
PTA



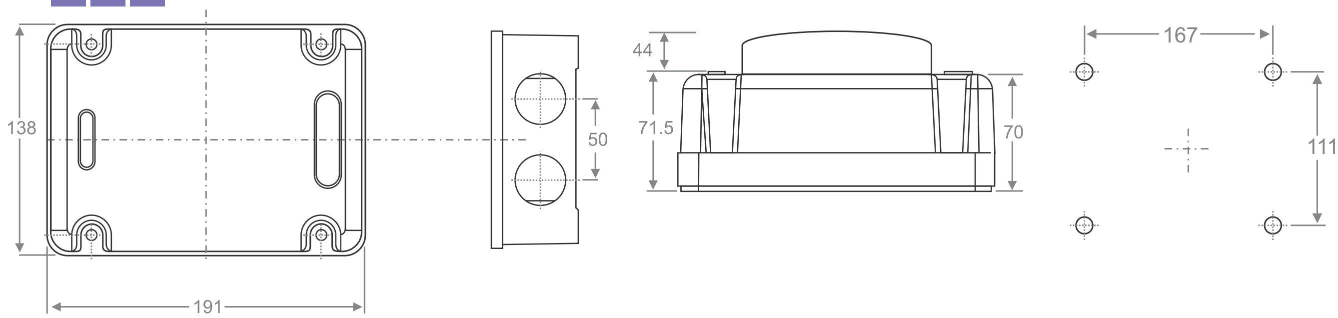
PSB



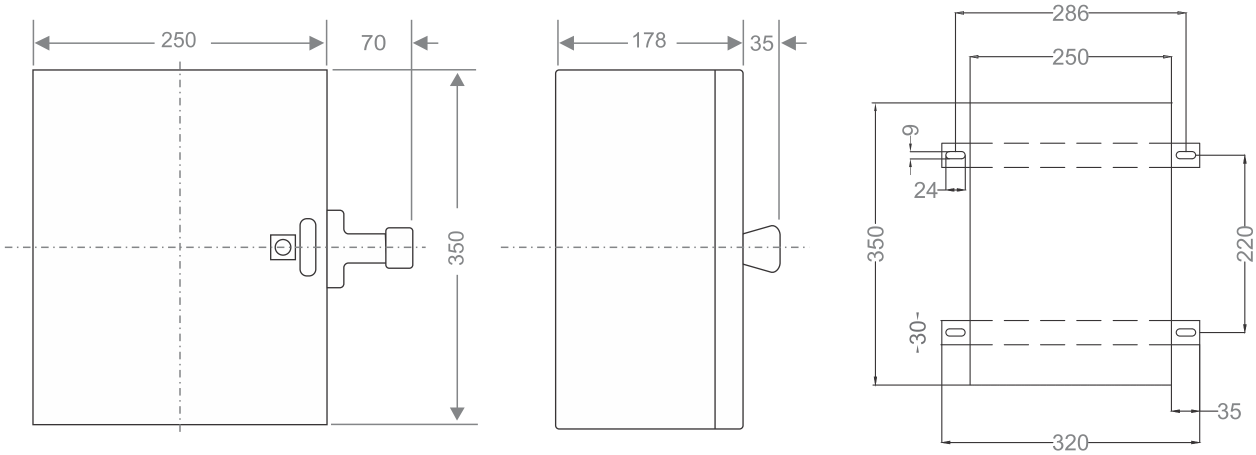
PSC



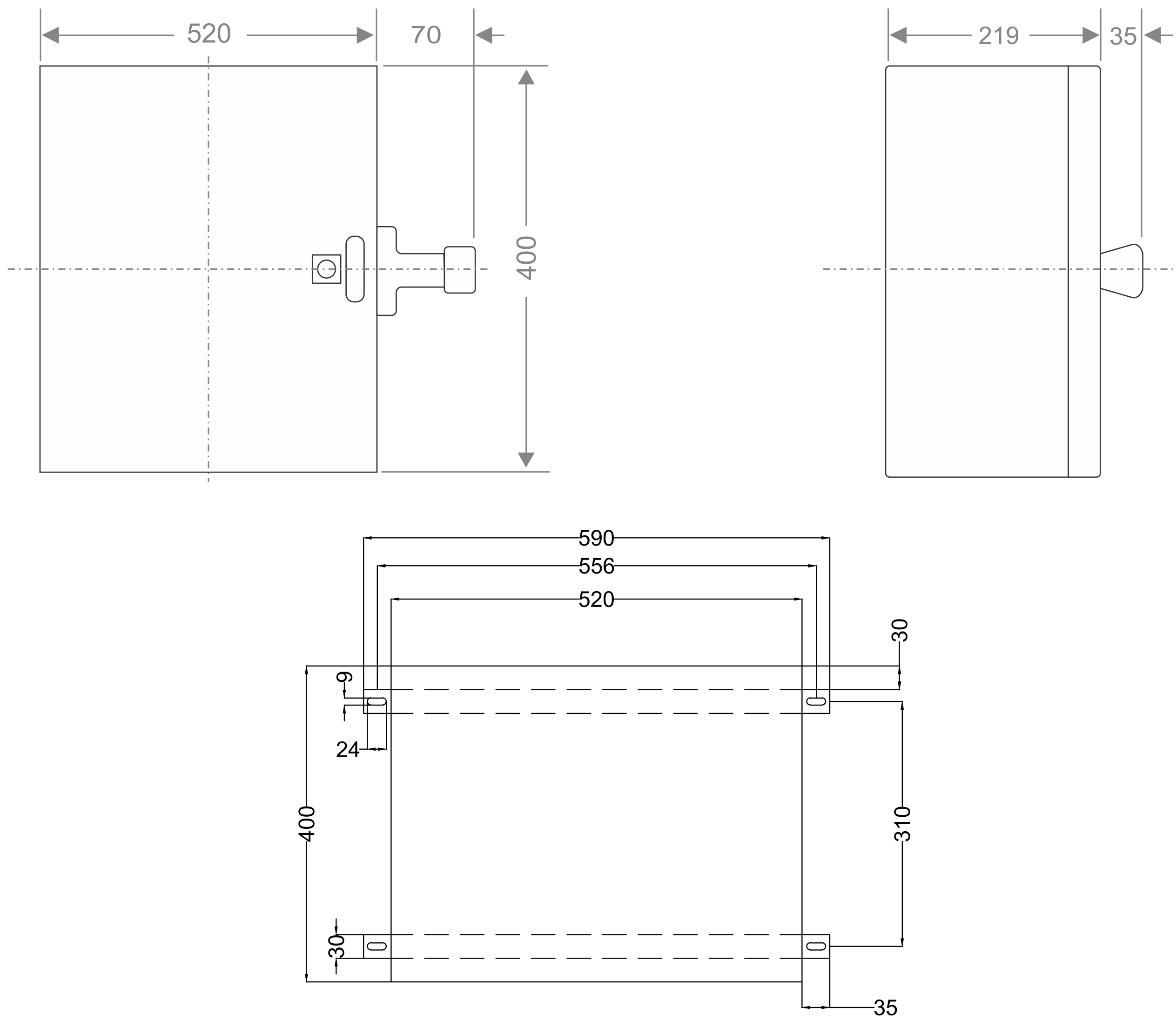
PTC



MSD



MSE



Enclosed Cam Switches

D SERIES

DISCREPANCY

Cam Switches

Discrepancy
Cam Switches
(**D** Series)

Discrepancy Switches (D Series)

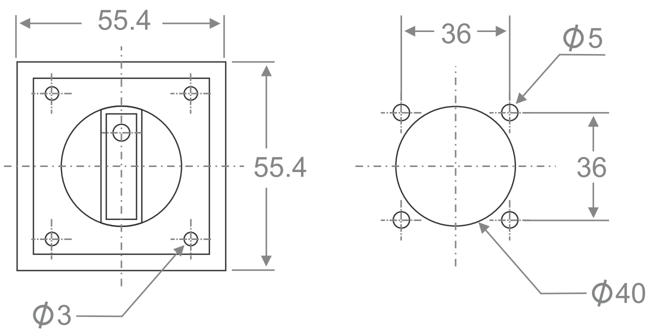
General features

The discrepancy control switch is used in switch gear installations for controlling circuit breakers and isolating switches as well as for displaying and monitoring their switching positions in mimic diagrams. When the switch symbol lights up, it is indicated that the position of the control discrepancy switch does not coincide with that of the associated circuit breaker or isolating switch.
Discrepancy switches are also used to control and monitor the trip indicators of switches and circuit breakers equipped with remote control as well as to send short impulses, especially for the remote control of meters, solenoid valves etc. These switches are widely used in MV switchgear installations and in railway transportation control systems.
