

## Rotary Cam Switches

Rotary cam switches series CS are intended for multiple switching operations in main as well as in auxiliary circuits:

- As motor switches they are designed for direct-online starting and stopping of single- phase and three-phase motors. They also come out as star-delta switches, reversing switches, pole-change over motor switches.
- In auxiliary circuits they are assembled in compliance with the switching programme according to preference:
  - switches for control, signalling and measuring circuits.
  - switches, selector switches and step switches e.g. for transformers and welding apparatuses.
  - Group switches e.g. for switching operations of resistors and heaters.
  - Control switch with automatic return

### Advantages

- high making and breaking capacities
- electrical and mechanical endurance
- small dimensions.

Rotary cam switches comply with international and national standards such as: IEC/EN 60947-3, VDE 0660, TS EN 60947-3, BS 5419 etc.

### Designation

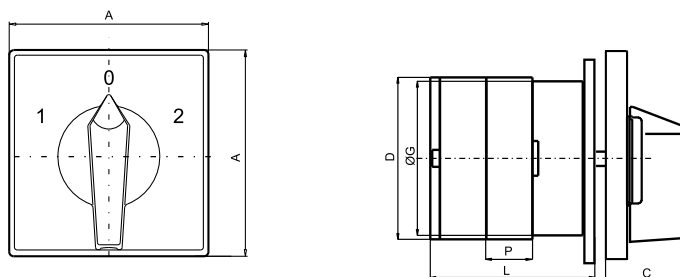
CS XX(I<sub>th</sub>[A]) YY(diagram) Z\_(design)

- Emergency switch makes an electrical separation between electrical supply and electrical equipment
- Control handle is red according to standards, and the plate behind is yellow
- Emergency switch can be locked in open position "0" with up to three padlocks.

Rotary cam switches in insulated enclosures with IP65 degree of protection.  
Colour of enclosures is grey (RAL 7035).

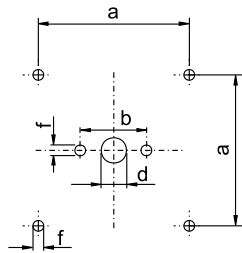
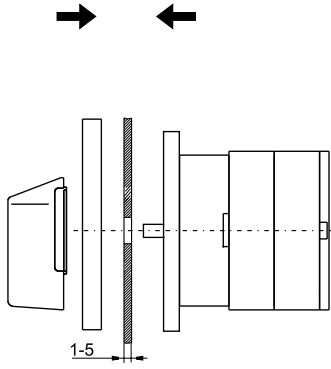
**Technical data**

Type		CS 10	CS 16	CS 25	CS 32	CS 40	CS 63	CS 80	CS 100		
Rated insulation voltage $U_i$ V		400	400	690	690	690	690	690	690		
Rated impulse withstand voltage $U_{imp}$ kV		4	4	6	6	6	6	6	6		
Rated thermal current $I_{th}$ A		16	20	25	32	50	70	85	100		
Main switch IEC 60947 (III/3)	Max. value of rated operational voltage V	400	400	480	480	480	480	480	480		
	Rated impulse withstand voltage kV	4	4	4	4	4	4	4	4		
Max. fuse size for short-circuit protection gL 10kA A		16	20	25	32	40	63	80	100		
Rated short-time withstand current $I_{cw}$	1 sec A	200	250	400	600	800	800	1000	1800		
	3 sec A	120	10	250	400	530	700	800	900		
	10 sec A	70	80	140	240	290	350	400	450		
	30 sec A	40	50	90	150	200	250	250	300		
	60 sec A	30	40	70	120	150	150	160	200		
Rated operational current $I_{AC1/AC21}$ A		10	16	25	32	40	63	80	85		
Rated operational current $I_{AC15}$	110/120V A	8	10	20	25	40	50				
	220/230V A	6	8	20	25	30	40				
	380/400V A	4	6	16	20	25	40				
	660/690V A			8	8,5	8,5	10				
Motor switch in utilisation category AC3/AC23	3 phase	220/230V kW	2,5/3	3/5	5,6/6,5	7,6/8	9/9	11/15	12/18,5	19/22	
		380/400V kW	4/6	5/7,5	7,5/11	11/15	15/18,5	18,5/22	22/32	32/37	
		500/690V kW			11/11	15/18,5	19/22	22/30	28/45	42/55	
	1 phase 2 poles	110/120V kW	0,8/0,8	0,8/0,8	1,5/1,5	2,5/2,5	2,5/3	3/3,5			
		220/230V kW	1,5/1,7	2,2/2,5	3/3,7	4,8/5	5,5/6	6/9			
		380/400V kW	2,2/3	3/3,7	5,5/5,5	6,5/7,5	7,5/9	11/15			
Motor switch in utilisation category AC4	3 phase	220/230V kW	1,2	1,5	2,5	3	5	6	7	9,5	
		380/400V kW	1,8	3	4	5,5	8	11	12	16	
		500/690V kW			4	7,5	8	11	12	16	
Mechanical endurance	switching cycles	10 <sup>6</sup>	3	3	3	3	2	2	2		
Terminal screw		M3,5	M3.5	M35	M4	M5	M5	2xM5	2xM5		
Screw head		(+, -) PZ2						(-)			
Tightening torque		0,8	0,8	0,8	1,2	1,8	2	2	2		
Cable cross-section	Rigid mm <sup>2</sup>	2x(1-2,5)	2x(1-2,5)	2x(1-4)	2x(2,5-6)	2x(2,5-10)	2x(4-16)	10-25			
	Flexible mm <sup>2</sup>	2x(1-2,5)	2x(1-2,5)	2x(1-4)	2x(2,5-6)	2x(2,5-6)	2x(4-16)	6-25, 2x(6-10)			
Protection degree of terminals		IP20							IP00		
Permissible ambient temperature		°C -25 ... +55									
Standards		IEC 60947-3, VDE 0660, EN 60947 - 3									

