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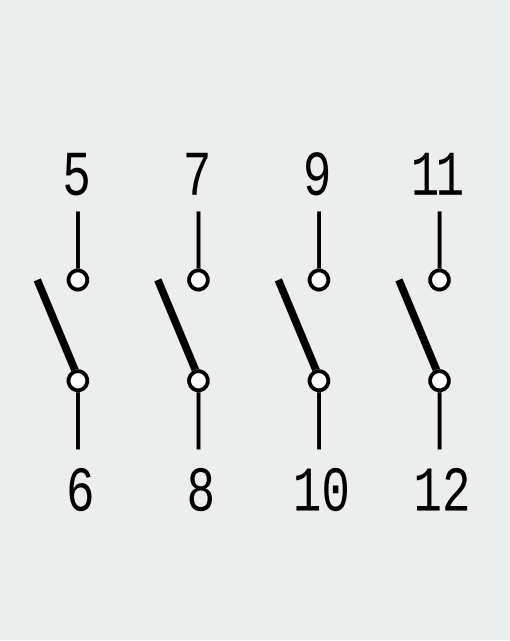

# C / CA / CH / CG系列
# 开关接线图

## 电子手册

Kraus & Naimer

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# 开关接线图

## 电子手册

本手册旨在帮助我们的客户选择最常用的凸轮开关。它包含 Kraus & Naimer C、CA、CG 和 CH 系列凸轮开关的标准触点排列。

有关特殊或非标准开关的详细信息，请联系我们当地的销售办事处。

# 内容


| **ON/OFF Switches 0-1** | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|
| 60° Switching | 1 pole | A200 | 1 | 32 |
| | 2 pole | A201 | 1 | 32 |
| | 3 pole | A202 | 2 | 32 |
| | 4 pole | A203 | 2 | 32 |
| | 5 pole | WAA341 | 3 | 56 |
| | 6 pole | A342 | 3 | 56 |
| | 7 pole | A343 | 4 | 56 |
| | 8 pole | A344 | 4 | 56 |
| | 9 pole | WAA345 | 5 | 56 |
| | 10 pole | A346 | 5 | 56 |
| | 11 pole | WAA347 | 6 | 56 |
| | 12 pole | A348 | 6 | 56 |
| 90° Switching | 1 pole | A290 | 1 | 45 |
| | 2 pole | A291 | 1 | 45 |
| | 3 pole | A292 | 2 | 45 |
| | 4 pole | A324 | 2 | 54 |
| 4. Pole preclose 30° | 4 pole | A293 | 2 | 45 |
| | 5 pole | A325 | 3 | 54 |
| | 6 pole | A326 | 3 | 54 |
| 30° Switching with spring return | 1 pole | A204 | 1 | 32 |
| | 2 pole | A205 | 1 | 32 |
| | 3 pole | WAA206 | 2 | 32 |
| | 4 pole | WAA207 | 2 | 32 |
| **Double-throw Switches** without „OFF“ Positions (1-2) 60° Switching | 1 pole | A220 | 1 | 36 |
| | 2 pole | A221 | 2 | 36 |
| | 3 pole | A222 | 3 | 36 |
| | 4 pole | A223 | 4 | 36 |
| | 5 pole | A369 | 5 | 58 |
| | 6 pole | A370 | 6 | 58 |
| | 7 pole | A371 | 7 | 58 |
| | 8 pole | A372 | 8 | 58 |
| | 9 pole | WAA373 | 9 | 58 |
| | 10 pole | WAA374 | 10 | 58 |
| | 11 pole | WAA375 | 11 | 58 |
| | 12 pole | WAA376 | 12 | 58 |

# 内容


| **Double-throw Switches** | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|
| without „OFF“ (1-2) | 1 pole | A720 | 1 | 83 |
| with electrically | 2 pole | A721 | 2 | 83 |
| isolated contacts | 3 pole | A722 | 3 | 83 |
| | 4 pole | A723 | 4 | 83 |
| without „OFF“ | 1 pole | A295 | 1 | 47 |
| with spring return | 2 pole | A296 | 2 | 47 |
| 30° Switching | 3 pole | WAA297 | 3 | 47 |
| with electrically isolated contacts | 1 pole | A795 | 1 | 86 |
| with „OFF“ | 1 pole | A210 | 1 | 33 |
| Positions (1-0-2) | 2 pole | A211 | 2 | 33 |
| 60° Switching | 3 pole | A212 | 3 | 33 |
| | 4 pole | A213 | 4 | 33 |
| | 5 pole | A361 | 5 | 57 |
| | 6 pole | A362 | 6 | 57 |
| | 7 pole | WAA363 | 7 | 57 |
| | 8 pole | WAA364 | 8 | 57 |
| with electrically | 1 pole | A710 | 1 | 81 |
| isolated contacts | 2 pole | A711 | 2 | 81 |
| | 3 pole | A712 | 3 | 81 |
| | 4 pole | A713 | 4 | 81 |
| Positions (1-0-2) | 1 pole | A218 | 1 | 35 |
| 90° Switching | 2 pole | A219 | 2 | 35 |
| | 3 pole | WAA299 | 3 | 48 |
| KG-, KH-, KF-Serie | 3 pole | K900 | | 88 |
| 1 Pol preclose 30° | 4 pole | WAA294 | 4 | 44 |
| KG-, KH-, KF-Serie, 4. pole preclose 30° | 4 pole | K950 | | 88 |
| Positions (1-0-2) | 1 pole | A214 | 1 | 34 |
| 30° with spring return | 2 pole | A215 | 2 | 34 |
| to center | 3 pole | A216 | 3 | 34 |

# 内容


| | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|
| **Double-throw Switches** | | | | |
| with electrically isolated contacts | 1 pole | A714 | 1 | 82 |
| | 2 pole | A715 | 2 | 82 |
| Positions (1-0-2) with spring return from left to center from 1 to 0 | 1 pole | A320 | 1 | 53 |
| | 2 pole | A321 | 3 | 52 |
| | 3 pole | A322 | 2 | 53 |
| **Multi-step Switches without „OFF“ position** | | | | |
| 1 pole | 3 Step | 60° | A230 | 2 | 38 |
| | 4 Step | 60° | A231 | 2 | 38 |
| | 5 Step | 60° | A232 | 3 | 38 |
| | 6 Step | 60° | A233 | 3 | 38 |
| | 7 Step | 45° | WAA234 | 4 | 38 |
| | 8 Step | 45° | WAA236 | 4 | 38 |
| | 9 Step | 30° | WAA236 | 5 | 38 |
| | 10 Step | 30° | WAA237 | 5 | 38 |
| | 11 Step | 30° | WAA239 | 6 | 38 |
| | 12 Step | 30° | WAA239 | 6 | 38 |
| 2 pole | 3 Step | 60° | A250 | 3 | 41 |
| | 4 Step | 50° | A251 | 4 | 41 |
| | 5 Step | 60° | A252 | 5 | 41 |
| | 6 Step | 60° | WAA253 | 6 | 41 |
| | 7 Step | 45° | WAA254 | 7 | 41 |
| | 8 Step | 45° | WAA255 | 8 | 41 |
| 3 pole | 3 Step | 60° | A270 | 5 | 43 |
| | 4 Step | 60° | A271 | 6 | 43 |
| | 5 Step | 60° | WAA272 | 8 | 43 |
| | 6 Step | 60° | WAA273 | 9 | 43 |
| | 7 Step | 45° | WAA274 | 11 | 43 |
| | 8 Step | 45° | WAA275 | 12 | 43 |
| 4 pole | 3 Step | 60° | A476 | 6 | 71 |
| | 4 Step | 60° | A477 | 8 | 71 |
| | 5 Step | 60° | WAA478 | 10 | 71 |

# Contents


| | | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|---|
| **Multi-step Switches without „OFF“ position** | | | | | |
| 5 pole | 3 Step | 60° | WAA484 | 8 | 73 |
| | 4 Step | 60° | WAA485 | 10 | 73 |
| 6 pole | 3 Step | 60° | WAA489 | 9 | 75 |
| | 4 Step | 60° | WAA490 | 12 | 75 |
| and electrically isolated contacts | | | | | |
| 1 pole | 3 Step | 60° | A730 | 2 | 82 |
| | 4 Step | 60° | A731 | 2 | 85 |
| 2 pole | 3 Step | 60° | A750 | 3 | 84 |
| | 4 Step | 60° | A751 | 4 | 85 |
| **Multi-step Switches with „OFF“ position** | | | | | |
| 1 pole | 2 Step | 60° | A240 | 1 | 38 |
| | 3 Step | 45° | A242 | 2 | 39 |
| | 4 Step | 30° | A242 | 2 | 39 |
| | 5 Step | 30° | A243 | 3 | 39 |
| | 6 Step | 30° | A244 | 3 | 39 |
| | 7 Step | 30° | WAA245 | 4 | 39 |
| | 8 Step | 30° | WAA246 | 4 | 39 |
| | 9 Step | 30° | WAA247 | 5 | 39 |
| | 10 Step | 30° | WAA248 | 5 | 39 |
| | 11 Step | 30° | WAA249 | 6 | 39 |
| 2 pole | 2 Step | 50° | A260 | 2 | 42 |
| | 3 Step | 45° | A261 | 3 | 42 |
| | 4 Step | 30° | WAA262 | 4 | 42 |
| | 5 Step | 30° | WAA263 | 5 | 42 |
| | 6 Step | 30° | WAA264 | 6 | 42 |
| | 7 Step | 30° | WAA265 | 7 | 42 |
| 3 pole | 2 Step | 60° | A280 | 3 | 44 |
| | 3 Step | 45° | A281 | 5 | 44 |
| | 4 Step | 30° | WAA282 | 6 | 44 |
| | 5 Step | 30° | WAA283 | 8 | 44 |
| | 6 Step | 30° | WAA284 | 9 | 44 |

# Contents


| | | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|---|
| **Multi-step Switches with „OFF“ position** | | | | | |
| 4 pole | 2 Step | 60° | WAA480 | 4 | 72 |
| | 3 Step | 45° | WAA481 | 6 | 72 |
| | 4 Step | 30° | WAA482 | 8 | 72 |
| 5 pole | 2 Step | 60° | WAA486 | 5 | 74 |
| | 3 Step | 45° | WAA487 | 8 | 74 |
| 6 pole | 2 Step | 60° | WAA491 | 6 | 75 |
| **General Application Switches** | | | | | |
| 2 Gang | 1 pole | 60° | A310 | 1 | 49 |
| Switching sequence: | 2 pole | 60° | A312 | 2 | 50 |
| 0, A, A+B | 3 pole | 60° | WAA314 | 3 | 51 |
| 3 Gang | 1 pole | 30° | A311 | 2 | 49 |
| Switching sequence: | 2 pole | 30° | WAA313 | 3 | 50 |
| 0, A, A+B, A+B+C | 3 pole | 30° | WAA315 | 5 | 52 |
| **General Application Series - Switching** | | | | | |
| 2 Gang | 1 pole | 30° | WAA330 | 1 | 55 |
| Switching sequence: | 2 pole | 30° | WAA331 | 2 | 55 |
| 0, A, B, A+B | 3 pole | 30° | WAA332 | 3 | 55 |
| **Coding Switches/Binary Code** | | | | | |
| 0 up to 7 | | 30° | A540 | 2 | 76 |
| 0 up to 7 complement | | 45° | WAA541 | 2 | 76 |
| 0 up to 7+complement | | 45° | WAA542 | 3 | 77 |
| 0 up to 11 | | 30° | A543 | 2 | 77 |
| 0 up to 11+complement | | 30° | WAA545 | 4 | 78 |
| **Coding Switchtes/BCD-Code** | | | | | |
| 0 up to 9 | | 30° | A550 | 2 | 78 |
| 0 up to 9 complement | | 30° | WAA551 | 2 | 79 |
| 0 up to 9+complement | | 30° | WAA552 | 4 | 79 |

# Contents


| | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|
| **Voltmeter-Double-throw Switches** | | | | |
| without „OFF“ | | | | |
| 3 phase 3 wire | 45° | A023 | 2 | 19 |
| 3 phase 3 wire and phase to neutral | 45° | A025 | 3 | 19 |
| with „OFF“ | | | | |
| 3 phase 3 wire | 45° | A004 | 2 | 14 |
| 3 phase to neutral | 45° | WAA005 | 2 | 15 |
| 3 phase 3 wire and phase to neutral | 45° | A007 | 3 | 16 |
| 2 separate 3 phase with „OFF“ | 45° | WAA008 | 4 | 17 |
| **Ammeter-Double-throw Switches** | | | | |
| with „OFF“ | | | | |
| 1 pole 3 Current transformers | 90° | A048 | 3 | 24 |
| 2 pole 2 Current transformers | 90° | WAA037 | 3 | 21 |
| 2 pole 3 Current transformers | 90° | A038 | 5 | 22 |
| without „OFF“ | | | | |
| 1 pole 3 Current transformers | 90° | WAA017 | 3 | 18 |
| 1 pole 4 Current transformers | 90° | WAA036 | 4 | 20 |
| 2 pole 4 Current transformers | 90° | WAA039 | 6 | 23 |