TRS Co. is the first and only manufacturer of discrepancy cam switch in Iran

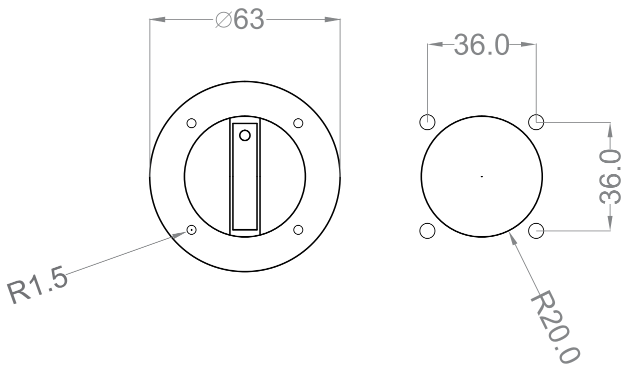
- Modular design makes it easy to extend switch stages
- Body made of anti-flame polyamide (VL94 degree class V-0)
- Electrical terminal section protection degree: IP20
- Enclosure and switch plate section protection degree: IP40
- Conformity with IEC60947/EN60947
- Tested and confirmed by NRI*.
- Double break bimetal contacts made of copper and silver alloy.
- Silver alloy-copper contacts
- Terminal screw are equipped with self raising washers to facilitate wiring
- Easy installation and wiring
- Optional lockable switch plate (Using switch key or release button)
- Compatible with operation voltage ratings: 24,48, 110, 220
- Compact design and proper dimensions
- Reasonable price
- Fast delivery
- Possibility to modify or customize the switch design and function based on customer needs. Please contact us for customized designs.

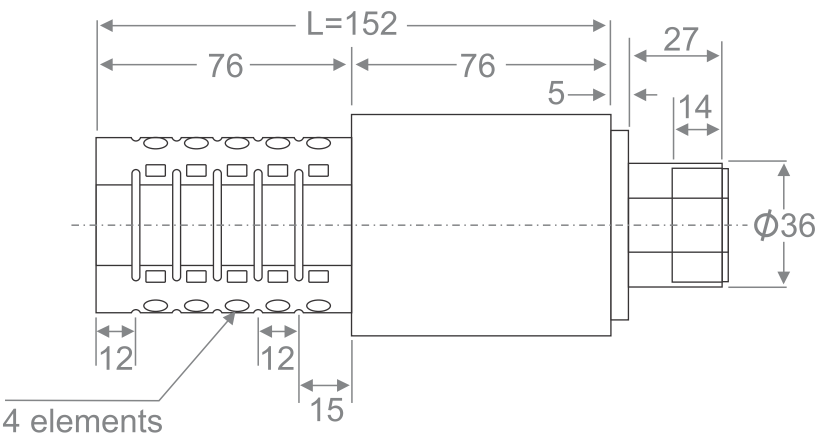
*NRI: Niroo Research Institute is the major research organization affiliated to the Ministry of Energy of Iran.

