
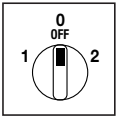
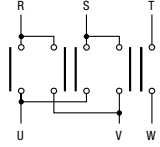
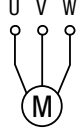
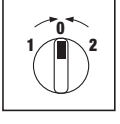
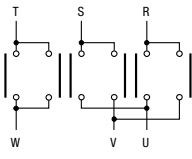
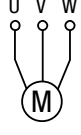
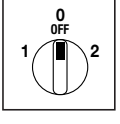
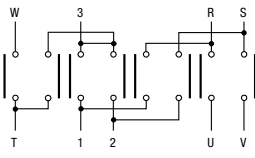
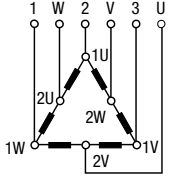
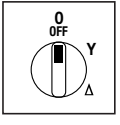
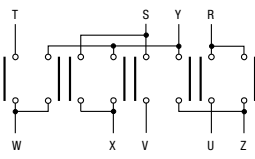
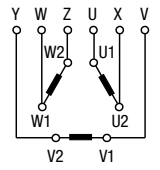
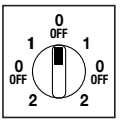
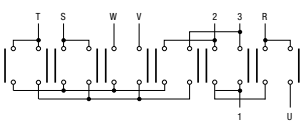
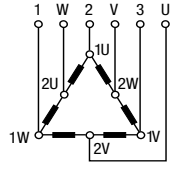


# Circuit diagrams


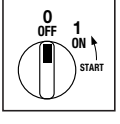
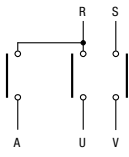
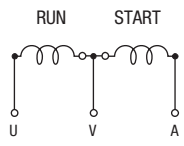
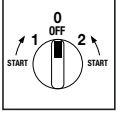
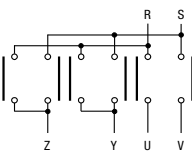
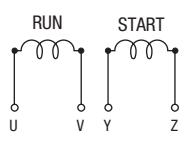
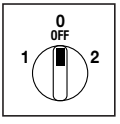
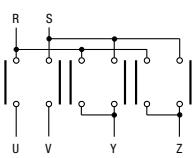
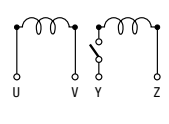
Switches																																					
plate	diagram	function	circuit diagram	contact/element description	element no.																																
	<b>0001</b>	ON-OFF switch 1 pole		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>60°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td></td> <td>CA</td> <td>90°</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>CQ</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	60°		<b>1</b>	X		CA	90°	Contact	1	2	3	4	CQ	Element	<b>1</b>				Angle	<b>1</b>								
	<b>0</b>			CR	60°																																
	<b>1</b>	X		CA	90°																																
Contact	1	2	3	4	CQ																																
Element	<b>1</b>				Angle																																
	<b>0002</b>	ON-OFF switch 2 pole		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>60°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td>X</td> <td>CA</td> <td>90°</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>CQ</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	60°		<b>1</b>	X	X	CA	90°	Contact	1	2	3	4	CQ	Element	<b>1</b>				Angle	<b>1</b>								
	<b>0</b>			CR	60°																																
	<b>1</b>	X	X	CA	90°																																
Contact	1	2	3	4	CQ																																
Element	<b>1</b>				Angle																																
	<b>0003</b>	ON-OFF switch 3 pole		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>60°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td>X</td> <td>X</td> <td>CA</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	60°		<b>1</b>	X	X	X	CA	Contact	1	2	3	4	5	6	7	8	Element	<b>1</b>	<b>2</b>						Angle	<b>2</b>		