# Contents


| | | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|---|
| **Control Switches** | | | | | |
| Stop switch | 1 pole | 30° | WAA174 | 1 | 25 |
| Start switch | 1 pole | 30° | A175 | 1 | 25 |
| Stop start switch | 1 pole | 30° | A176 | 1 | 26 |
| | 2 pole | 30° | WAA183 | 2 | 30 |
| Stop start switch with spring return from start to run | | 90°+30° | A178 | 1 | 28 |
| Double-Stop start switch with spring return from start to run | | 60°+30° | WAA177 | 2 | 27 |
| for contactor interlock with spring return from start to run | | 60°+30° | WAA182 | 2 | 30 |
| and electrically isolated contacts | | | | | |
| Stop start switch | 1 pole | 30° | A789 | 1 | 86 |
| Stop start switch with spring return form start to run | | 90°+30° | A791 | 1 | 86 |
| for 2 contactors, Contactor control with spring return to „OFF“ | | 30° | WAA179 | 3 | 29 |
| Main Switches 3, 4, 6, 8 pole, with and without auxiliary contacts | | | | | 87 |

# 内容


| | | Code-no. | Stages C/CG/CH | Page |
|---|---|---|---|---|
| **Motor Switches** | | | | |
| Motor Reversing Switches | | | | |
| Position (1-0-2) | 2 pole 60° | A400 | 2 | 59 |
| | 3 pole 60° | A401 | 3 | 59 |
| with spring return to „OFF“ | 3 pole 30° | A228 | 3 | 37 |
| Star-delta Switches | | | | |
| Normal version | 60° | A410 | 4 | 60 |
| Reversing | 45° | WAA413 | 5 | 61 |
| with auxiliary contact, closed in „OFF“-Position | 60° | WAA416 | 5 | 62 |
| For use with contactors | 90° | A419 | 4 | 62 |
| Motor Control Switches | | | | |
| Position (0-1-2) | 60° | A440 | 4 | 64 |
| without „OFF“ | 60° | A466 | 4 | 69 |
| Position (1-0-2) | 60° | A441 | 4 | 64 |
| Reversing | 45° | A442 | 6 | 65 |
| for reversing for for use with contactors and | 60° | WAA444 | 5 | 66 |
| with slip clutch for „OFF“ load use | 45° | WAA468 | 10* | 70 |
| Motor Control Switches | | | | |
| 2 speed, 2 winding 0 - A - B, Y or Δ | 60° | WAA451 | 3 | 67 |
| 3 speed, 2 winding 0 - AΔ - BY - AYY | 45° | WAA457 | 6 | 68 |
| Start and Run Switches | | | | |
| Split-phase start | 90°+30° | A425 | 2 | 63 |
| Reversing Split-phase start | 60°+30° | WAA426 | 3 | 63 |
| Split-phase reversing auto cutout of start field winding | 60° | A622 | 3 | 80 |

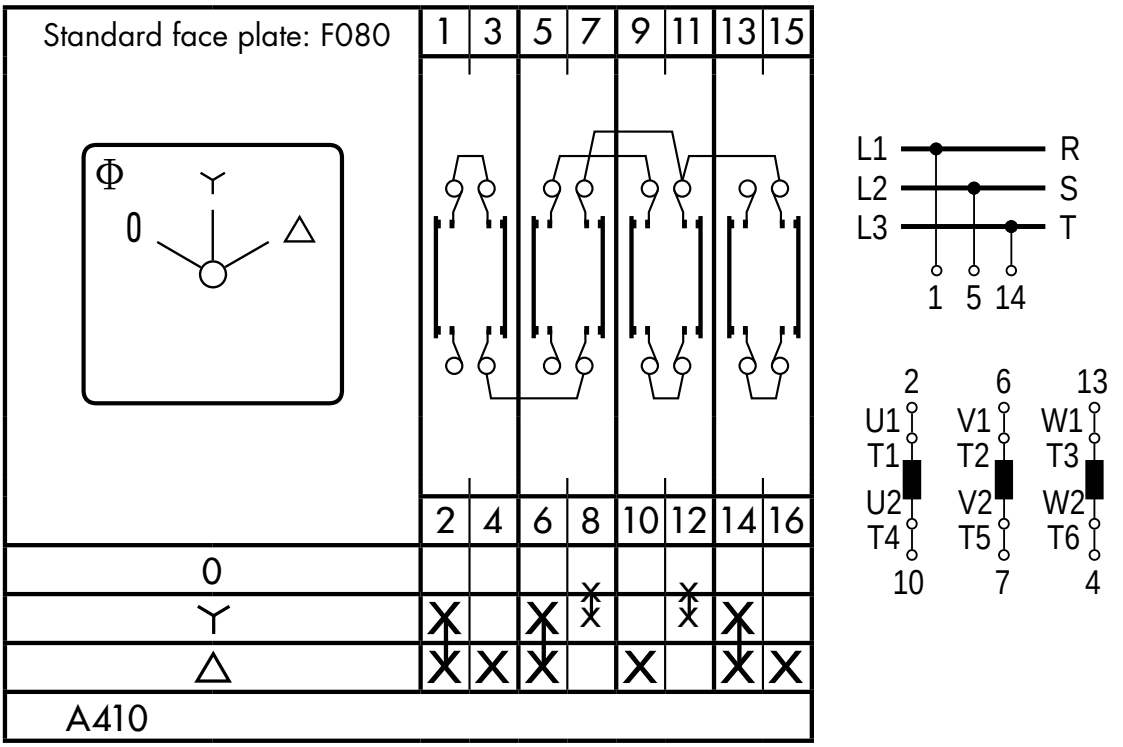

* with slip clutch

# 图形说明

| | |
|---|---|
| Contactor or Relay 接触器或继电器 | |
| Thermal Relay 热继电器 | |
| Motor 电机 | M |
| Coil / Inductance 线圈/电感 | |
| Ammeter 电流表 | A |
| Voltmeter 电压表 | V |
| Earth / Ground 地线/接地 | |
| NO-contact 常开触点 | |
| NC-contact 常闭触点 | |
| Motor - star circuit 电机星形（Y 形）接法电路 | Y |
| Motor - delta circuit 电机三角形（ Δ形）接法电路 | Δ |
| Motor - double star circuit 电机双星形 接法电路 | YY |

# 连接详细信息

信息以仅开关图或开关图和连接图（适当时）的形式呈现。

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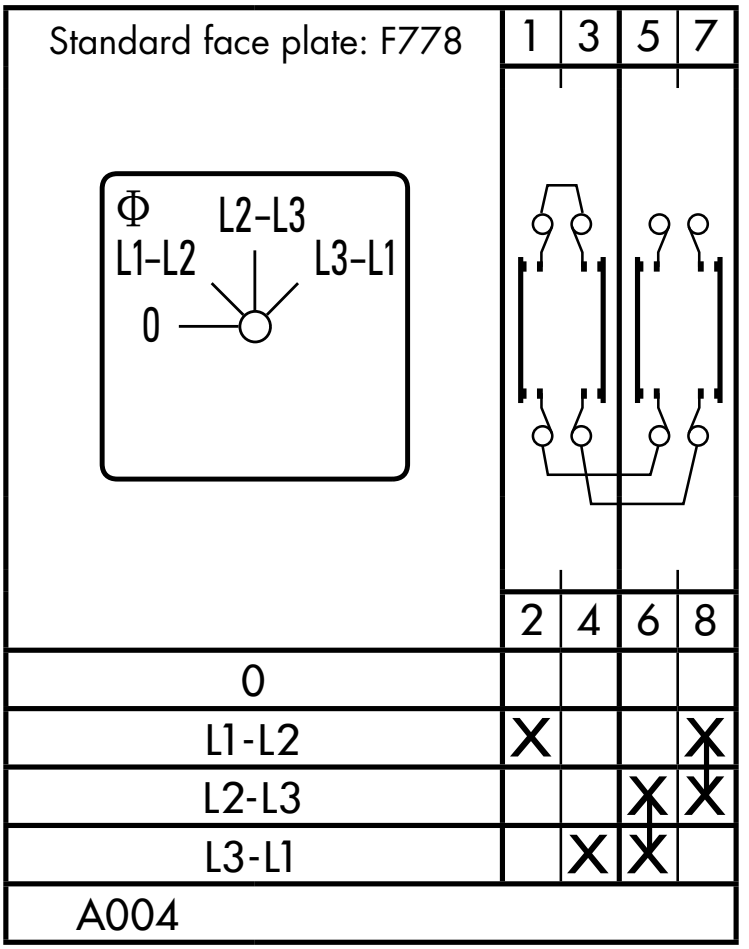
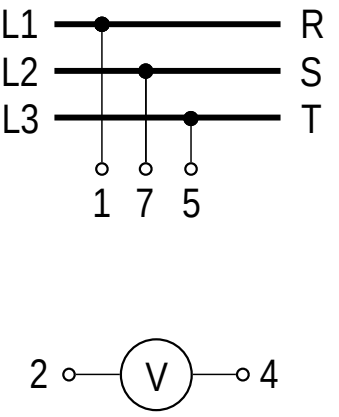
## A410 星三角切换开关

大图展示了开关图表。图表中某一列里的叉号表示，当开关处于该叉号左侧所示的位置时，其上方的触点处于闭合状态。例如，触点3/4在三角位置时闭合。两条或多条竖线表示在开关从一个位置移动到下一个位置的过程中，该触点保持闭合状态。右侧的图像展示了电源和负载的接线连接。例如，L1连接到开关端子1，而U1或T1连接到端子2。

# 电压切换开关

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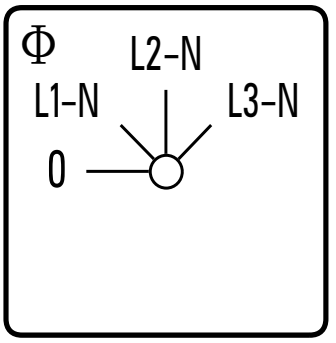
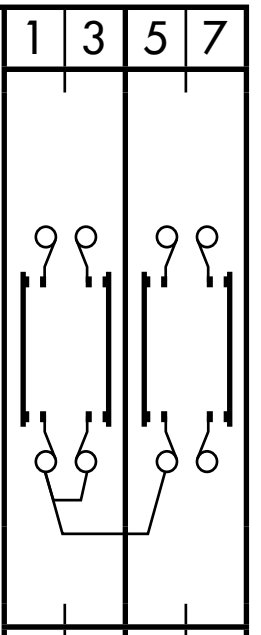
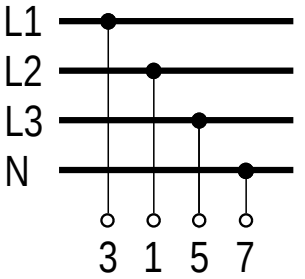
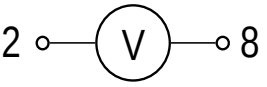
A004 Voltmeter Switch
3 phase 3 wire

# 电压切换开关




| Standard face plate: F781 | 2 | 4 | 6 | 8 |
|---|---|---|---|---|
| 0 | | | | |
| L1-N | | X | | X |
| L2-N | X | | | |
| L3-N | | | X | X |
| WAA005 | | | | |

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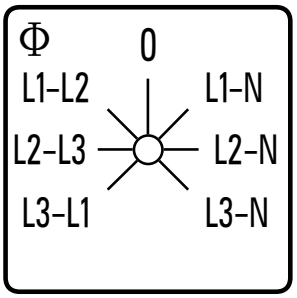
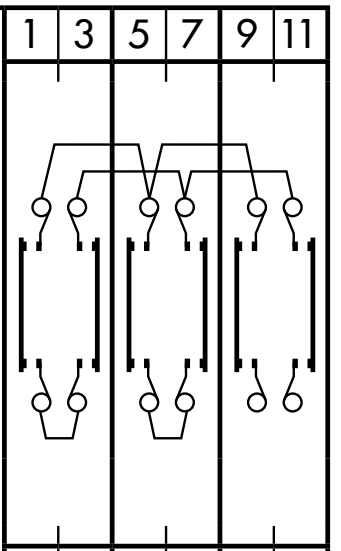
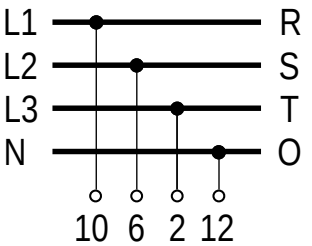
WAA005 Voltmeter Switch
(formerly A005) 3 phase to neutral