Square Type:



Round Type:





D Series								
No. of Stages	1	2	3	4	5	6	7	8
L (mm)	116	128	140	152	164	176	188	200

Specifications

Rated insulation voltage (Ui)	690 V
Rated current-carrying capacity (Ith)	20 A
Max wire size	5.5 mm^2
Screw size	M4x9
Withstand voltage	2,500 Vac / 1 min
Rated impulse withstand voltage	4 KV
Contact resistance	50 m ohm max.
Mechanical life	500,000 operations or more
Electrical life	100,000 operations or more
Shock resistance	500m/s^2 or more (in 6 directions) (Contact part: 300m/s^2)
Vibration resistance	Vibration range: 10 to 150Hz, Acceleration: 20m/s^2, Time: 1 hour (in 3 directions)
Min, applicable load	5V AC / 500mA, 5V DC / 100mA (in suitable operating conditions)
Operating temperature	– 20 to 60°C
Storing temperature	– 40 to 70°C
Altitude	2,000 m max.

AC			DC				
Rated operating voltage (V)	Rated operating current Resistance load (A)	Rated operating current Inductive load (A)	Rated operating voltage (V)	Rated operating current Resistance load (A)	Rated operating current Inductive load (A)	2 contacts in series connection Rated operating current Resistance load (A)	2 contacts in series connection Rated operating current Inductive load (A)
110	20	15	24	15	10	20	20
220	15	10	48	10	6	18	15
440	4	3	110	3	1.5	4.5	4
–	–	–	220	1.2	0.8	2	1.5

*Inductive load AC: power factor 0.6 to 0.7
DC: Time constant 40±6ms

EN60947 / IEC60947 STANDARD CONFORMABLE RATINGS

(1) Standard operating conditions

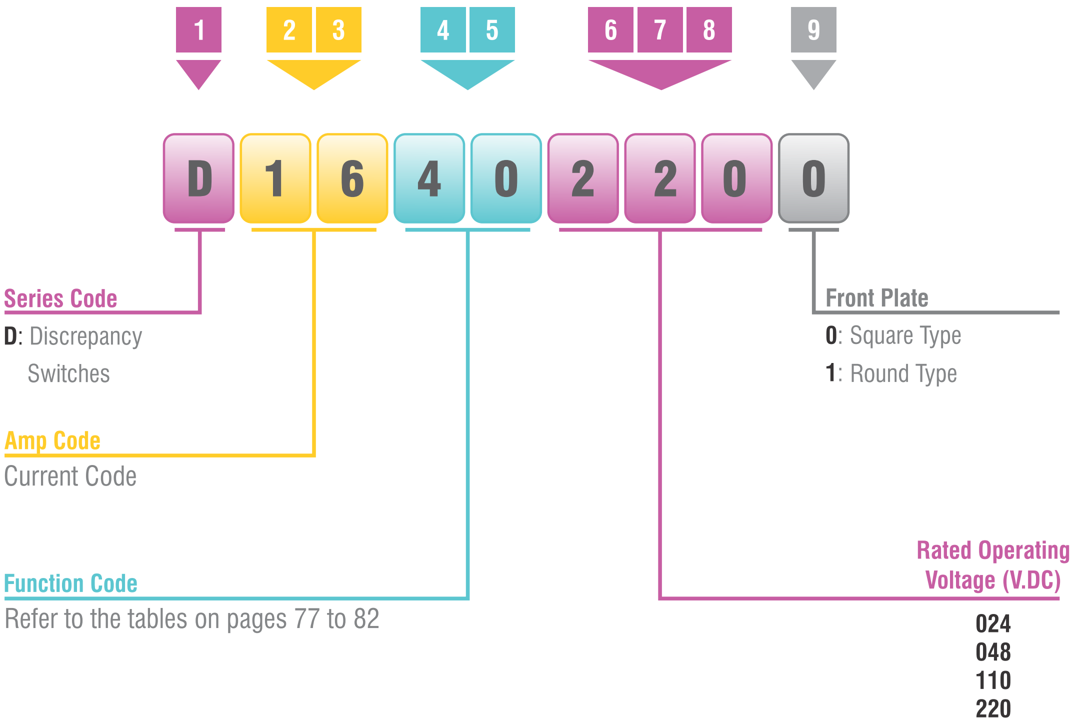
No.	Item	Condition	Remarks
1	Ambient temperature	–5 to 40°C	IEC60947-1 6.1.1
2	Humidity	50% (at maximum temperature 40°C), Less than 90% (at other temperature 20°C)	IEC60947-1 6.1.3
3	Altitude	2000 m max.	IEC60947-1 6.1.2

(2) Rating

<table>
<tr><th>No.</th><th>Item</th><th colspan="4">Condition</th><th>Remarks</th></tr>
<tr><td>1</td><td>Overvoltage class</td><td colspan="4">III</td><td>IEC60664-1 2.2.2.1.1</td></tr>
<tr><td>2</td><td>Pollution degree</td><td colspan="4">Level 3</td><td>IEC60947-5-1 6.1.3.2</td></tr>
<tr><td>3</td><td>Rated insulation voltage (Ui)</td><td colspan="4">690 V</td><td>IEC60947-1 4.3.1.2</td></tr>
<tr><td>4</td><td>Rated impulse withstand voltage (Uimp)</td><td colspan="4">4 kV</td><td>IEC60947-1 4.3.1.3</td></tr>
<tr><td rowspan="5">5</td><td rowspan="5">Operating load class
Rated operating current (Ie)
Rated operating voltage (Ue)
*Electrical durability</td><td>Name</td><td>Operating load class</td><td>Ue(V)</td><td>Ie(A)</td><td rowspan="5">IEC60947-5-1 Annex A</td></tr>
<tr><td rowspan="2">A600</td><td rowspan="2">AC-15</td><td>240</td><td>3</td></tr>
<tr><td colspan="2">100,000 operations or more*</td></tr>
<tr><td rowspan="2">P600</td><td rowspan="2">DC-13</td><td>250</td><td>0.55</td></tr>
<tr><td colspan="2">20,000 operations or more*</td></tr>
<tr><td>6</td><td>Rated frequency</td><td colspan="4">50 / 60 Hz</td><td>IEC60947-5-1 4.3.3</td></tr>
<tr><td>7</td><td>Customary free air heat current (Ith)</td><td colspan="4">20 A</td><td>IEC60947-1 4.3.2.1</td></tr>
<tr><td>8</td><td>Maximum rating of short-circuit protection device</td><td colspan="4">20 A</td><td>IEC60947-5-1 8.3.4.3</td></tr>
<tr><td>9</td><td>Short-circuit current under rated conditions</td><td colspan="4">1,000 A (cosphi=1)</td><td>IEC60947-5-1 4.3.6.4</td></tr>
<tr><td>10</td><td>Mechanical durability</td><td colspan="4">100,000 operation or more</td><td>60947-5-1 Annex1C C.2</td></tr>
</table>