	<b>0</b>			CR	60°																																
	<b>1</b>	X	X	X	CA																																
Contact	1	2	3	4	5	6	7	8																													
Element	<b>1</b>	<b>2</b>						Angle																													
	<b>0004</b>	ON-OFF switch 4 pole		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>60°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>CA</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	60°		<b>1</b>	X	X	X	X	CA	Contact	1	2	3	4	5	6	7	8	Element	<b>1</b>	<b>2</b>						Angle	<b>2</b>	
	<b>0</b>			CR	60°																																
	<b>1</b>	X	X	X	X	CA																															
Contact	1	2	3	4	5	6	7	8																													
Element	<b>1</b>	<b>2</b>						Angle																													
	<b>0035</b>	ON-OFF switch 3 pole with spring return to "OFF"		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>45°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td>X</td> <td>X</td> <td>CA</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	45°		<b>1</b>	X	X	X	CA	Contact	1	2	3	4	5	6	7	8	Element	<b>1</b>	<b>2</b>						Angle	<b>2</b>		
	<b>0</b>			CR	45°																																
	<b>1</b>	X	X	X	CA																																
Contact	1	2	3	4	5	6	7	8																													
Element	<b>1</b>	<b>2</b>						Angle																													
	<b>00G3</b>	ON-OFF switch 3 pole with padlockable handle		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>90°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td>X</td> <td>X</td> <td>CA</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	90°		<b>1</b>	X	X	X	CA	Contact	1	2	3	4	5	6	7	8	Element	<b>1</b>	<b>2</b>						Angle	<b>2</b>		
	<b>0</b>			CR	90°																																
	<b>1</b>	X	X	X	CA																																
Contact	1	2	3	4	5	6	7	8																													
Element	<b>1</b>	<b>2</b>						Angle																													
	<b>00G4</b>	ON-OFF switch 4 pole with padlockable handle		<table border="1"> <tr> <td></td> <td><b>0</b></td> <td></td> <td></td> <td>CR</td> <td>90°</td> </tr> <tr> <td></td> <td><b>1</b></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>CA</td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Angle</td> </tr> </table>		<b>0</b>			CR	90°		<b>1</b>	X	X	X	X	CA	Contact	1	2	3	4	5	6	7	8	Element	<b>1</b>	<b>2</b>						Angle	<b>2</b>	
	<b>0</b>			CR	90°																																
	<b>1</b>	X	X	X	X	CA																															
Contact	1	2	3	4	5	6	7	8																													
Element	<b>1</b>	<b>2</b>						Angle																													