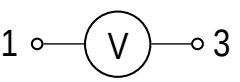
# 电压切换开关

Standard face plate: F785




| | 1 | 3 | 5 | 7 | 9 | 11 |
|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 |
| L3-L1 | | X | | | X | |
| L2-L3 | | X | X | | | |
| L1-L2 | | | | X | X | |
| 0 | | | | | | |
| L1-N | | | | | X | X |
| L2-N | | | X | | | |
| L3-N | X | | | | | X |
| A007 | | | | | | |

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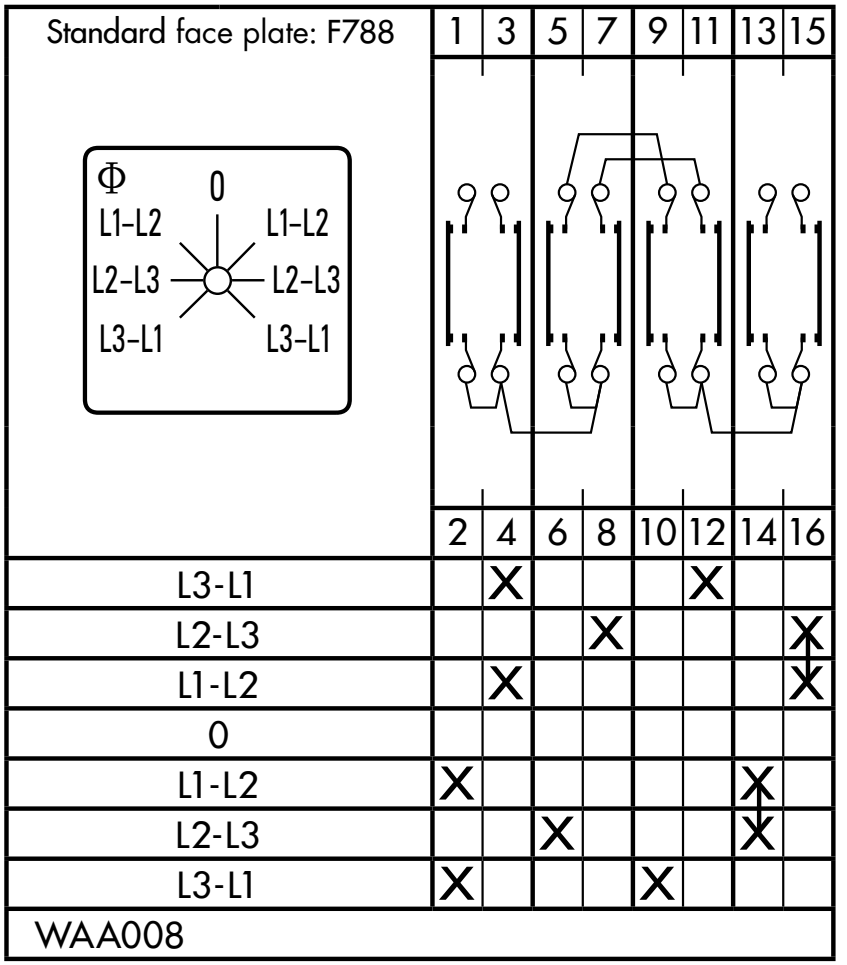
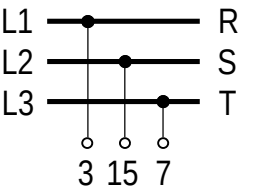
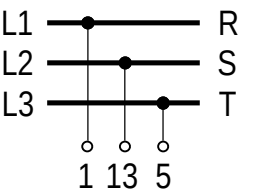
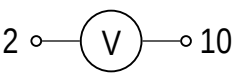
A007 Voltmeter Switch
3 phase to neutral

# 电压切换开关

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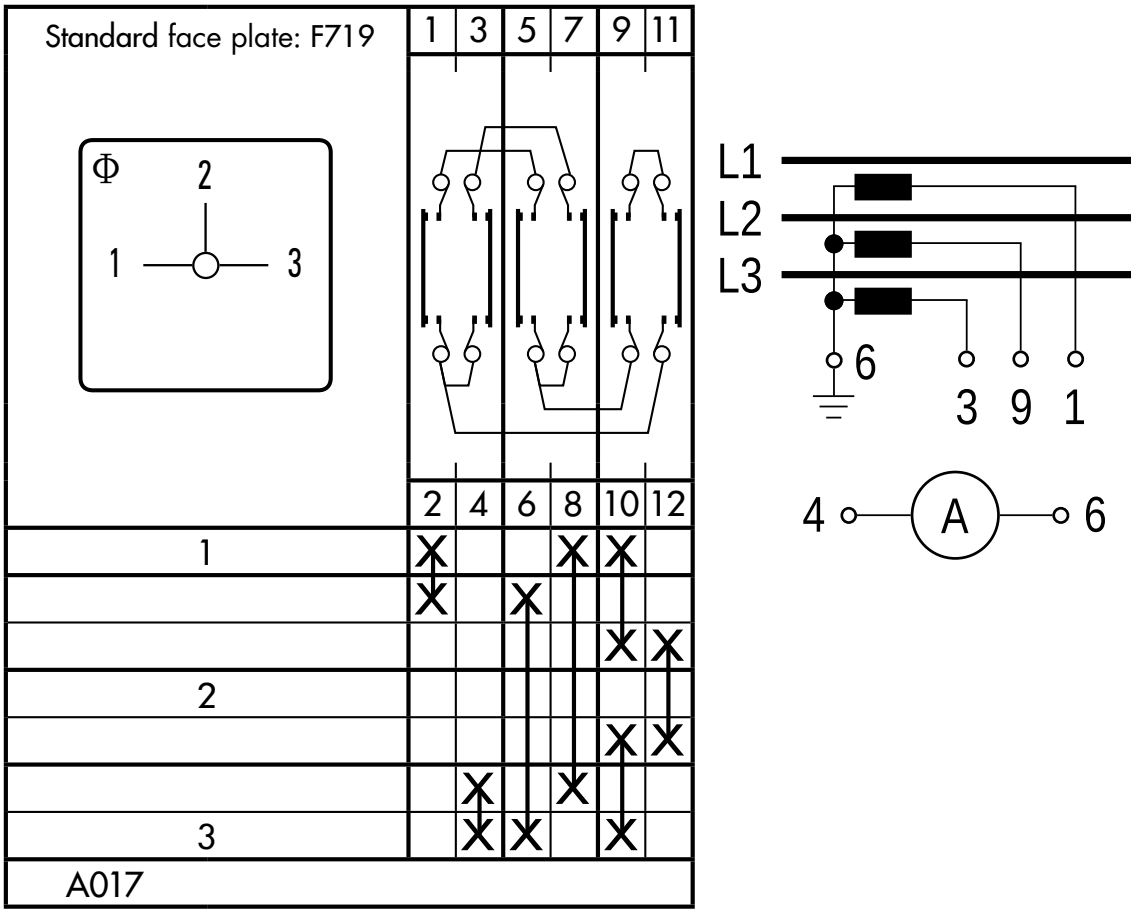
WAA008 Voltmeter Switch
(formerly A008) 2 separate 3 phase

# 电压切换开关

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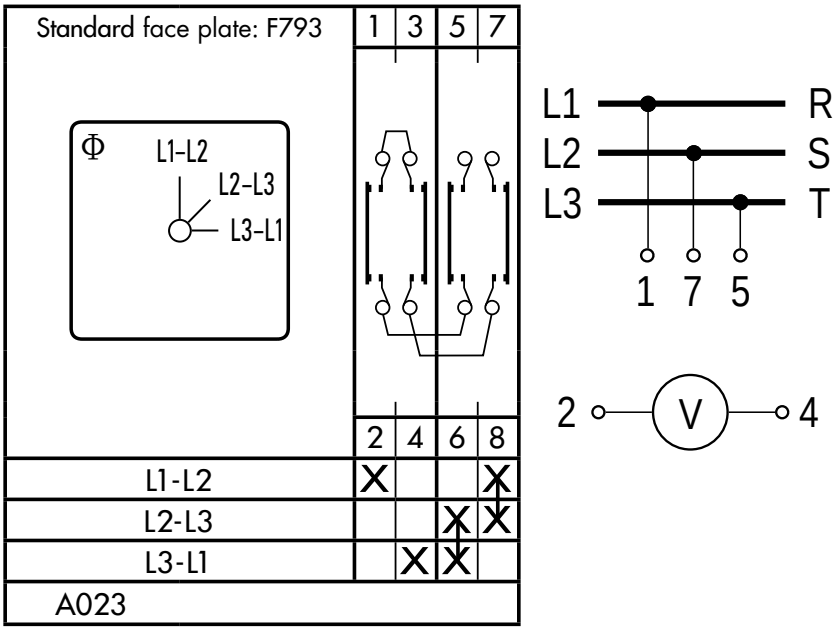
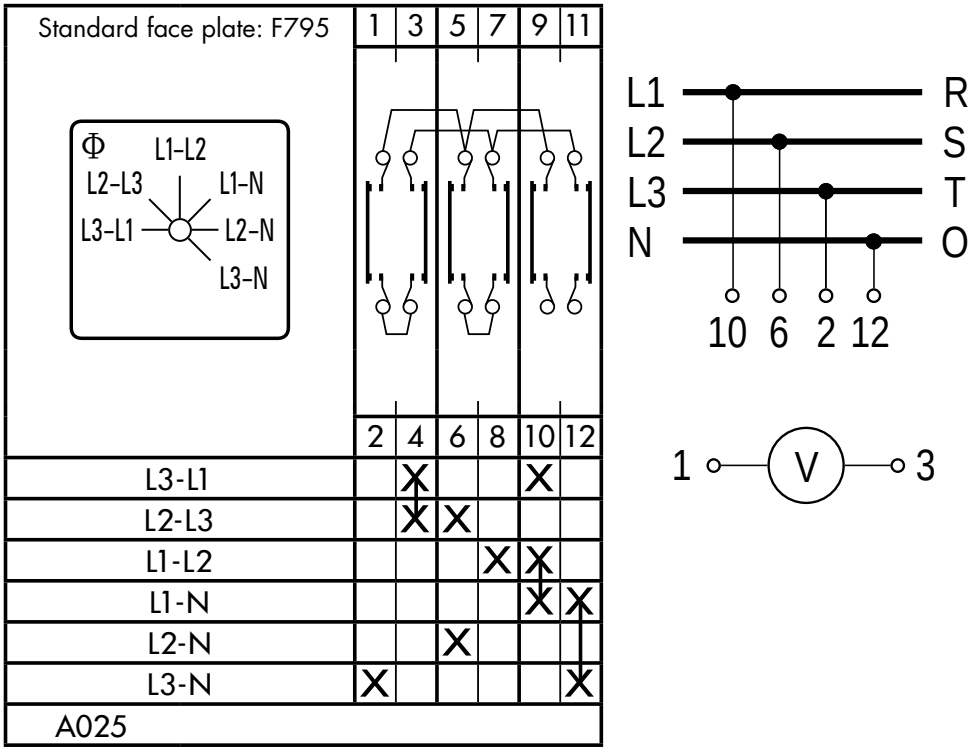
WAA017 Ammeter Switch
1 pole, 3 Current transformers