discrepancy cam switches (D Series) Code

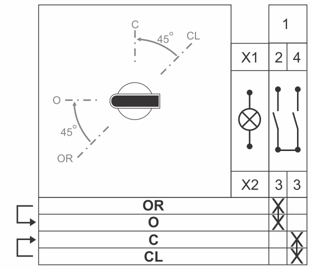
Each discrepancy cam switch is defined using a unique **9** digit code:



Example:

The code, **D.16.40.220.0** belongs to a Discrepancy Switch with 16 Amp rated current, 220 volt rated DC voltage with a square type front plate and functioning according to function diagram no. 040.

0 1



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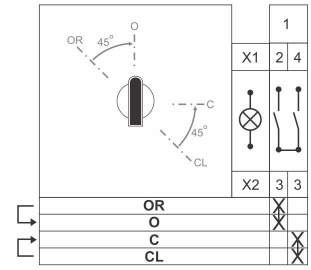

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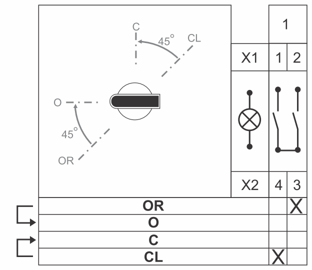

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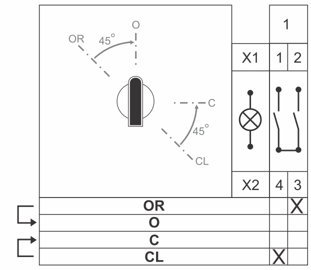

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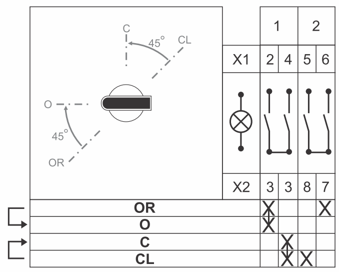

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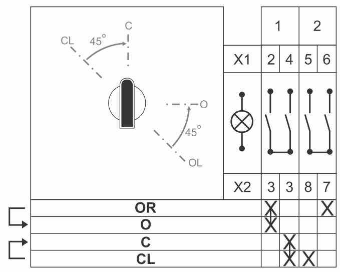

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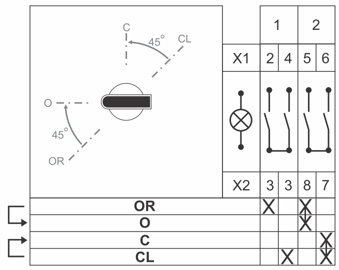

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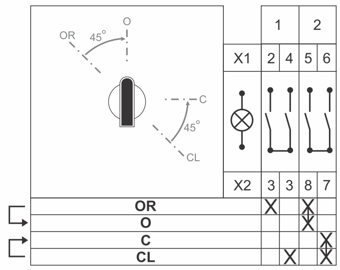

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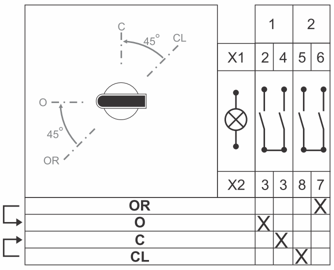

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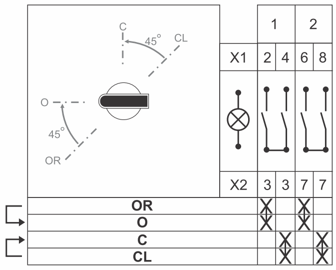

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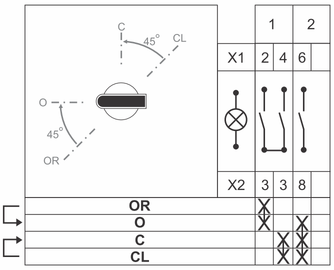

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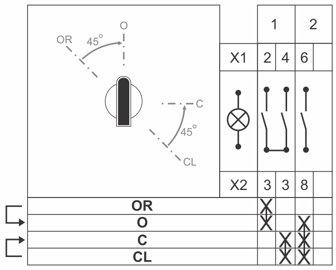

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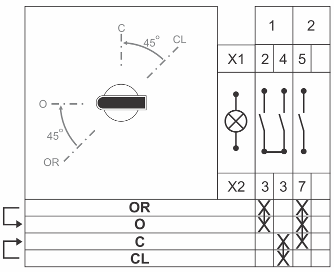

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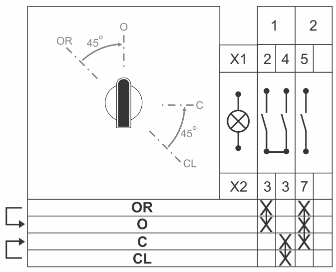

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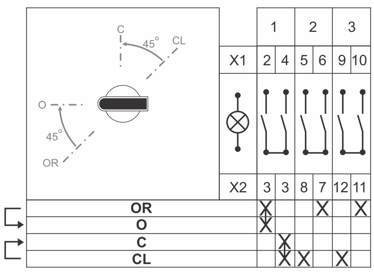

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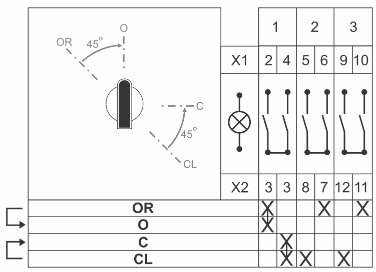