**Dimensions**


Type	Marking		Number of elements (L/mm)														
	A	C	D	ØG	P	1	2	3	4	5	6	7	8	9	10	11	12
CS 10	48	26	38,6	38,6	12,8	32,5	45,3	58,1	70,9	83,7	96,5	109,3	122,1	134,9	147,7	160,5	173,3
CS 16	48	26	38,6	38,6	12,8	32,5	45,3	58,1	70,9	83,7	96,5	109,3	122,1	134,9	147,7	160,5	173,3
CS 25	48	26	45,2	38,6	12,8	32,5	45,3	58,1	70,9	83,7	96,5	109,3	122,1	134,9	147,7	160,5	173,3
CS 32	65	33	53	38,6	12,8	37	49,8	62,6	75,4	88,2	101	113,8	126,6	139,4	152,2	165	177,8
CS 40	65	33	61	56,4	17,5	50,6	68,1	85,6	103,1	120,6	138,1	155,6	173,1	190,6	208,1	225,6	243,1
CS 63	90	41	68,6	56,4	20,5	42,5	63	83,5	104	124,5	145	168,5	186	208,5	227	247,5	268
CS 80	90	41	84	80	25	67,5	92,5	117,5	142,5	167,5	192,5	217,5	242,5	267,5	292,5	317,5	342,5
CS 100	90	41	84	80	25	67,5	92,5	117,5	142,5	167,5	192,5	217,5	242,5	267,5	292,5	317,5	342,5

Drilling plan



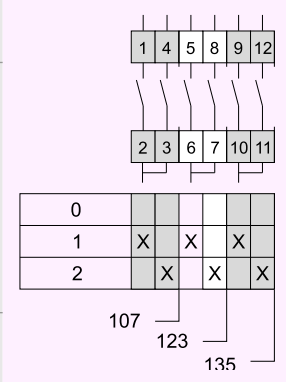
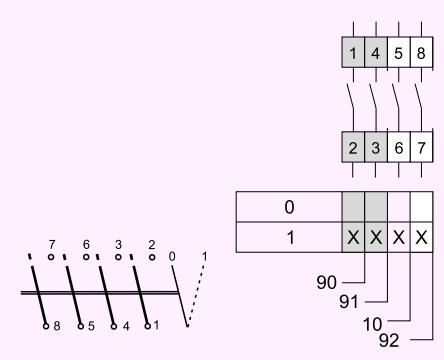
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CS 10				
CS 16	36	32	10	4.2
CS 25				
CS 32				
CS 40	48	45	10	4.2
CS 63				
CS 80	72	40	14	5.3
CS 100				

a\* - for 5 and more then 5 elements  
b\*\* - up to 4 elements

Type, layout and symbol	Nr of poles / elements	Connection diagram
<p>0-1-1</p>	1/1	90
<p>0-1</p>	2/2	91
<p>0-1</p>	3/3	10
<p>0-1</p>	4/4	92
<p>0-1-2</p>	1/1	107
<p>0-1-2</p>	2/2	123
<p>0-1-2</p>	3/3	135