# 电压切换开关

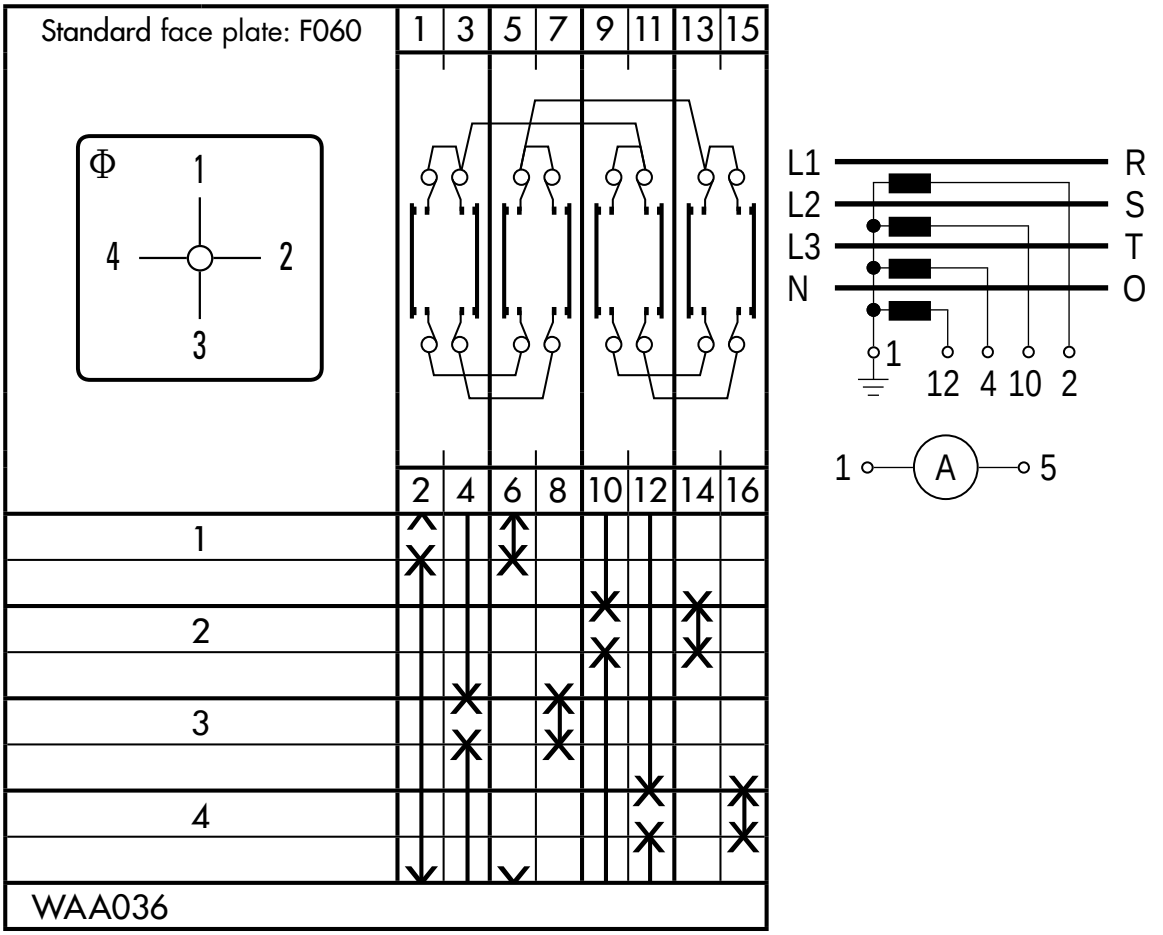



A023 Voltmeter Switch, 3 phase 3 wire




A025 Voltmeter Switch, 3 phase 3 wire,
3 phase to neutral

# 电流切换开关

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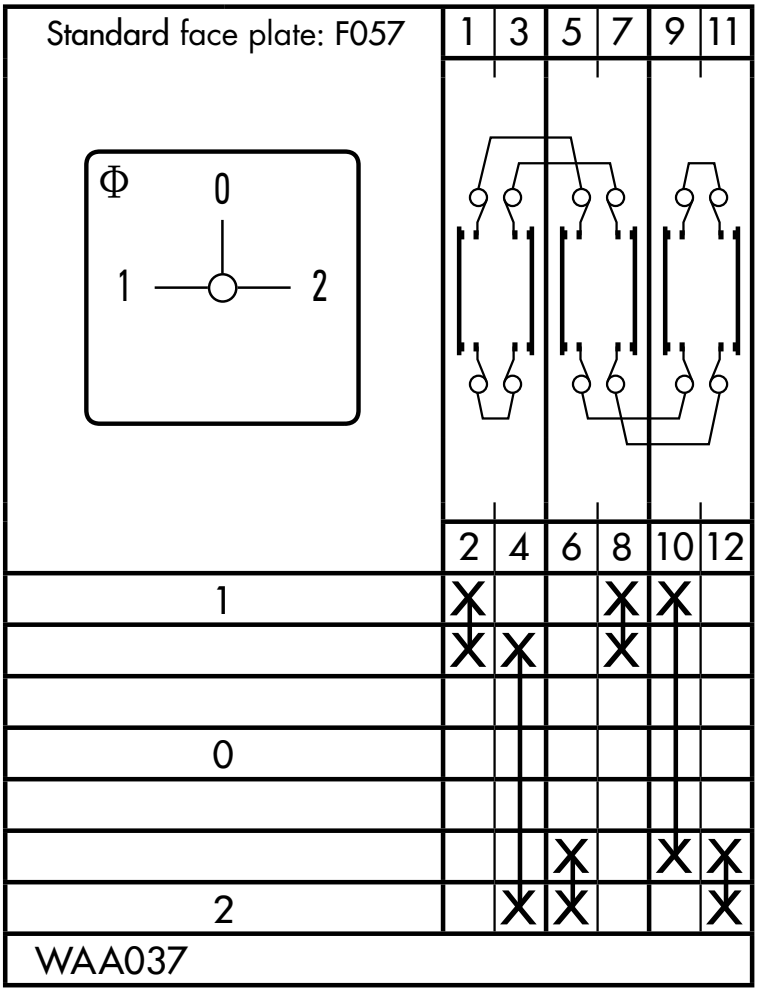
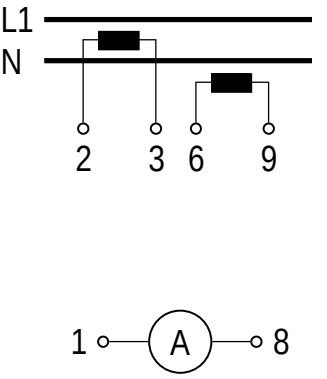
## WAA036 Ammeter Switch
(formerly A036) 1 pole, 4 Current transformers

# 电流切换开关

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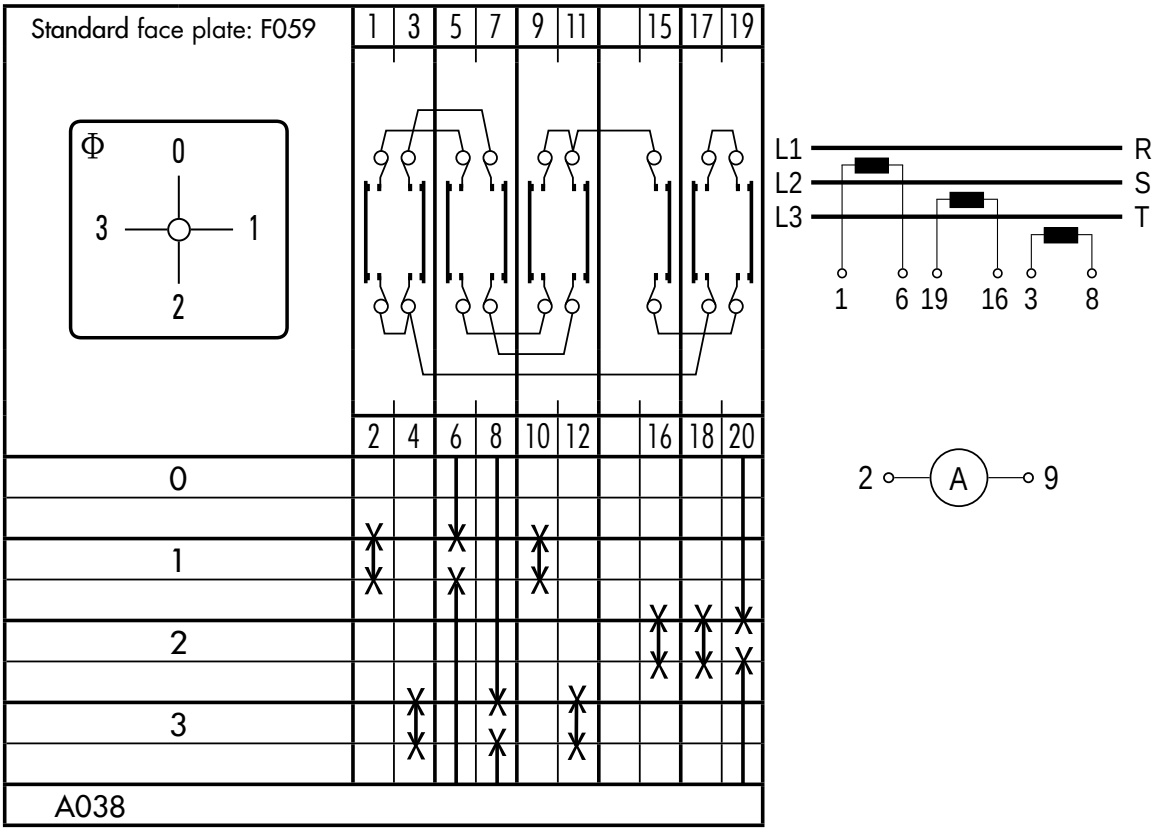
## WAA037 Ammeter Switch
(formerly A037) 2 pole, 2 Current transformers

# 电流切换开关

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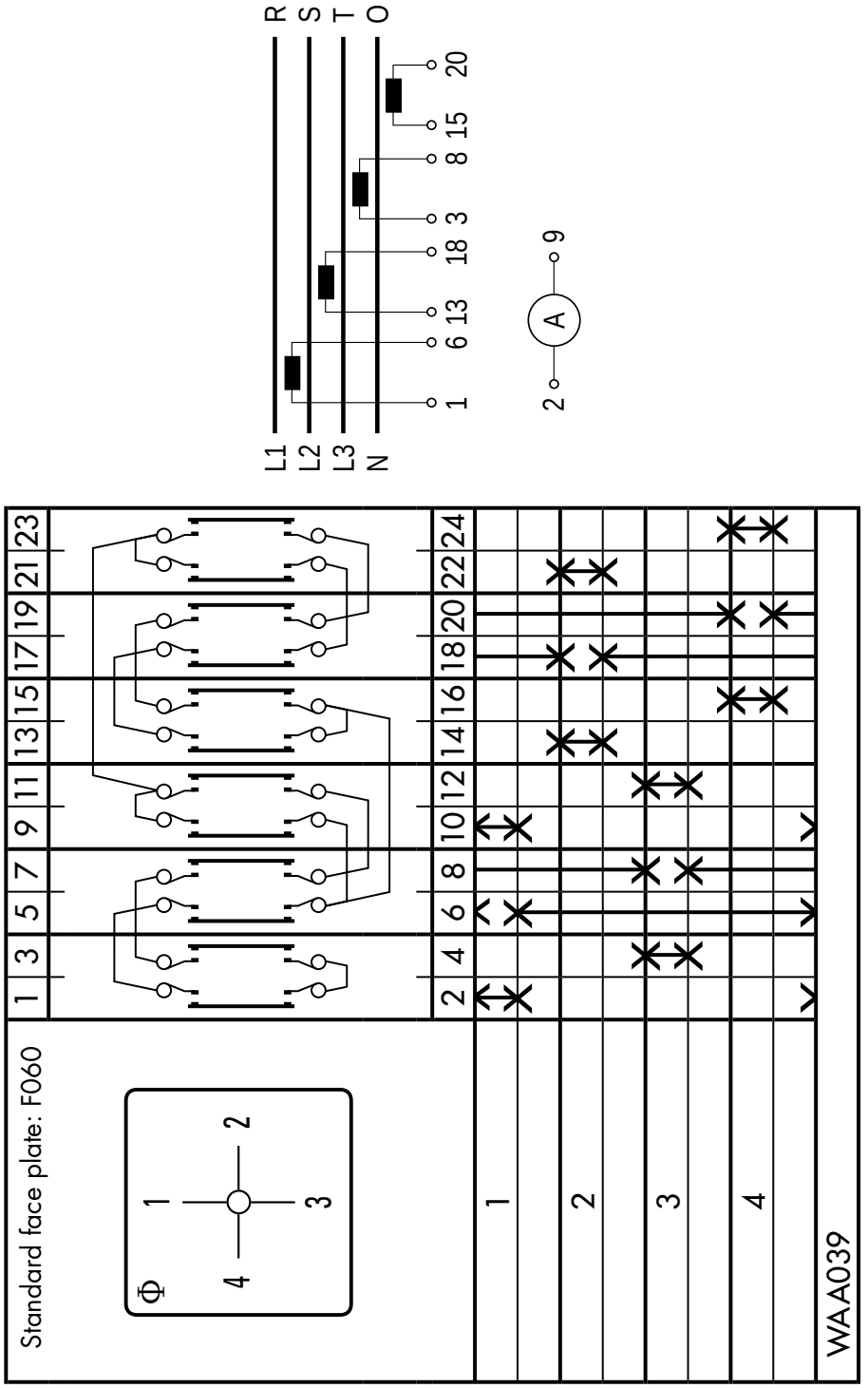
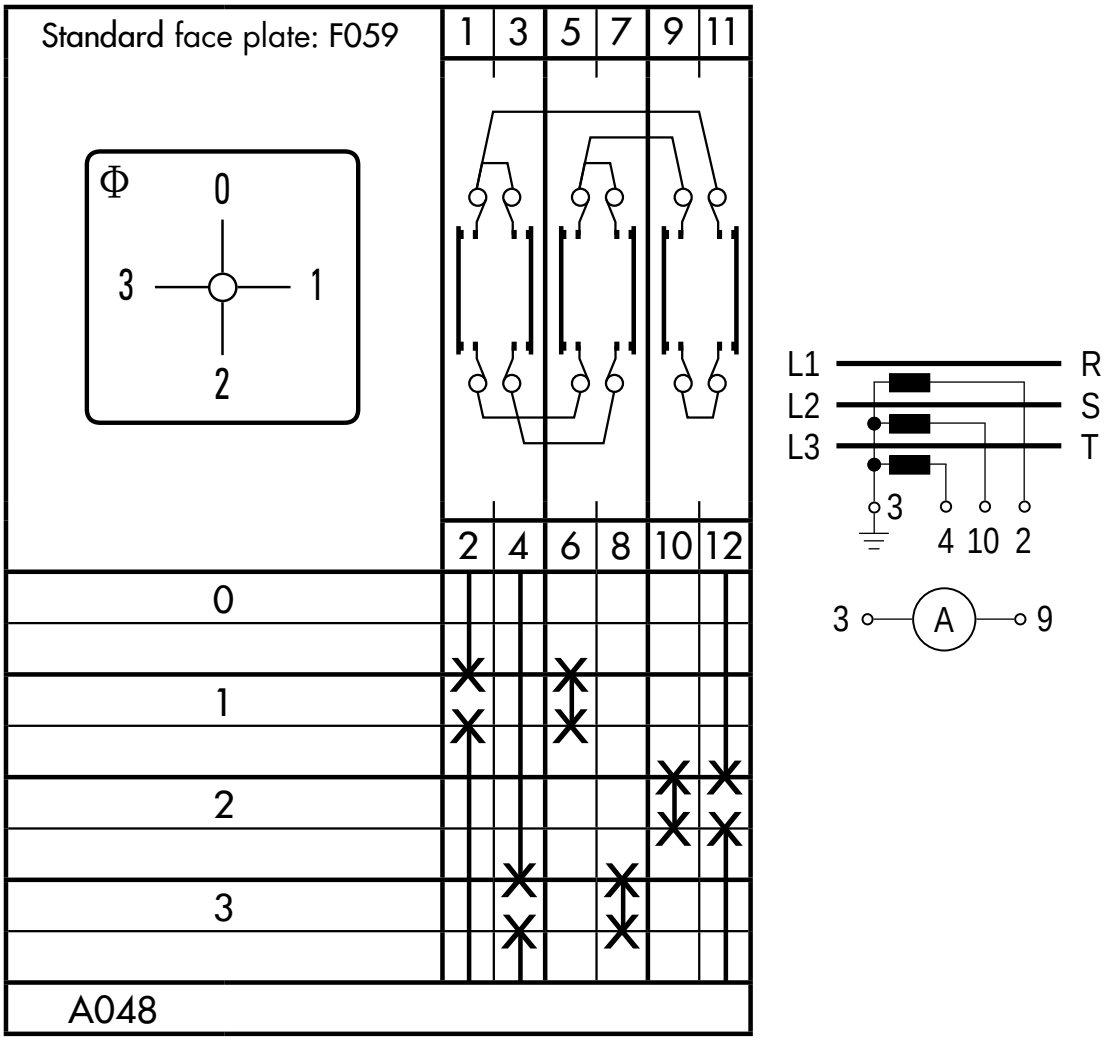
## A038 Ammeter Switch
## 2 pole, 3 Current transformers