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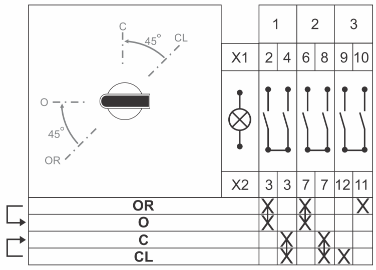

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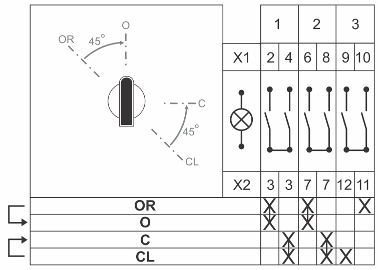

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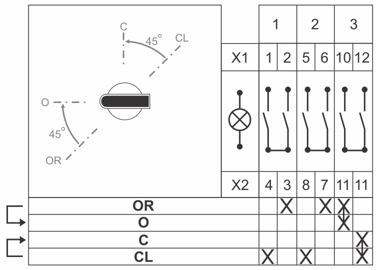

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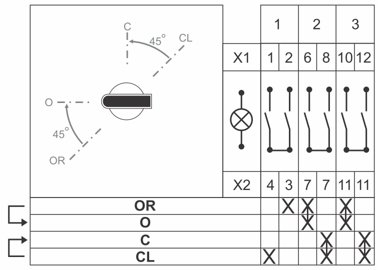

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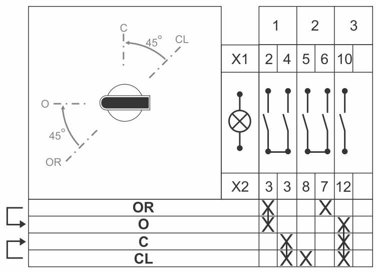

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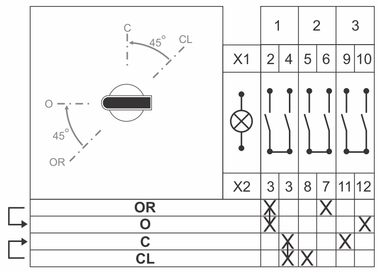

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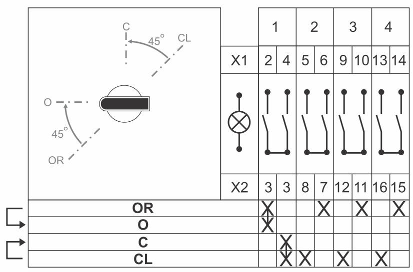

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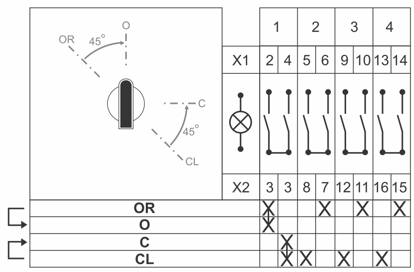

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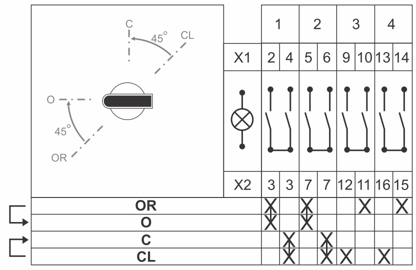

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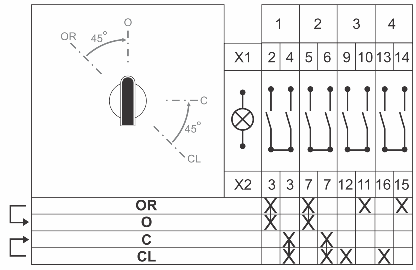

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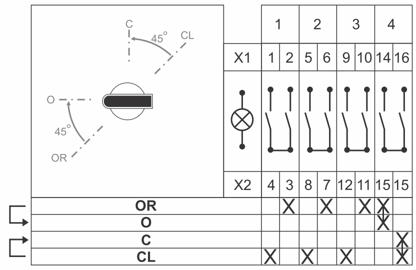

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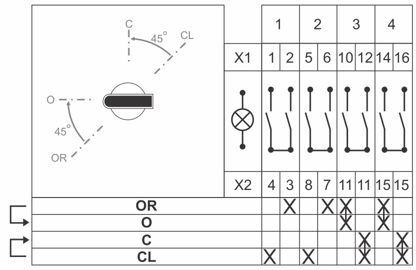

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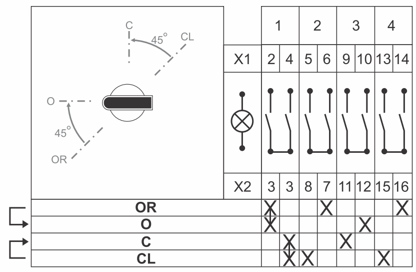

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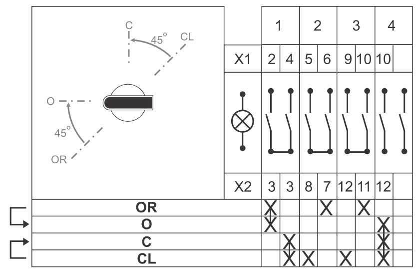

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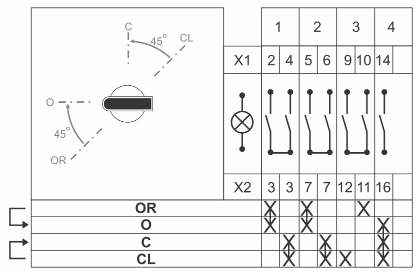

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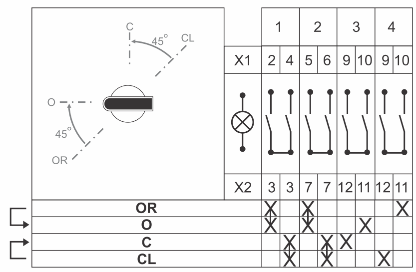