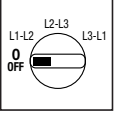
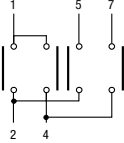
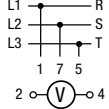
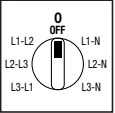
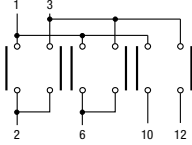
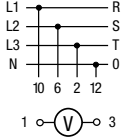
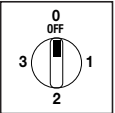
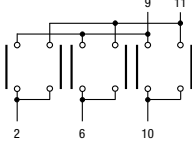
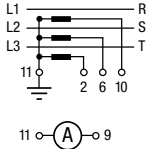
Switches																																																																									
plate	diagram	function	circuit diagram	contact/element description	element no.																																																																				
	<b>0005</b>	Change-over switch 1 pole		<table border="1"> <tr><td></td><td><b>2</b></td><td></td><td>×</td><td></td><td>CR</td><td>60°</td></tr> <tr><td></td><td><b>0</b></td><td></td><td></td><td></td><td>CA</td><td></td></tr> <tr><td></td><td><b>1</b></td><td></td><td>×</td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>Angle</td></tr> <tr><td>Element</td><td></td><td><b>1</b></td><td></td><td></td><td></td><td></td></tr> </table>		<b>2</b>		×		CR	60°		<b>0</b>				CA			<b>1</b>		×		CQ	45°	Contact		1	2	3	4	Angle	Element		<b>1</b>					<b>1</b>																																	
	<b>2</b>		×		CR	60°																																																																			
	<b>0</b>				CA																																																																				
	<b>1</b>		×		CQ	45°																																																																			
Contact		1	2	3	4	Angle																																																																			
Element		<b>1</b>																																																																							
	<b>0006</b>	Change-over switch 2 pole		<table border="1"> <tr><td></td><td><b>2</b></td><td></td><td>×</td><td></td><td>×</td><td>CR</td><td>60°</td></tr> <tr><td></td><td><b>0</b></td><td></td><td></td><td></td><td></td><td>CA</td><td></td></tr> <tr><td></td><td><b>1</b></td><td></td><td>×</td><td></td><td>×</td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>Angle</td></tr> <tr><td>Element</td><td></td><td><b>1</b></td><td></td><td><b>2</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>		<b>2</b>		×		×	CR	60°		<b>0</b>					CA			<b>1</b>		×		×	CQ	45°	Contact		1	2	3	4	5	6	7	8	Angle	Element		<b>1</b>		<b>2</b>							<b>2</b>																						
	<b>2</b>		×		×	CR	60°																																																																		
	<b>0</b>					CA																																																																			
	<b>1</b>		×		×	CQ	45°																																																																		
Contact		1	2	3	4	5	6	7	8	Angle																																																															
Element		<b>1</b>		<b>2</b>																																																																					
	<b>0007</b>	Change-over switch 3 pole		<table border="1"> <tr><td></td><td><b>2</b></td><td></td><td>×</td><td></td><td>×</td><td>×</td><td>CR</td><td>60°</td></tr> <tr><td></td><td><b>0</b></td><td></td><td></td><td></td><td></td><td></td><td>CA</td><td></td></tr> <tr><td></td><td><b>1</b></td><td></td><td>×</td><td></td><td>×</td><td>×</td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td></td><td><b>1</b></td><td></td><td><b>2</b></td><td></td><td><b>3</b></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>		<b>2</b>		×		×	×	CR	60°		<b>0</b>						CA			<b>1</b>		×		×	×	CQ	45°	Contact		1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element		<b>1</b>		<b>2</b>		<b>3</b>									<b>3</b>											
	<b>2</b>		×		×	×	CR	60°																																																																	
	<b>0</b>						CA																																																																		
	<b>1</b>		×		×	×	CQ	45°																																																																	
Contact		1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																											
Element		<b>1</b>		<b>2</b>		<b>3</b>																																																																			
	<b>0039</b>	Change-over switch 4 pole		<table border="1"> <tr><td></td><td><b>2</b></td><td></td><td>×</td><td></td><td>×</td><td>×</td><td>×</td><td>CR</td><td>60°</td></tr> <tr><td></td><td><b>0</b></td><td></td><td></td><td></td><td></td><td></td><td></td><td>CA</td><td></td></tr> <tr><td></td><td><b>1</b></td><td></td><td>×</td><td></td><td>×</td><td>×</td><td>×</td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>Angle</td></tr> <tr><td>Element</td><td></td><td><b>1</b></td><td></td><td><b>2</b></td><td></td><td><b>3</b></td><td></td><td><b>4</b></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>		<b>2</b>		×		×	×	×	CR	60°		<b>0</b>							CA			<b>1</b>		×		×	×	×	CQ	45°	Contact		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle	Element		<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>											<b>4</b>
	<b>2</b>		×		×	×	×	CR	60°																																																																
	<b>0</b>							CA																																																																	
	<b>1</b>		×		×	×	×	CQ	45°																																																																
Contact		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle																																																							
Element		<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>																																																																	