ON-OFF switches with 60° switching angle

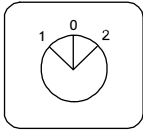
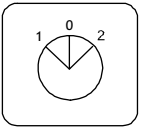
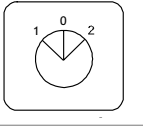
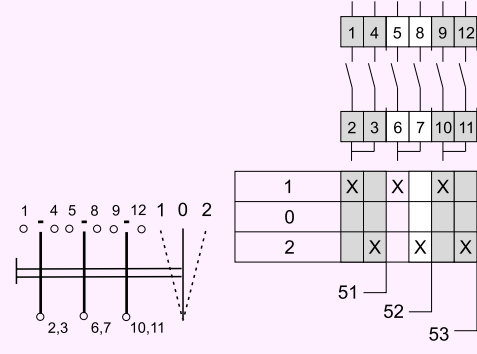
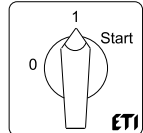
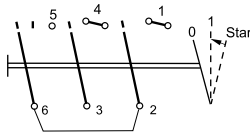
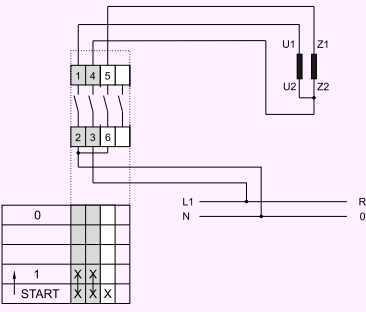
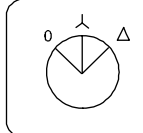
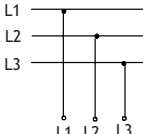
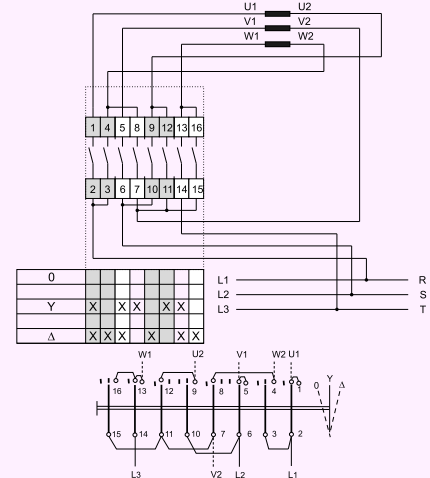
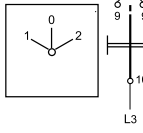
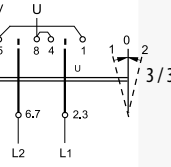
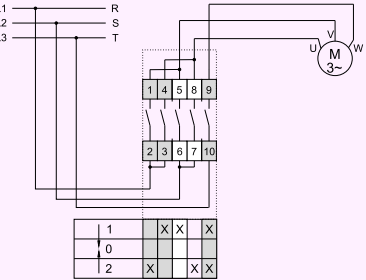
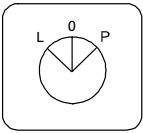
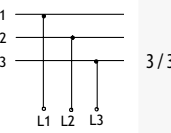
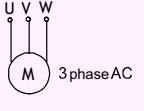
Multistep Switches With 60° Switching Angle

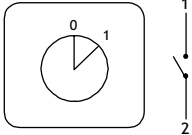
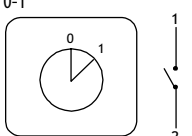
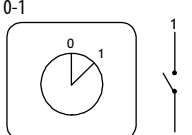
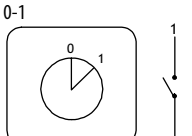
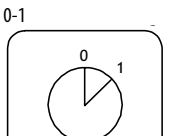