Discrepancy Switches
(D Series)

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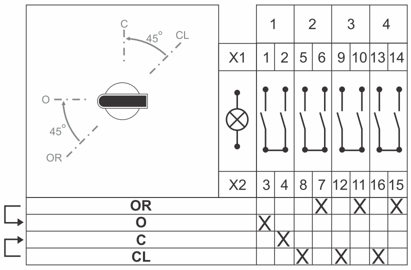

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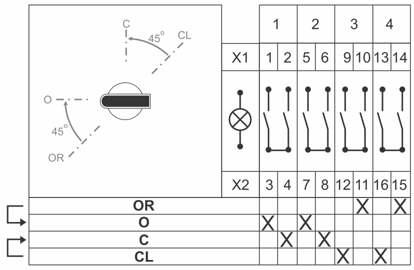

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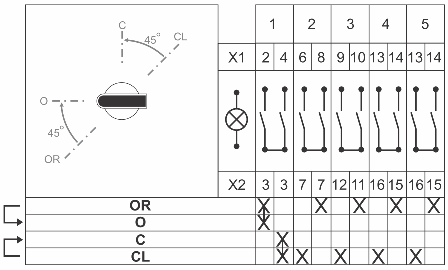

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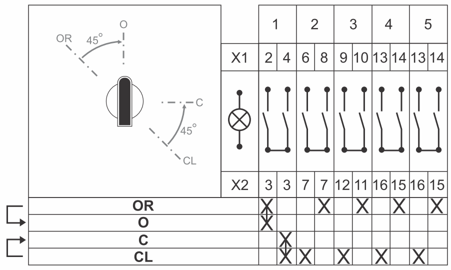

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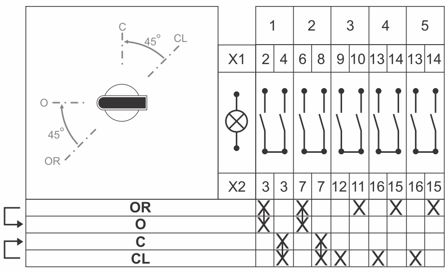

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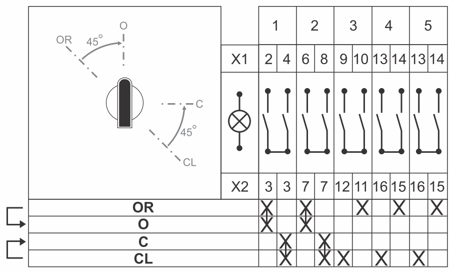

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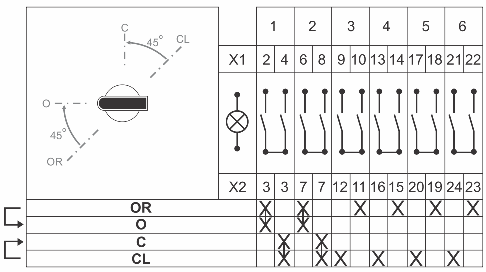

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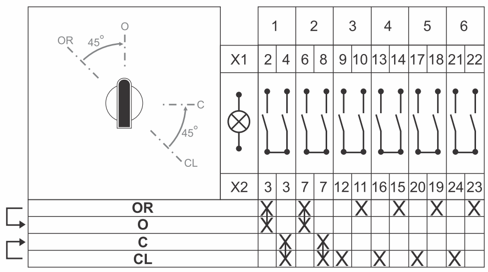
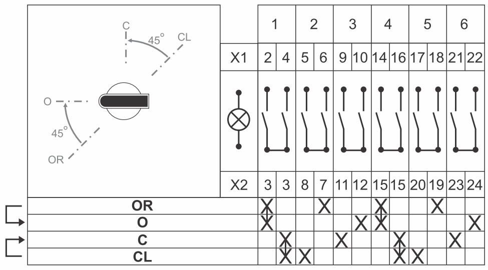


Discrepancy Switches
(D Series)

4 1



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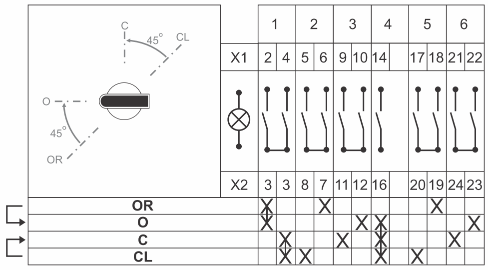

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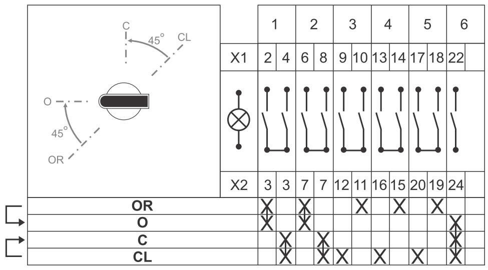

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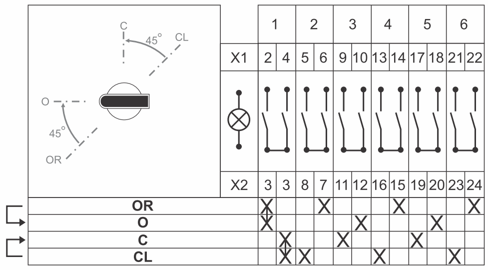

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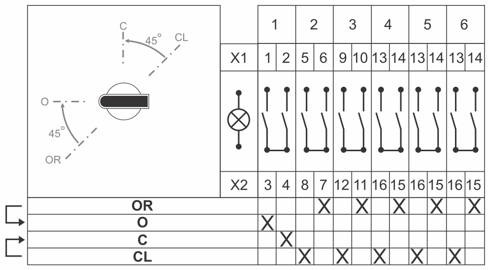