**Motor control switches 3 phase**

plate	diagram	function	circuit diagram	contact/element description	 element no.																																																																											
	<b>0008</b>	Reversing switch 3 pole		<table border="1"> <tr><td>2</td><td></td><td>XX</td><td>XX</td><td></td><td>CR</td><td>60°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	2		XX	XX		CR	60°	0					CA	45°	1					CQ	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	1	2	3												<b>3</b>																									
2		XX	XX		CR	60°																																																																										
0					CA	45°																																																																										
1					CQ	45°																																																																										
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																																			
Element	1	2	3																																																																													
	<b>0036</b>	Reversing switch 3 pole with spring return to "off"		<table border="1"> <tr><td>2</td><td></td><td>XX</td><td>XX</td><td></td><td>CR</td><td>45°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	2		XX	XX		CR	45°	0					CA	45°	1					CQ	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	1	2	3												<b>3</b>																									
2		XX	XX		CR	45°																																																																										
0					CA	45°																																																																										
1					CQ	45°																																																																										
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																																			
Element	1	2	3																																																																													
	<b>0009</b>	Changing switch Dahlander pole		<table border="1"> <tr><td>2</td><td>X</td><td>XX</td><td>XX</td><td>XX</td><td>CR</td><td>60°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	2	X	XX	XX	XX	CR	60°	0					CA	45°	1					CQ	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle	Element	1	2	3	4															<b>4</b>																	
2	X	XX	XX	XX	CR	60°																																																																										
0					CA	45°																																																																										
1					CQ	45°																																																																										
Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle																																																															
Element	1	2	3	4																																																																												
	<b>0010</b>	STAR-DELTA Starter		<table border="1"> <tr><td>Δ</td><td>XX</td><td>XX</td><td>XX</td><td>XX</td><td>CR</td><td>60°</td></tr> <tr><td>Y</td><td></td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Δ	XX	XX	XX	XX	CR	60°	Y					CA	45°	0					CQ	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle	Element	1	2	3	4															<b>4</b>																	
Δ	XX	XX	XX	XX	CR	60°																																																																										
Y					CA	45°																																																																										
0					CQ	45°																																																																										
Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle																																																															
Element	1	2	3	4																																																																												
	<b>0011</b>	Reversing switch Pole changing		<table border="1"> <tr><td>2</td><td>X</td><td>XX</td><td>XX</td><td>XX</td><td>CR</td><td>45°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	2	X	XX	XX	XX	CR	45°	0					CA	45°	1					CQ	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Angle	Element	1	2	3	4	5	6																						<b>6</b>
2	X	XX	XX	XX	CR	45°																																																																										
0					CA	45°																																																																										
1					CQ	45°																																																																										
Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Angle																																																							
Element	1	2	3	4	5	6																																																																										

**Motor control switches single phase**

plate	diagram	function	circuit diagram	contact/element description	 element no.																																																					
	<b>0031</b>	Switch single-phase motor + aux phase		<table border="1"> <tr><td>Avv</td><td>X</td><td>XX</td><td>XX</td><td>CR</td><td>45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Avv	X	XX	XX	CR	45°	1				CA	45°	0				CQ	45°	Contact	1	2	3	4	5	6	7	8	Angle	Element	1	2									<b>2</b>														
Avv	X	XX	XX	CR	45°																																																					
1				CA	45°																																																					
0				CQ	45°																																																					
Contact	1	2	3	4	5	6	7	8	Angle																																																	
Element	1	2																																																								
	<b>0032</b>	Reversing Switch single-phase motor + aux phase		<table border="1"> <tr><td>Avv</td><td>XX</td><td>XX</td><td>XX</td><td>CR</td><td>45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td>CQ</td><td>45°</td></tr> <tr><td>Avv</td><td>X</td><td>XX</td><td>XX</td><td>CR</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Avv	XX	XX	XX	CR	45°	1				CA	45°	0				CQ	45°	Avv	X	XX	XX	CR	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	1	2	3												<b>3</b>
Avv	XX	XX	XX	CR	45°																																																					
1				CA	45°																																																					
0				CQ	45°																																																					
Avv	X	XX	XX	CR	45°																																																					
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																													
Element	1	2	3																																																							
	<b>0034</b>	Reversing Switch single-phase motor + centrif.		<table border="1"> <tr><td>2</td><td>XX</td><td>XX</td><td>XX</td><td>CR</td><td>45°</td></tr> <tr><td>0</td><td></td><td></td><td></td><td>CA</td><td>45°</td></tr> <tr><td>1</td><td>XX</td><td>XX</td><td>XX</td><td>CQ</td><td>45°</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	2	XX	XX	XX	CR	45°	0				CA	45°	1	XX	XX	XX	CQ	45°	Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	1	2	3												<b>3</b>						
2	XX	XX	XX	CR	45°																																																					
0				CA	45°																																																					
1	XX	XX	XX	CQ	45°																																																					
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																													
Element	1	2	3																																																							