# 电流切换开关



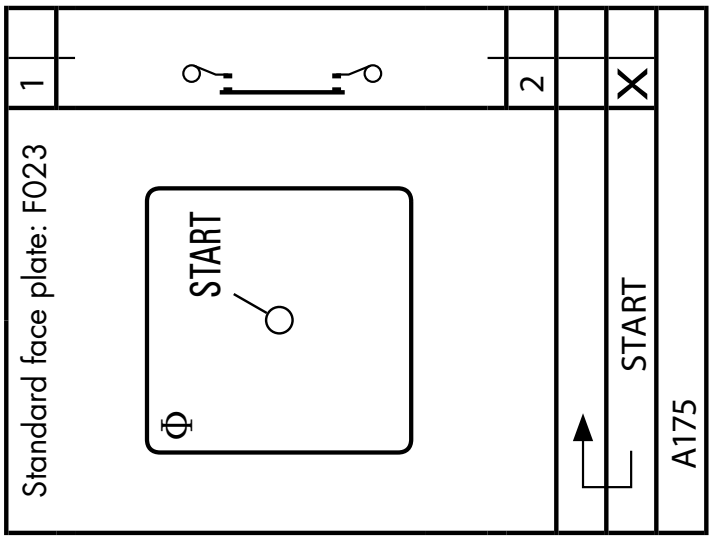

WAA039 Ammeter Switch
(formerly A039) 2 pole, 4 Current transformers

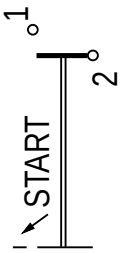
# 电流切换开关



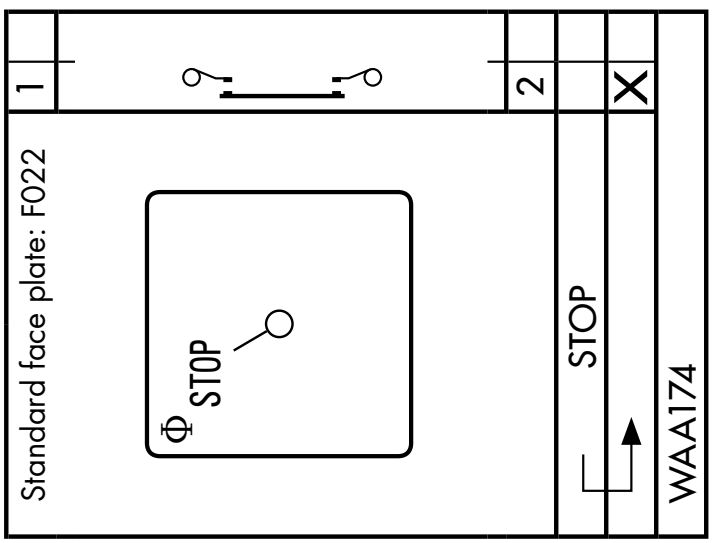

A048 Ammeter Switch
1 pole, 3 Current transformers

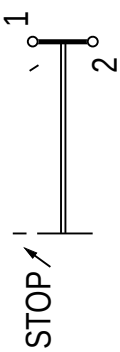
# 控制开关



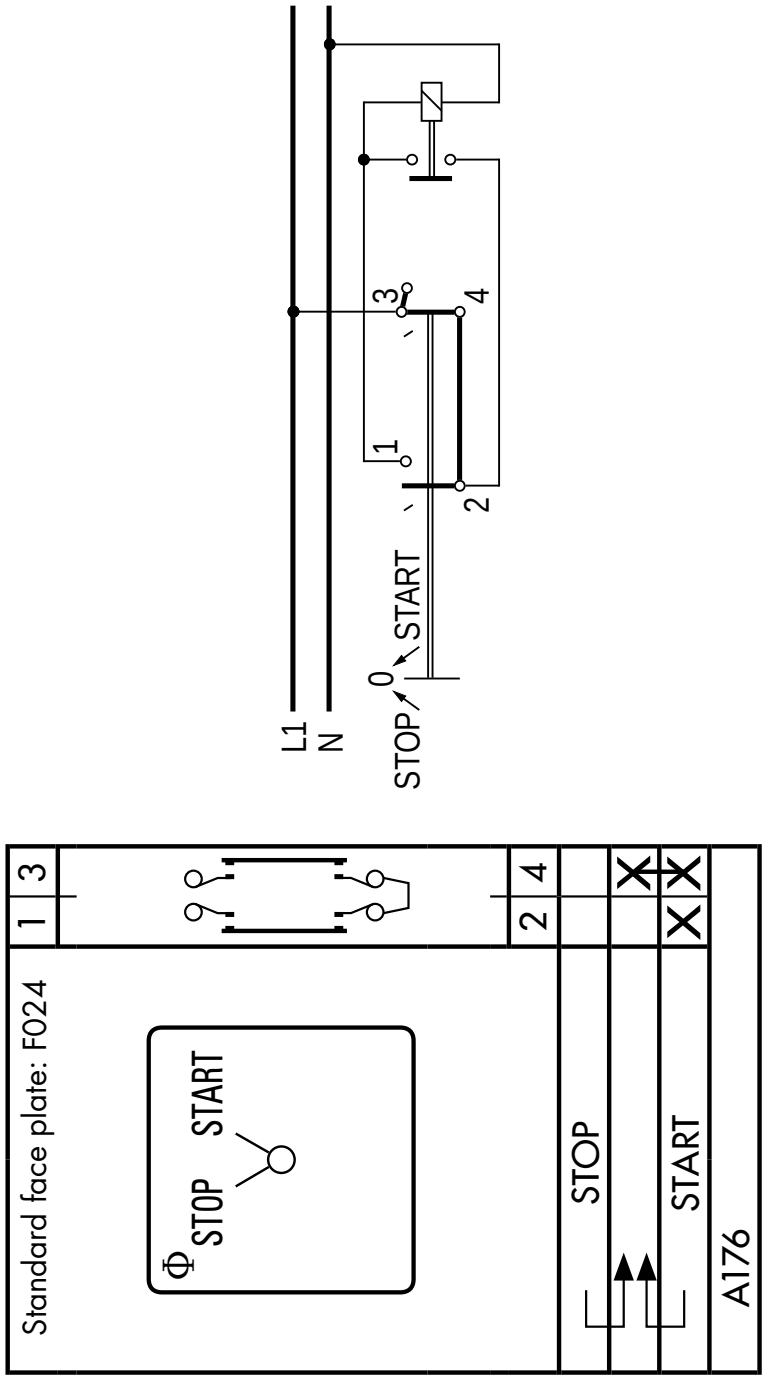

A175 Start switch
1 pole



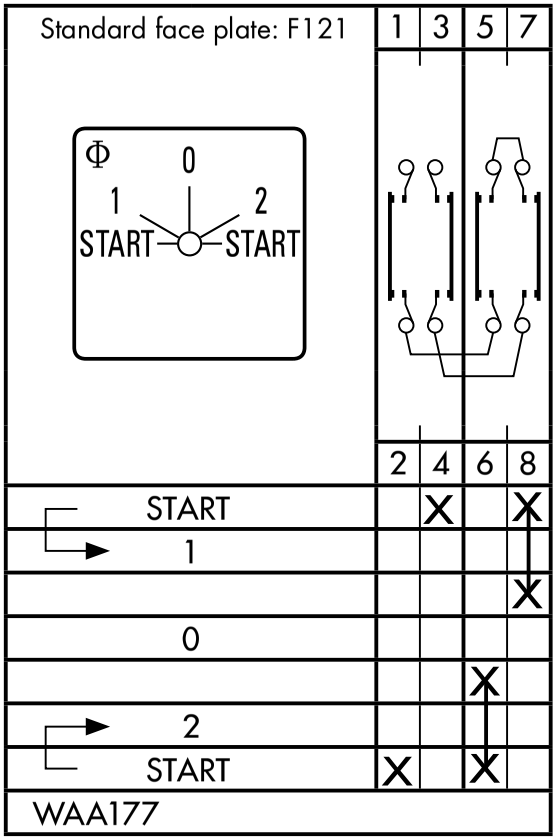



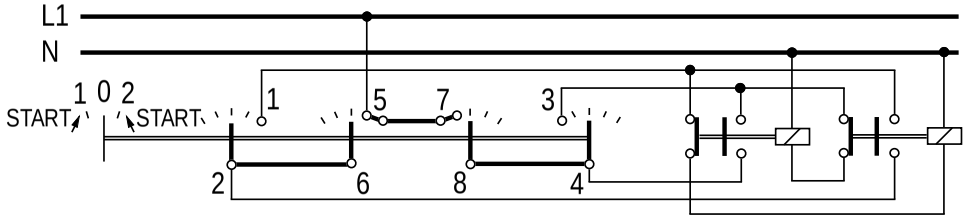

WAA174 Stop switch
(formerly A174) 1 pole

# 控制开关




A176 Stop start switch
2 pole see page 31
Electrically isolated contacts see page 86