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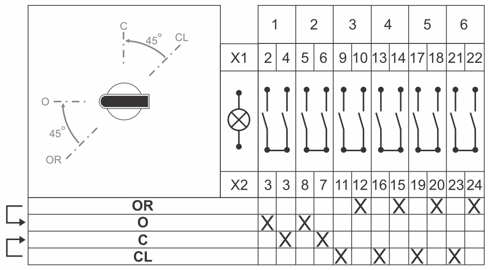

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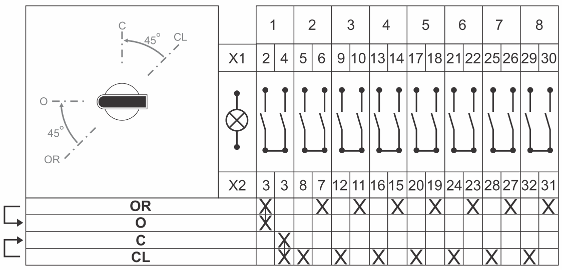

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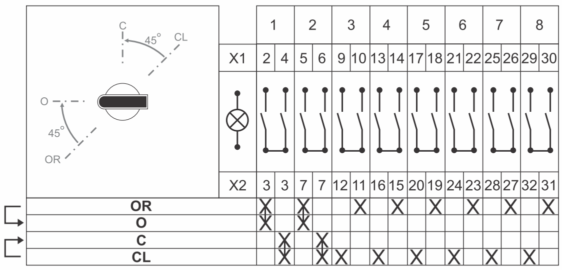


Discrepancy Switches (D Series)

S SERIES

COMPACT
Selector Switches

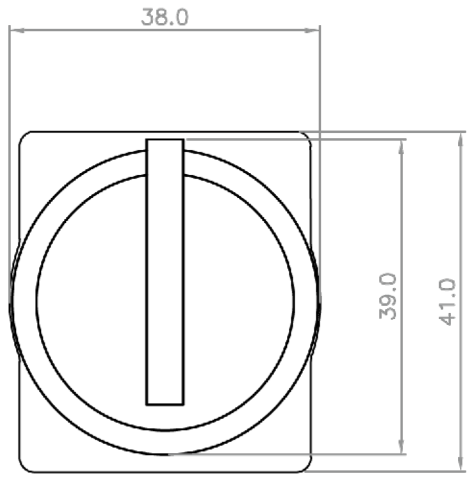
Compact Selector Switches (**S Series**)

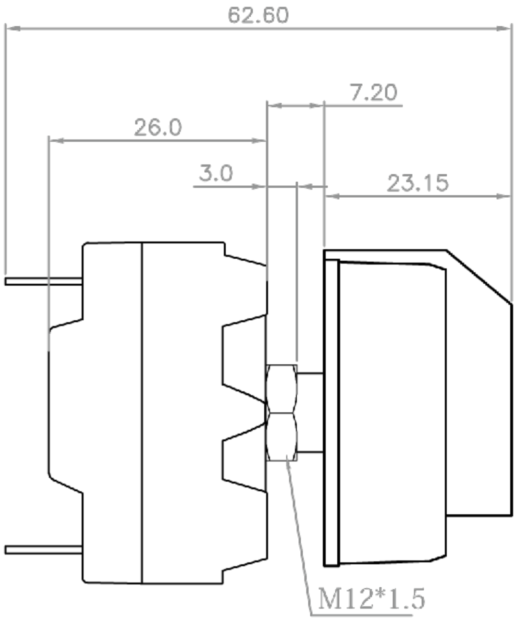
Compact Selector Switches (S Series)

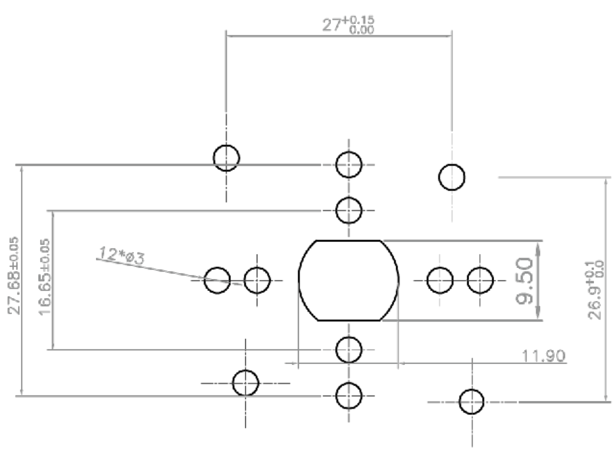
General features

These series of cam switches are suitable for home appliances such as ovens, fans, chicken roasters, etc. This product is designed to be compact and easy for installation and wiring. Other features of these products are:

- Body material is fibered reinforced polyamide with high mechanical, electrical and thermal resistance
- Bimetal (copper-silver alloy) contact rivets
- Terminals made of Tin coated brass
- Conformity with IEC947-2 (AC3 16A & AC1 25A)
- Installable by side or front using screws
- Clock Wise and Counter Clock Wise functions
- Plastic or metal shaft based on customer request
- Highly customizable based on customer requirements
- Possibility to modify or customize the switch design and function based on customer needs. Please contact us for customized designs.


38.0
39.0
41.0


62.60
7.20
26.0
3.0
23.15
M12*1.5


27+0.15/0.00
27.68±0.05
16.65±0.05
12*ø3
9.50
26.9+0.1/0.0
11.90

Compact selector switch coding system:

Each Compact selector switch is defined using a unique **9** digit code:

1	2	3	4	5	6	7	8	9
S	1	6	0	0	2	I	R	0

Series Code (1)
S: Compact Selector Switches

Amp Code (2–3)
Current Rating

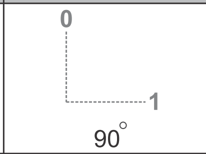
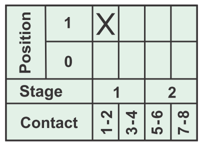
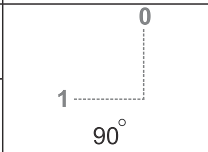
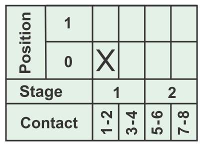
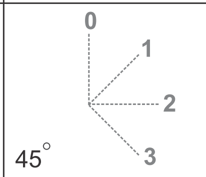
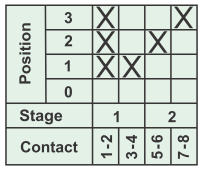
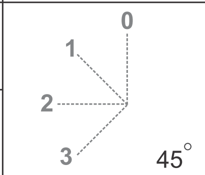
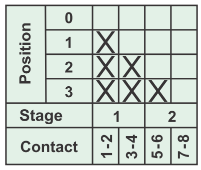
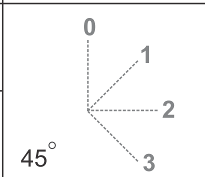
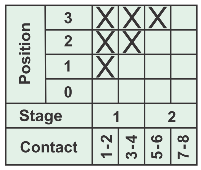
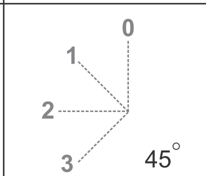
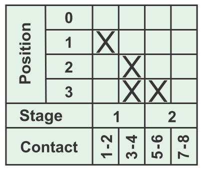
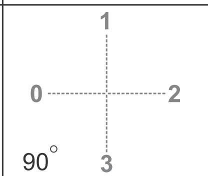
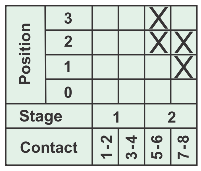
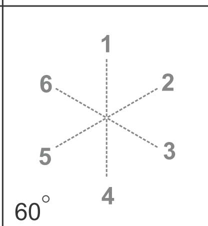
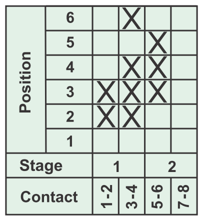
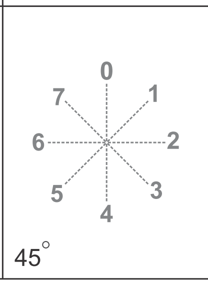
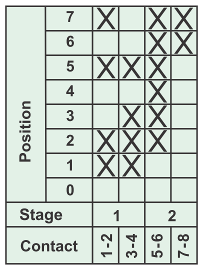
Function (4–6)
Refer to the table on next page

Shaft material (7)
P: Plastic
I: Metal

Rotation (8)
L: Left
R: Right

Mounting Option (9)
0: **without** bead & washer
1: **with** beads & washers

Example:
The code **S.16.002.I.R.0** belongs to a compact selector switch with 16 ampere current, 002 function, metal shaft, right side rotating handle without bead and washer

No.	Product Code	Positions and rotation characteristics	Stages and Contacts arrangement	Current (A)	Function Code	Shaft	Mounting with bead & washer
1	S.016.0001.I.R.0			16	001	Metal	NO
2	S.016.0001.P.L.1			16	001	Plastic	YES
3	S.016.0001.I.L.1					Metal	YES
4	S.016.0002.P.R.1			16	002	Plastic	YES
5	S.016.0003.I.L.1			16	003	Metal	YES
6	S.016.0003.P.L.1					Plastic	YES
7	S.016.0003.I.R.0			16	003	Metal	NO
8	S.016.0003.P.R.1					Plastic	YES
9	S.016.0004.I.L.0			16	004	Metal	NO
10	S.016.0005.I.R.1			16	005	Metal	YES
11	S.016.0006.I.R.0			16	006	Metal	NO
12	S.016.0007.I.R.1			16	007	Metal	YES

Compact Selector Switches (S Series)

ENCLOSED
PUSH BOTTONS

ENCLOSED
PUSH BOTTONS

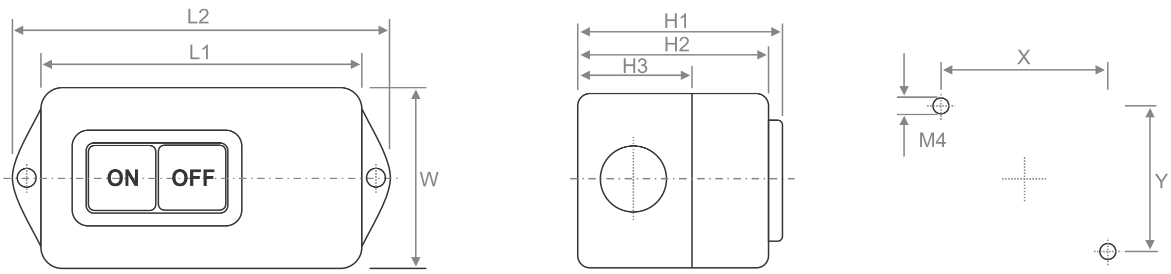
Enclosed Push buttons

General features

- Enclosed push buttons for 10, 15, 30 Amps, 2 poles or 3 poles, 380 VAC, 50 Hz
- Best economic solution for connecting/disconnecting various loads of 1 or 3 phase, up to 30 Amps.
- Suitable for resistive loads, motor loads, homes, workshops, lighting switches, and so on.
- ISIRI standard in AC21 utilization category (No. 4835-1 & 4835-3) and CE
- Two glanded areas for cable on two sides
- Proper dimensions and easy to install
- Enclosure made of fiber reinforced polyamide and resistant to flames
- No relays used
- IP54 enclosure protection against dust and water
- Double contacts using bimetal (Copper-Silver alloy) contact rivets

Technical Specifications:

All technical specifications, mechanical drawings, ordering codes are included bellow:



Part No.		380VAC AC21	Dimensions(mm)							
2 Pole	**3 Pole**		L1	L2	W	H1	H2	H3	X	Y
PB2P10	**PB3P10**	10A	86	102	48	51	47	24	70	30
PB2P15	**PB3P15**	15A	86	102	54	57	53	30	70	36
PB2P30	**PB3P30**	30A	103	123	63	58	54	32	85	43