Voltmeter & Ammeter switches																																																																																																													
plate	diagram	function	circuit diagram	contact/element description	element no.																																																																																																								
	<b>0016</b>	Voltmeter switch 3 concatenated voltages		<table border="1"> <tr> <td>L3-L1</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CR</td> <td rowspan="3">45°</td> </tr> <tr> <td>L2-L3</td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td>CA</td> </tr> <tr> <td>L1-L2</td> <td>X</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td>CQ</td> </tr> <tr> <td><b>0</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>Angle</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	L3-L1	X	X						CR	45°	L2-L3			X	X				CA	L1-L2	X			X				CQ	<b>0</b>										Contact	1	2	3	4	5	6	7	8	Angle	Element	<b>1</b>	<b>2</b>									<b>2</b>																																													
L3-L1	X	X						CR	45°																																																																																																				
L2-L3			X	X				CA																																																																																																					
L1-L2	X			X				CQ																																																																																																					
<b>0</b>																																																																																																													
Contact	1	2	3	4	5	6	7	8	Angle																																																																																																				
Element	<b>1</b>	<b>2</b>																																																																																																											
	<b>0018</b>	Voltmeter switch 3 concatenated voltages and 3 phase voltages		<table border="1"> <tr> <td>L3-N</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CR</td> <td rowspan="3">45°</td> </tr> <tr> <td>L2-N</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CA</td> </tr> <tr> <td>L1-N</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>CQ</td> </tr> <tr> <td><b>0</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>L1-L2</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>L2-L3</td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>L3-L1</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>Angle</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td><b>3</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	L3-N	X								CR	45°	L2-N			X						CA	L1-N					X	X	X		CQ	<b>0</b>											L1-L2					X	X					L2-L3			X	X							L3-L1			X				X				Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	<b>1</b>	<b>2</b>	<b>3</b>												<b>3</b>
L3-N	X								CR	45°																																																																																																			
L2-N			X						CA																																																																																																				
L1-N					X	X	X		CQ																																																																																																				
<b>0</b>																																																																																																													
L1-L2					X	X																																																																																																							
L2-L3			X	X																																																																																																									
L3-L1			X				X																																																																																																						
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																																																																
Element	<b>1</b>	<b>2</b>	<b>3</b>																																																																																																										
	<b>0022</b>	Ammeter switch 1 pole 3 current transformers		<table border="1"> <tr> <td><b>3</b></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td>CR</td> <td rowspan="3">90°</td> </tr> <tr> <td><b>2</b></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td>CA</td> </tr> <tr> <td><b>1</b></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>CQ</td> </tr> <tr> <td><b>0</b></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>Angle</td> </tr> <tr> <td>Element</td> <td><b>1</b></td> <td><b>2</b></td> <td><b>3</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	<b>3</b>		X	X	X	X				CR	90°	<b>2</b>		X	X	X	X				CA	<b>1</b>			X	X	X	X	X		CQ	<b>0</b>			X	X	X						Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	<b>1</b>	<b>2</b>	<b>3</b>												<b>3</b>																																	
<b>3</b>		X	X	X	X				CR	90°																																																																																																			
<b>2</b>		X	X	X	X				CA																																																																																																				
<b>1</b>			X	X	X	X	X		CQ																																																																																																				
<b>0</b>			X	X	X																																																																																																								
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																																																																
Element	<b>1</b>	<b>2</b>	<b>3</b>																																																																																																										