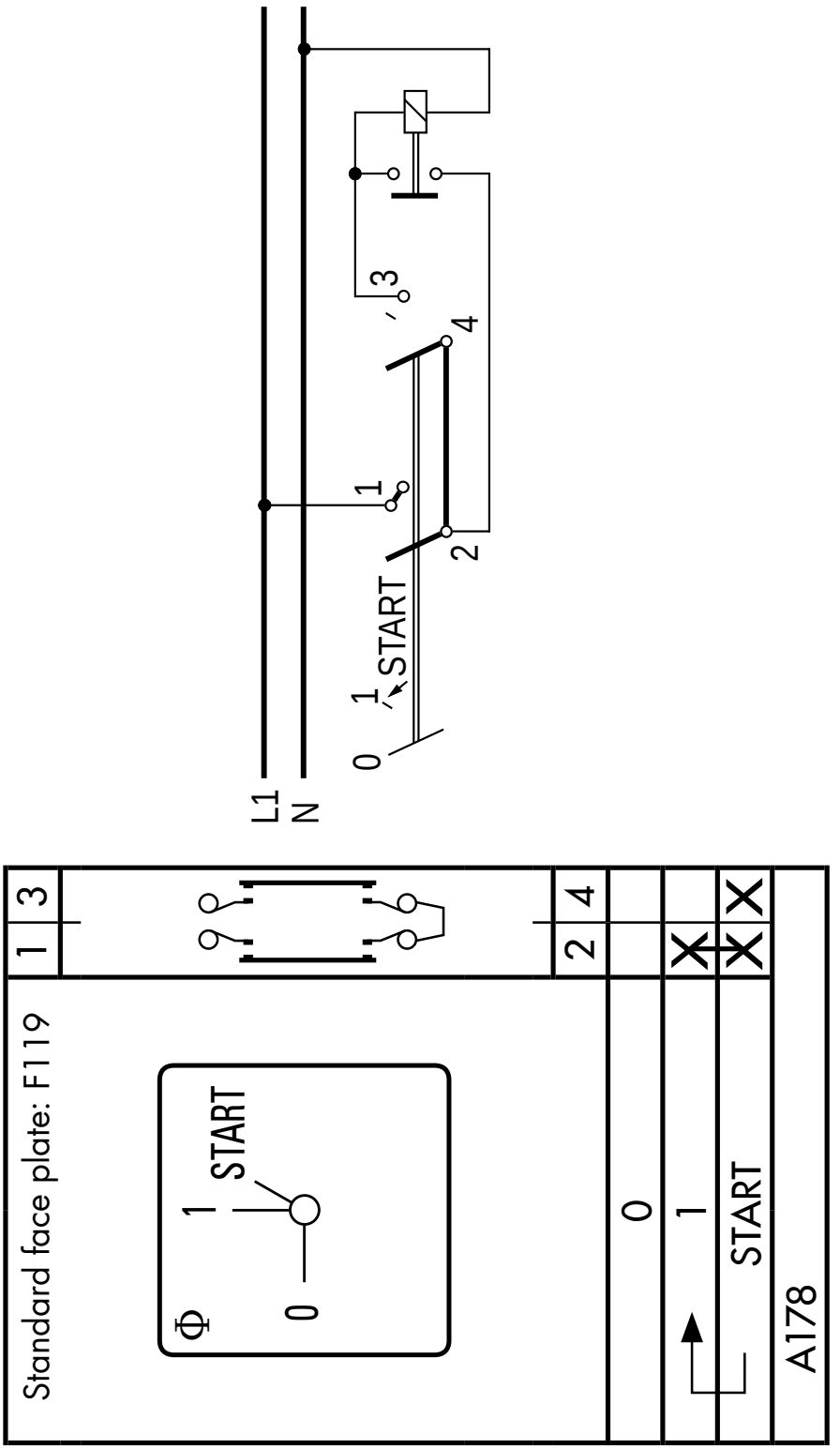



控制开关

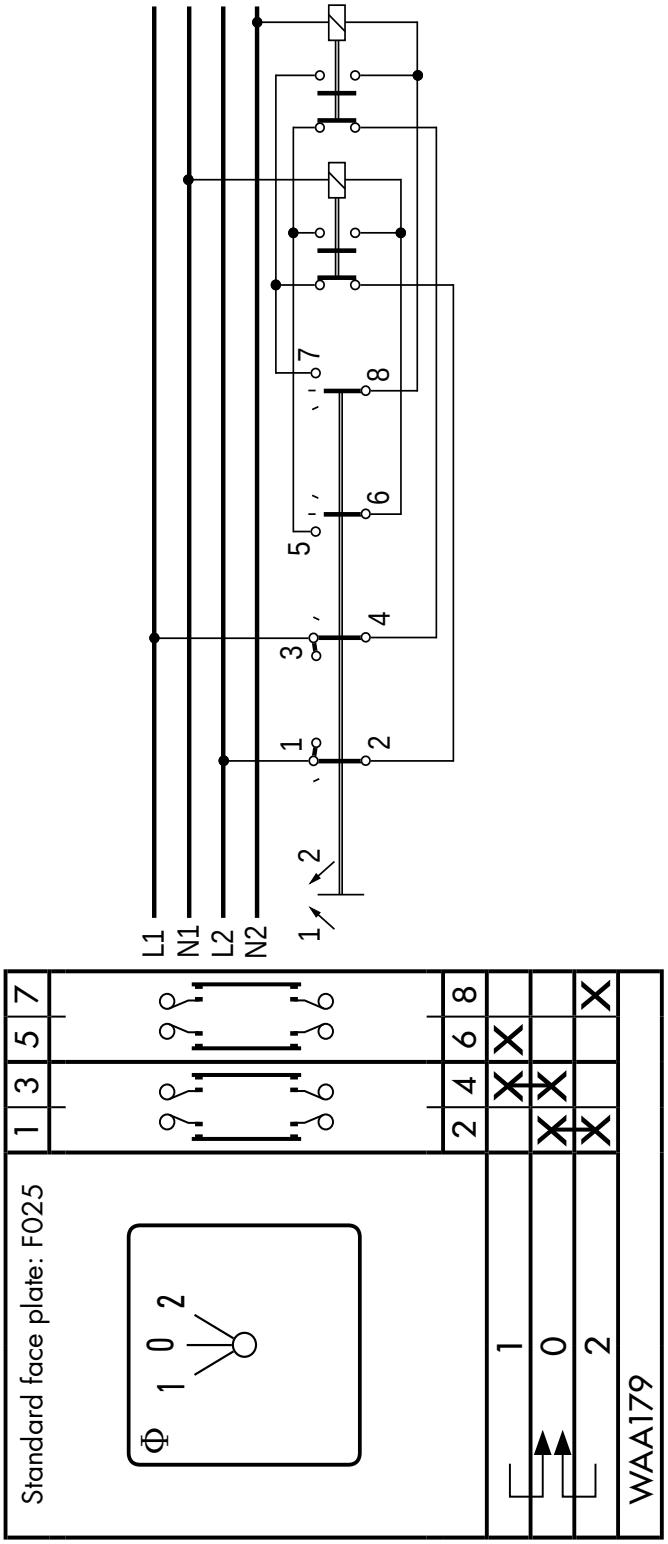
WAA177 Stop Start Switch for two units
(formerly A177) 2 pole, with spring return from start to run

# 控制开关



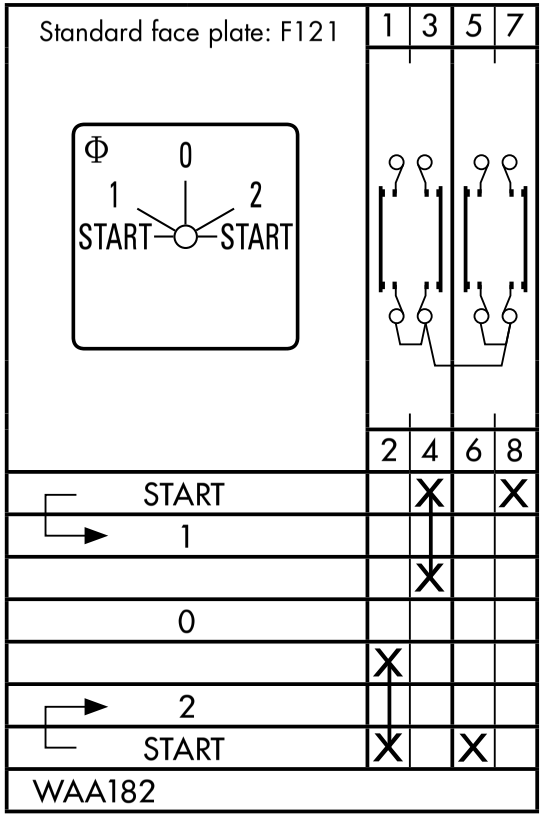

A178 Stop start switch
1 pole, with spring return from start to run
Electrically isolated contacts see page 86

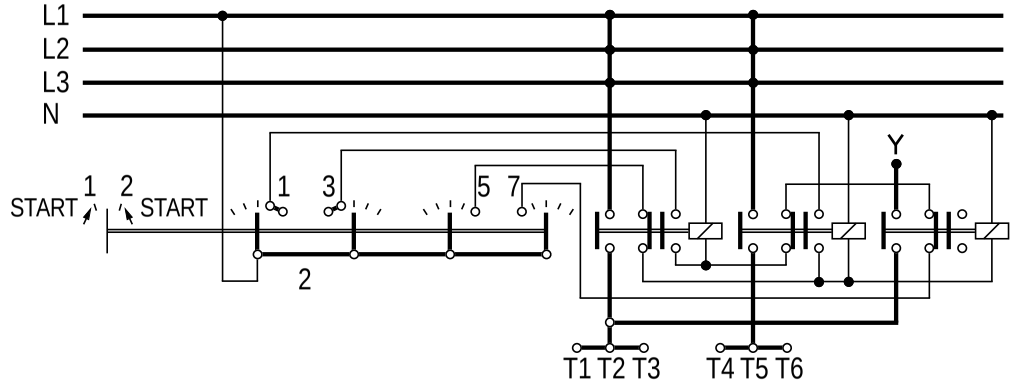
# 控制开关




## WAA179 Contactor control with spring return to „OFF"

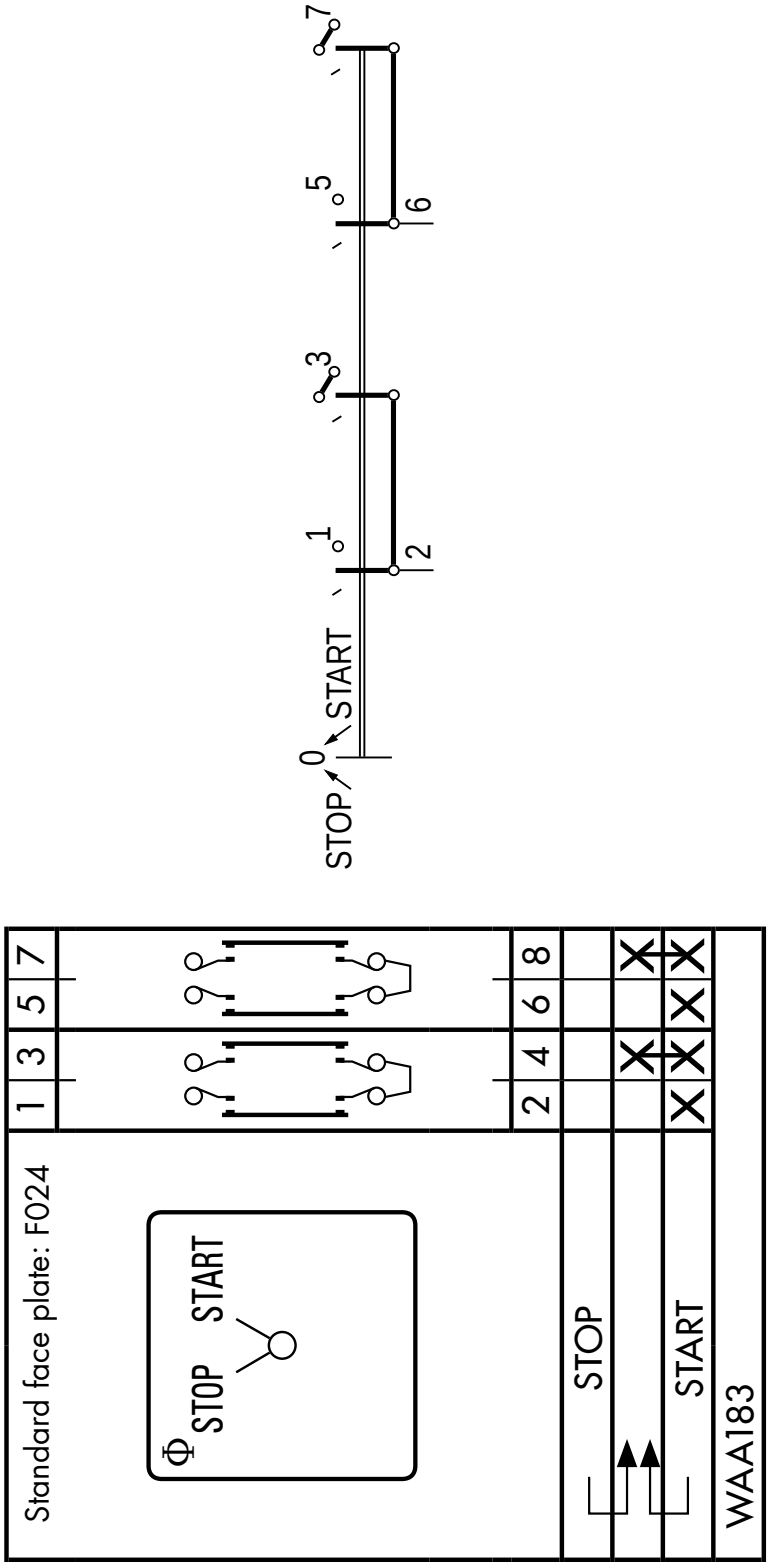
(formerly A179)