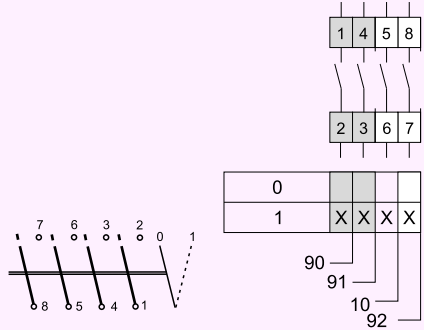
Type, layout and symbol	Nr of poles / elements	Connection diagram																												
<p><b>3 line and 3 phase</b></p>	<p><b>3 LINE AND 3 PHASE / 3</b></p>	<p>66</p> <table border="1"> <tr><td>L3-L1</td><td>X</td><td>X</td><td></td></tr> <tr><td>L2-L3</td><td>X</td><td>X</td><td></td></tr> <tr><td>L1-L2</td><td></td><td>X</td><td>X</td></tr> <tr><td>0</td><td></td><td></td><td></td></tr> <tr><td>L1-N</td><td></td><td>X</td><td>X</td></tr> <tr><td>L2-N</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>L3-N</td><td>X</td><td></td><td>X</td></tr> </table>	L3-L1	X	X		L2-L3	X	X		L1-L2		X	X	0				L1-N		X	X	L2-N	X	X	X	L3-N	X		X
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L2-L3	X	X																												
L1-L2		X	X																											
0																														
L1-N		X	X																											
L2-N	X	X	X																											
L3-N	X		X																											
<p><b>3 line</b></p>	<p><b>3 LINE / 2</b></p>	<p>67</p> <table border="1"> <tr><td>0</td><td></td><td></td><td></td></tr> <tr><td>L1-L2</td><td>X</td><td></td><td>X</td></tr> <tr><td>L2-L3</td><td></td><td>X</td><td>X</td></tr> <tr><td>L3-L1</td><td>X</td><td>X</td><td></td></tr> </table>	0				L1-L2	X		X	L2-L3		X	X	L3-L1	X	X													
0																														
L1-L2	X		X																											
L2-L3		X	X																											
L3-L1	X	X																												
<p><b>3 currents</b></p>	<p><b>1 POLE 3 CURRENT WITH TRANSFORMER / 4</b></p>	<p>98</p> <table border="1"> <tr><td>0</td><td>X</td><td>X</td><td>X</td><td></td></tr> <tr><td>1</td><td></td><td>X</td><td>X</td><td>X</td></tr> <tr><td>2</td><td>X</td><td>X</td><td></td><td>X</td></tr> <tr><td>3</td><td>X</td><td></td><td>X</td><td>X</td></tr> </table>	0	X	X	X		1		X	X	X	2	X	X		X	3	X		X	X								
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2	X	X		X																										
3	X		X	X																										
<p><b>3 currents</b></p>	<p><b>2 POLE 3 CURRENT WITH OR WITHOUT TRANSFORMER / 6</b></p>	<p>97</p> <table border="1"> <tr><td>0</td><td></td><td>X</td><td>X</td><td>X</td><td></td></tr> <tr><td>1</td><td>X</td><td></td><td>X</td><td>X</td><td>X</td></tr> <tr><td>2</td><td></td><td>X</td><td>X</td><td></td><td>X</td></tr> <tr><td>3</td><td>X</td><td>X</td><td></td><td>X</td><td>X</td></tr> </table>	0		X	X	X		1	X		X	X	X	2		X	X		X	3	X	X		X	X				
0		X	X	X																										
1	X		X	X	X																									
2		X	X		X																									
3	X	X		X	X																									

Voltmeter Switches

Ammeter Switches

Type, layout and symbol	Nr of poles / elements	Connection diagram
<p><b>Changeover Switches with 60° Switching Angle</b></p> <p>1-0-2</p>  <p>1-0-2</p>  <p>1-0-2</p> 	<p>1/1</p> <p>2/2</p> <p>3/3</p>	<p>51</p> <p>52</p> <p>53</p> 
<p><b>Start and Run Switches</b></p> <p>0-start-1</p>  	<p>2/2</p>	<p>15</p> 
<p><b>Star - Delta Switches</b></p> <p>0-star-delta</p>  	<p>4/4</p>	<p>12</p> 
<p><b>Motor Reversing Switches</b></p> <p>1-0-2</p>  	<p>3/3</p>	<p>11</p> 
<p>L-0-P</p>  	<p>3/3</p>	<p>11</p> 

Type, layout and symbol	Nr of poles / elements	Connection diagram
<p>0-1</p> 	1	10
<p>0-1</p> 	2	91
<p>0-1</p> 	3	10
<p>0-1</p> 	4	92
<p>0-1</p> 	3	10