**Multi-step change-over switches**

plate	diagram	function	circuit diagram	contact/element description	element no.																																																																																																												
	<b>MZ13</b>	Multi step switch with OFF 1 pole 3 steps		<table border="1"> <tr><td>3</td><td></td><td></td><td></td><td></td><td>×</td><td>CR</td></tr> <tr><td>2</td><td>×</td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>×</td><td>CQ</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	3					×	CR	2	×					CA 45°	1					×	CQ	0							Contact	1	2	3	4	5	6	7	8	Angle	Element	1	2								2																																																												
3					×	CR																																																																																																											
2	×					CA 45°																																																																																																											
1					×	CQ																																																																																																											
0																																																																																																																	
Contact	1	2	3	4	5	6	7	8	Angle																																																																																																								
Element	1	2																																																																																																															
	<b>MZ14</b>	Multi step switch with OFF 1 pole 4 steps		<table border="1"> <tr><td>4</td><td></td><td></td><td></td><td></td><td>×</td><td>CR</td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>2</td><td>×</td><td></td><td></td><td></td><td></td><td>CQ</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>×</td><td></td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	4					×	CR	3						CA 45°	2	×					CQ	1					×		0							Contact	1	2	3	4	5	6	7	8	Angle	Element	1	2								2																																																					
4					×	CR																																																																																																											
3						CA 45°																																																																																																											
2	×					CQ																																																																																																											
1					×																																																																																																												
0																																																																																																																	
Contact	1	2	3	4	5	6	7	8	Angle																																																																																																								
Element	1	2																																																																																																															
	<b>MZ23</b>	Multi step switch with OFF 2 pole 3 steps		<table border="1"> <tr><td>3</td><td>×</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td>CR</td></tr> <tr><td>2</td><td></td><td></td><td>×</td><td>×</td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>×</td><td>×</td><td></td><td></td><td>CQ</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	3	×	×							CR	2			×	×					CA 45°	1					×	×			CQ	0										Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	1	2	3											3																																								
3	×	×							CR																																																																																																								
2			×	×					CA 45°																																																																																																								
1					×	×			CQ																																																																																																								
0																																																																																																																	
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																																																																				
Element	1	2	3																																																																																																														
	<b>MZ24</b>	Multi step switch with OFF 2 pole 4 steps		<table border="1"> <tr><td>4</td><td></td><td></td><td></td><td>×</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>CR</td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>2</td><td></td><td></td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>CQ</td></tr> <tr><td>1</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td></td><td></td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	4				×	×								CR	3						×	×						CA 45°	2			×									×	CQ	1	×										×			0														Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle	Element	1	2	3	4														4		
4				×	×								CR																																																																																																				
3						×	×						CA 45°																																																																																																				
2			×									×	CQ																																																																																																				
1	×										×																																																																																																						
0																																																																																																																	
Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Angle																																																																																																
Element	1	2	3	4																																																																																																													
	<b>MZ33</b>	Multi step switch with OFF 3 pole 3 steps		<table border="1"> <tr><td>3</td><td>×</td><td></td><td></td><td></td><td></td><td>×</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>CR</td></tr> <tr><td>2</td><td></td><td></td><td></td><td>×</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>CA 45°</td></tr> <tr><td>1</td><td></td><td></td><td>×</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>×</td><td></td><td>CQ</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	3	×					×	×								CR	2				×	×									×	CA 45°	1			×									×	×		CQ	0																Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Angle	Element	1	2	3	4	5																	5
3	×					×	×								CR																																																																																																		
2				×	×									×	CA 45°																																																																																																		
1			×									×	×		CQ																																																																																																		
0																																																																																																																	
Contact	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Angle																																																																																												
Element	1	2	3	4	5																																																																																																												
	<b>M013</b>	Multi step switch without OFF 1 pole 3 steps		<table border="1"> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>CR</td></tr> <tr><td>2</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>CQ</td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	3						×	CR	2	×						CA 45°	1						×	CQ	Contact	1	2	3	4	5	6	7	8	Angle	Element	1	2								2																																																																
3						×	CR																																																																																																										
2	×						CA 45°																																																																																																										
1						×	CQ																																																																																																										
Contact	1	2	3	4	5	6	7	8	Angle																																																																																																								
Element	1	2																																																																																																															
	<b>M014</b>	Multi step switch without OFF 1 pole 4 steps		<table border="1"> <tr><td>4</td><td></td><td></td><td></td><td></td><td>×</td><td>CR</td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>2</td><td>×</td><td></td><td></td><td></td><td></td><td>CQ</td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td>×</td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	4					×	CR	3						CA 45°	2	×					CQ	1					×		Contact	1	2	3	4	5	6	7	8	Angle	Element	1	2								2																																																												
4					×	CR																																																																																																											
3						CA 45°																																																																																																											
2	×					CQ																																																																																																											
1					×																																																																																																												
Contact	1	2	3	4	5	6	7	8	Angle																																																																																																								
Element	1	2																																																																																																															
	<b>M015</b>	Multi step switch without OFF 1 pole 5 steps		<table border="1"> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>CR</td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td>CA 45°</td></tr> <tr><td>3</td><td>×</td><td></td><td></td><td></td><td></td><td></td><td>CQ</td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td>×</td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td>×</td><td></td></tr> <tr><td>Contact</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>Angle</td></tr> <tr><td>Element</td><td>1</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	5						×	CR	4							CA 45°	3	×						CQ	2					×			1						×		Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle	Element	1	2	3											3																																								
5						×	CR																																																																																																										
4							CA 45°																																																																																																										
3	×						CQ																																																																																																										
2					×																																																																																																												
1						×																																																																																																											
Contact	1	2	3	4	5	6	7	8	9	10	11	12	Angle																																																																																																				
Element	1	2	3																																																																																																														