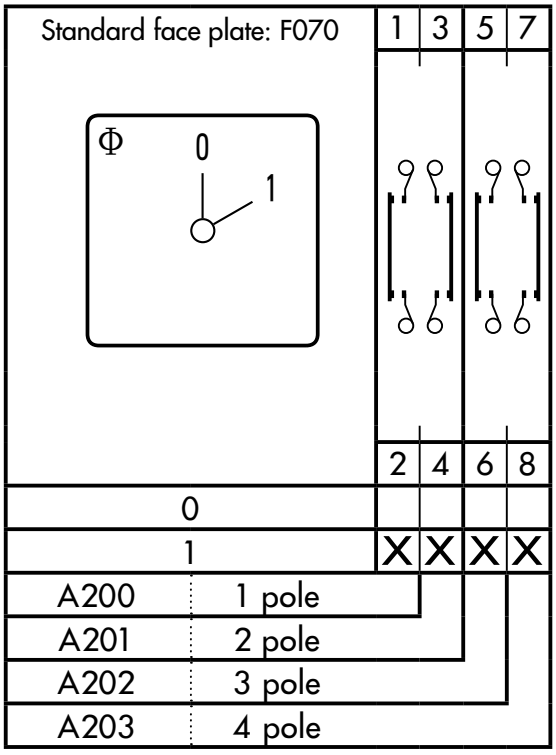

# WAA182 Stop Start Switch
(formerly A182) with spring return to run with contactor interlock

# 控制开关



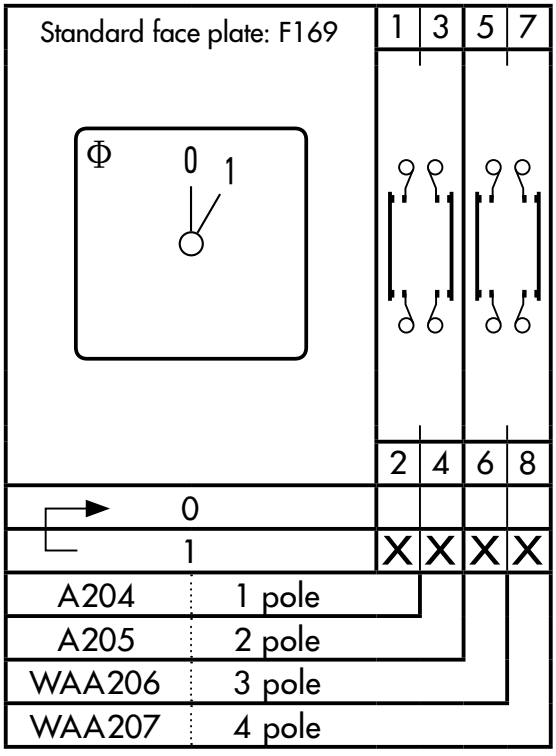

WAA183 Stop start switch
(formerly A183) 2 pole

# ON/OFF 开关




## A200 up to A203 ON/OFF Switches, 60° Switching

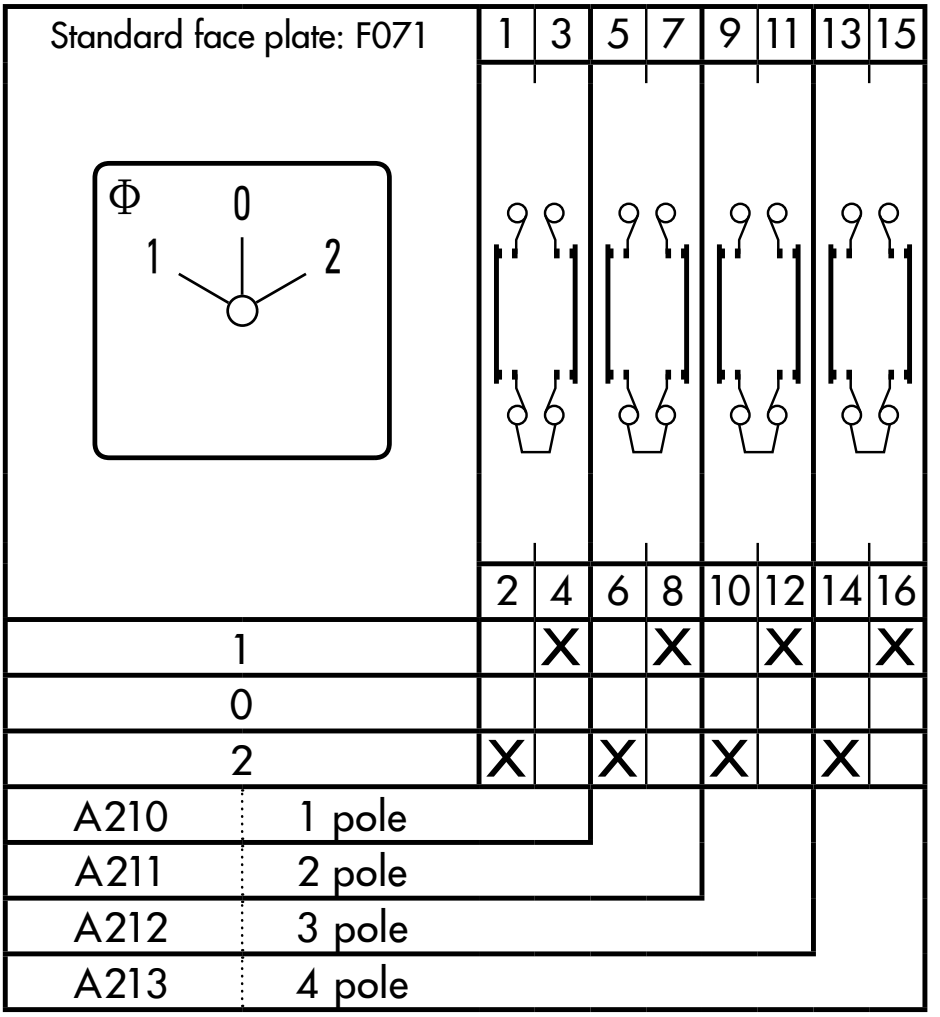
ON/OFF Switches 5- up to 12 pole
see page 56




## A204 up to WAA207
(formerly A207)

## ON/OFF Switches with spring return, 30° Switching

# 双掷开关

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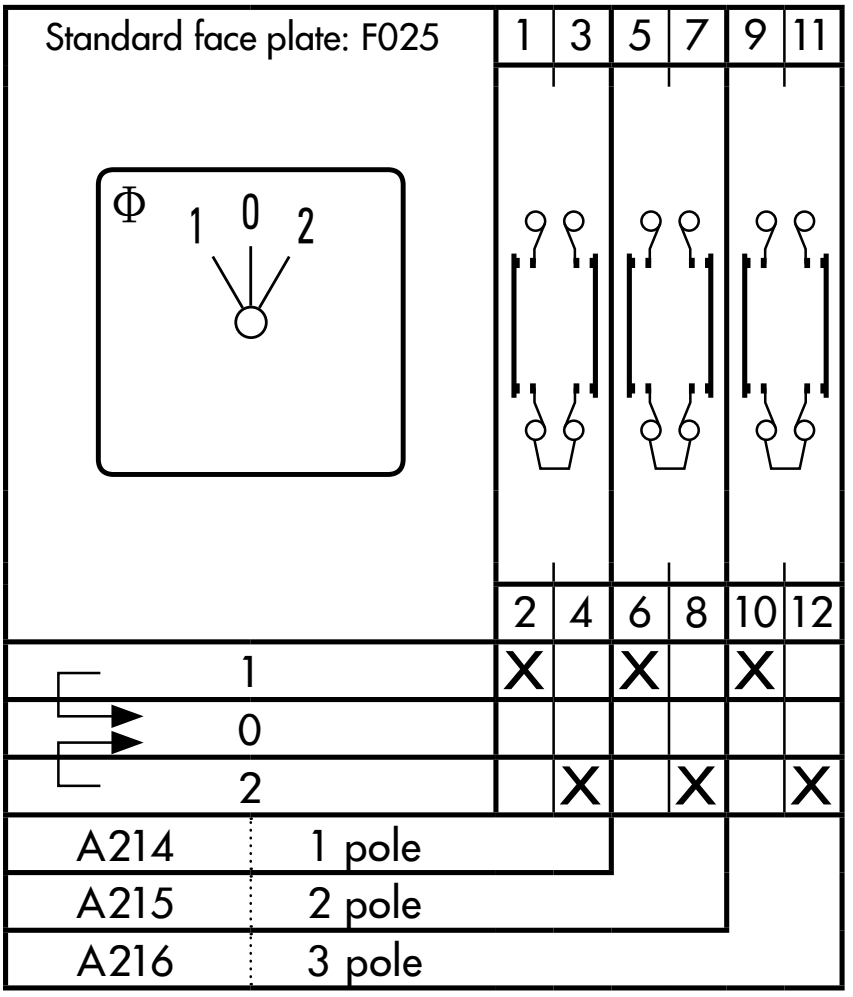
## A210 up to A213 Double-throw Switches, with „OFF“, 60° Switching

Electrically isolated contacts see page 81
Double-throw Switches with „OFF“, 5-8 pole see page 57

# 双掷开关

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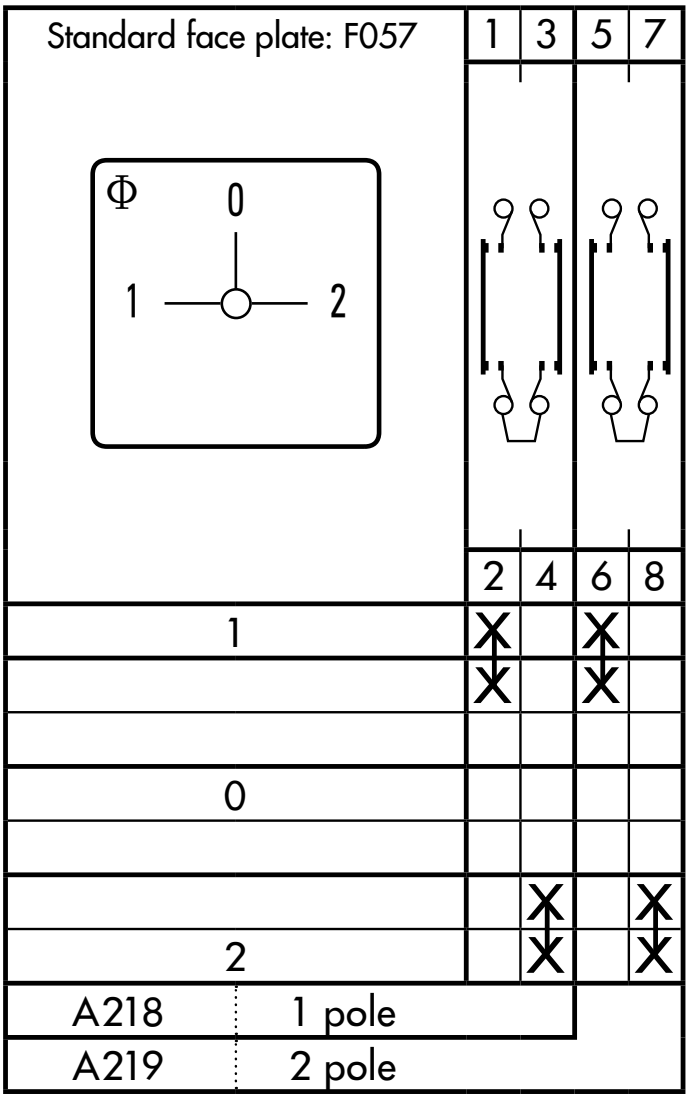
## A214 up to A216 Double-throw Switches with „OFF“ and with spring return to „OFF“, 30° Switching