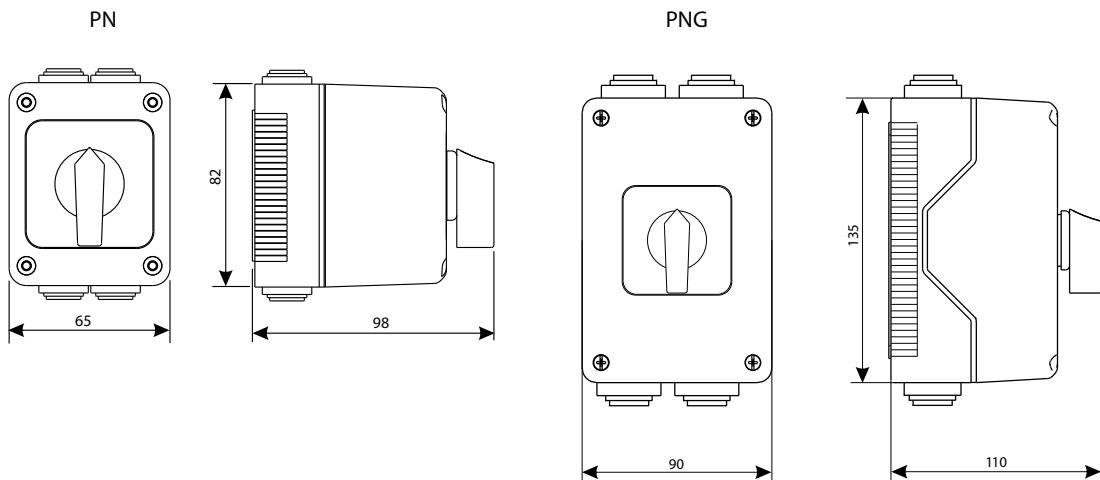


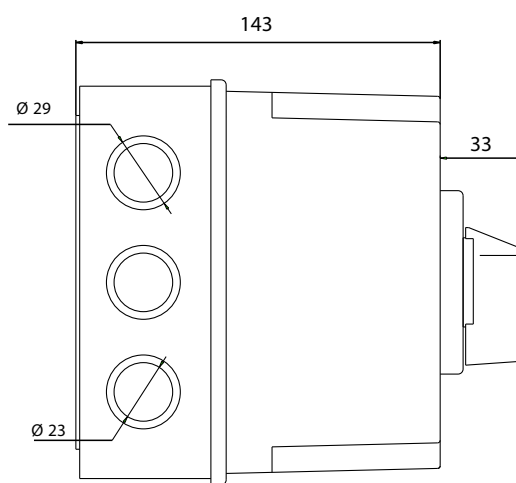
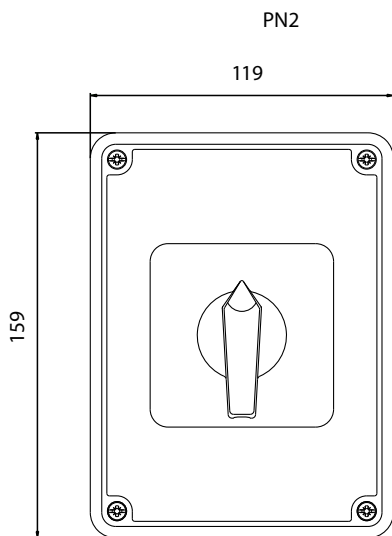
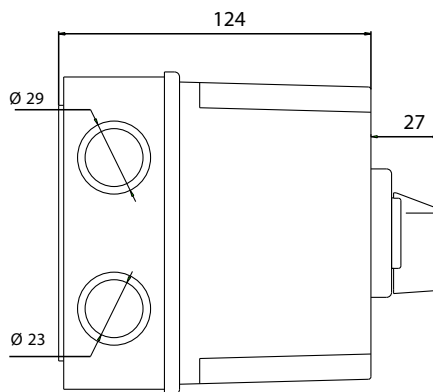
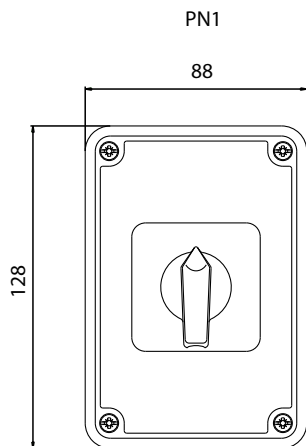
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1	X	X	X	X

## Rotary Cam Switches in insulated enclosures

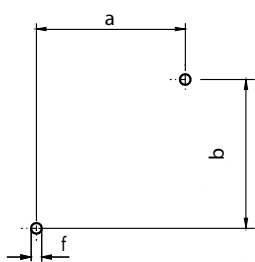
Technical data and connection diagrams for switches in insulated enclosures are the same as for those without enclosures.

### Dimensions

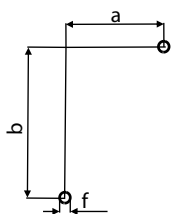




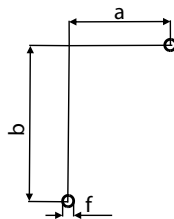
**Drilling plan**



	a	b	f
PN	44	48	4,3
PNG	48	100	4,3



	a	b	f
PN1	42	82	4,3



	a	b	f
PN2 32	72	112	4,5