## Cam switches

### International standards and approvals

Country	USA / Canada	Canada	Germany	Switzerland	Denmark	Norway	Sweden	Finland	Austria	Great Britain	IEC International electrical Commission	
Authority	UL investigated according to CSA	CSA International	Verband Deutscher Elektrotechniker	Schweizerischer Elektrotechnischer Verein	Danmarks Elektriske Materielkontroll	Norges Elektriske Materielkontroll	Svenska Elektriske Materielkontroll-anstalten	Sähtötär-kastukeskus	Österreichischer Verband für Elektrotechnik	British Standards Institution	IEC International electrical Commission	
Mark of standard	(1)	(1)	(2)	VDE 0660 (3)	(3)	(3)	(3)	(3)	(3)	(3)	BS EN 60947 (3)	IEC 60947 (4)
CA012	•		+	+	+	+	+	+	+	+	+	+
CA016	•		+	+	+	+	+	+	+	+	+	+
CA020	•	•	+	+	+	+	+	+	+	+	+	+
CA025	•	•	+	+	+	+	+	+	+	+	+	+
CA032	•	•	+	+	+	+	+	+	+	+	+	+
CA040	•	•	+	+	+	+	+	+	+	+	+	+
CA050	•		+	+	+	+	+	+	+	+	+	+
CA063	•	•	+	+	+	+	+	+	+	+	+	+
CA100	•	•	+	+	+	+	+	+	+	+	+	+
CA200		•	+	+	+	+	+	+	+	+	+	+
CA400		•	+	+	+	+	+	+	+	+	+	+
CA630		•	+	+	+	+	+	+	+	+	+	+
CQ012	•	•	+	+	+	+	+	+	+	+	+	+
CQ016	•	•	+	+	+	+	+	+	+	+	+	+
CQ025			+	+	+	+	+	+	+	+	+	+
CQ032			+	+	+	+	+	+	+	+	+	+
CR012	•		+	+	+	+	+	+	+	+	+	+
CR016	•		+	+	+	+	+	+	+	+	+	+
CR020	•		+	+	+	+	+	+	+	+	+	+
CR025	•		+	+	+	+	+	+	+	+	+	+
CR032	•		+	+	+	+	+	+	+	+	+	+
CR040	•		+	+	+	+	+	+	+	+	+	+

• Approved

+ conforms to requirements

**Note:**

1) UL Approval File E101686

2) CSA Approval File 039540-0-000

3) It is not required to bear a symbol but switches must conform to requirements.

4) IEC does not operate an approval diagram