Electrically isolated contacts see page 82

# 双掷开关

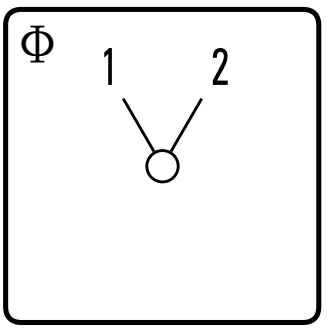


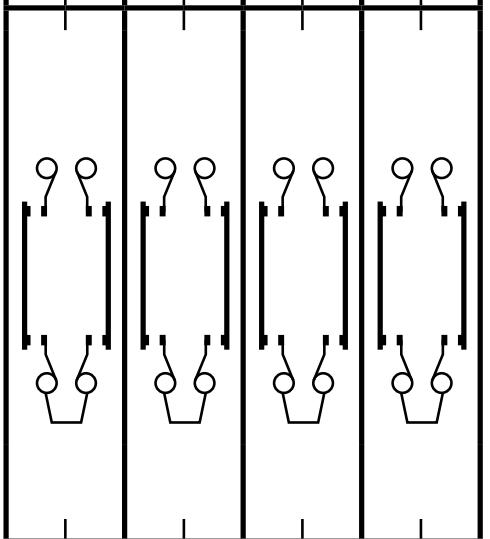

## A218, A219
## Double-throw Switches with „OFF“, 90° Switching

For 3 & 4 pole options see pages 48 & 46 respectively

# 双掷开关

Standard face plate: F072



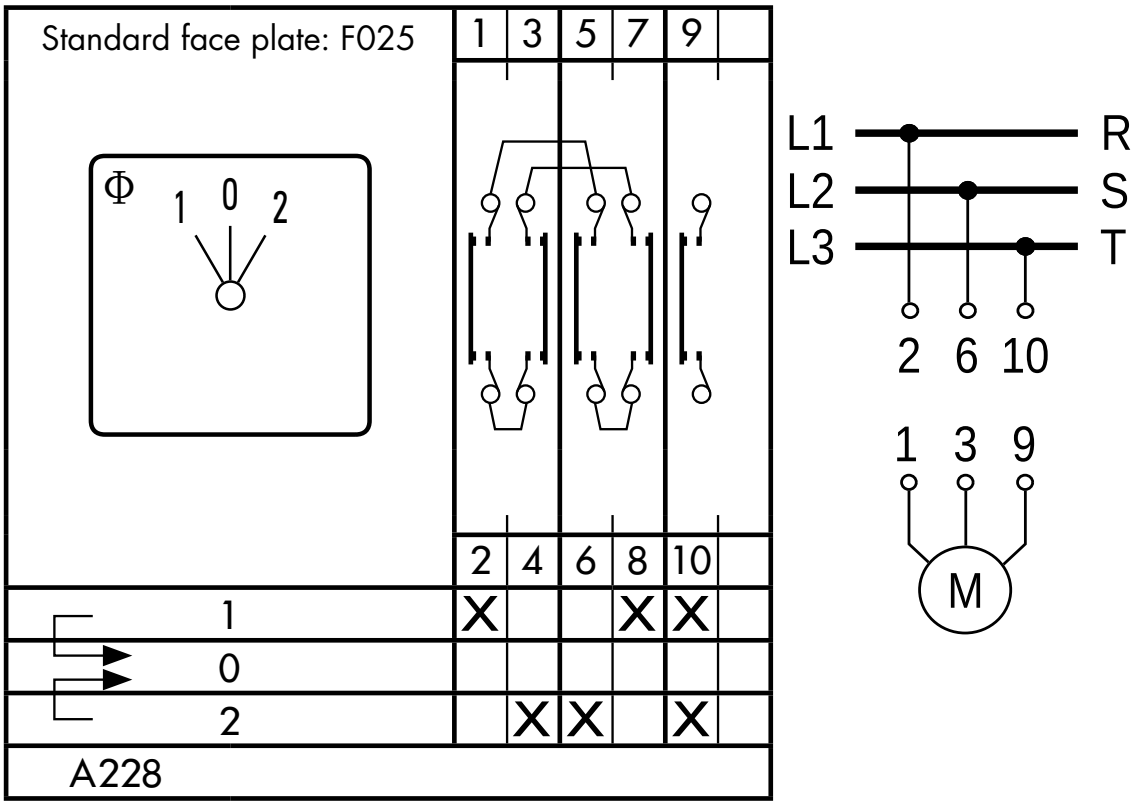
| | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 1 | X | | X | | X | | X | |
| | | | | | | | | |
| 2 | | X | | X | | X | | X |

| | |
|---|---|
| A220 | 1 pole |
| A221 | 2 pole |
| A222 | 3 pole |
| A223 | 4 pole |

## A220 up to A223
## Double-throw Switches without „OFF“, 60° Switching

Electrically isolated contacts see page 83
Double-throw Switches without „OFF“ 5-12 pole see page 58

# 电机马达开关

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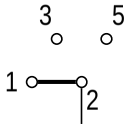
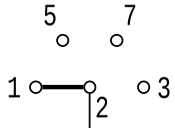
A228 Motor Reversing Switches
3 pole, with spring return to 0

# 多级开关 1 pole without „OFF"

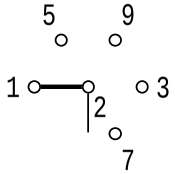
3 Step
A230 *



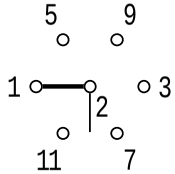

4 Step
A231 **



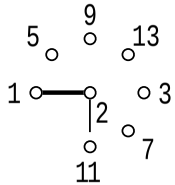

5 Step
A232



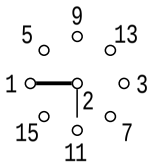

6 Step
A233



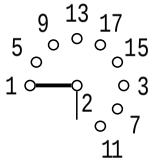

7 Step
WAA234 (formerly A234)



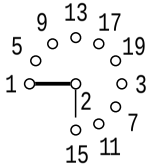

8 Step
WAA235 (formerly A235)



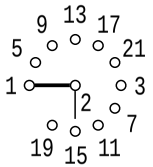

9 Step
WAA236 (formerly A236)



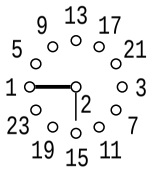

10 Step
WAA237 (formerly A237)




11 Step
WAA238 (formerly A238)



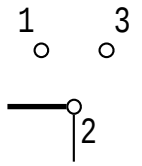
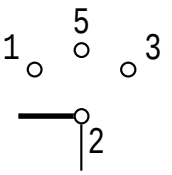
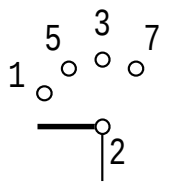
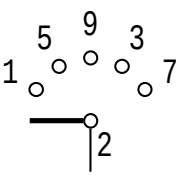
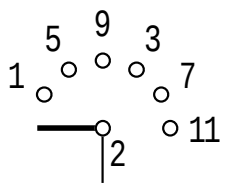
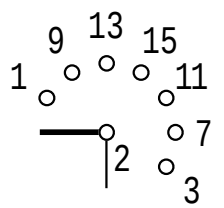

12 Step
WAA239 (formerly A239)




Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

and electrically isolated contacts see *Page 84 resp. **Page 85

# 多级开关 1 pole with „OFF“

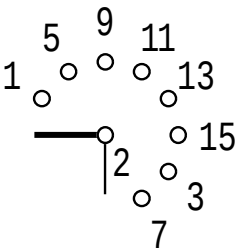
| | | |
|---|---|---|
| 2 Step | A240 |  |
| 3 Step | A241 |  |
| 4 Step | A242 |  |
| 5 Step | A243 |  |
| 6 Step | A244 |  |
| 7 Step | WAA245<br>(formerly A245) |  |

Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 1 pole with „OFF“

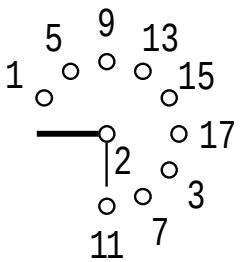
8 Step

WAA246
(formerly A246)



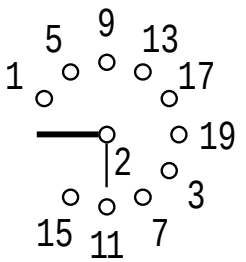

9 Step

WAA247
(formerly A247)



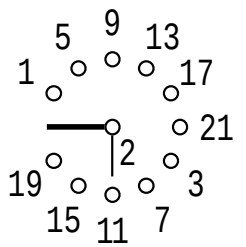

10 Step

WAA248
(formerly A248)




11 Step

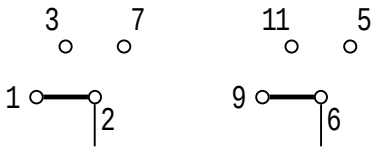
WAA249
(formerly A249)



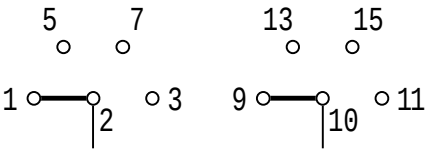

Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 2 pole without „OFF“

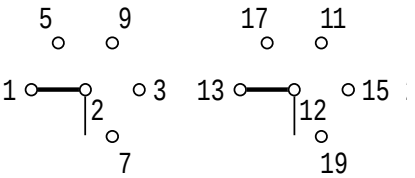
3 Step — A250*



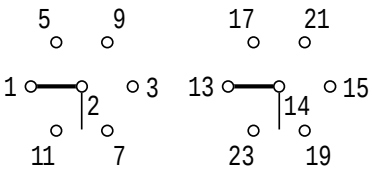

4 Step — A251**



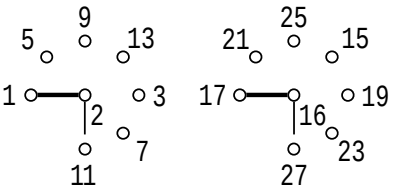

5 Step — A252



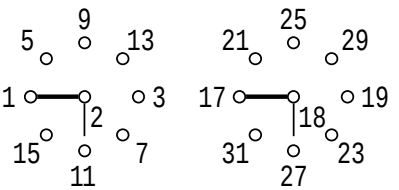

6 Step — WAA253 (formerly A253)




7 Step — WAA254 (formerly A254)



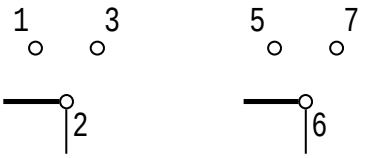
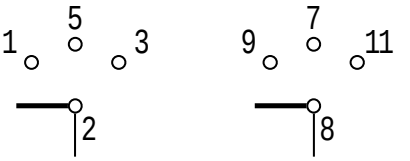
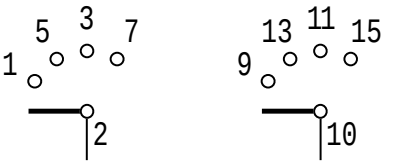
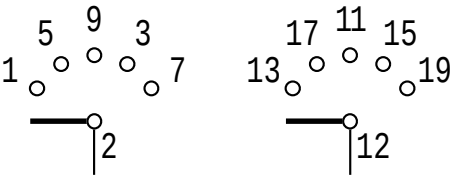
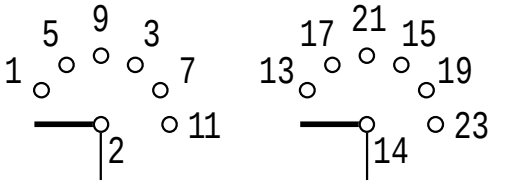
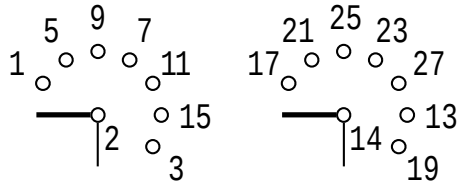

8 Step — WAA255 (formerly A255)




Electrically isolated contacts see *Page 84 resp. **Page 85

Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

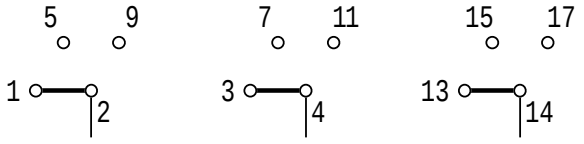
# 多级开关 2 pole with „OFF“

| | | |
|---|---|---|
| 2 Step | A260 |   |
| 3 Step | A261 |   |
| 4 Step | WAA262 (formerly A262) |   |
| 5 Step | WAA263 (formerly A263) |   |
| 6 Step | WAA264 (formerly A264) |   |
| 7 Step | WAA265 (formerly A265) |   |

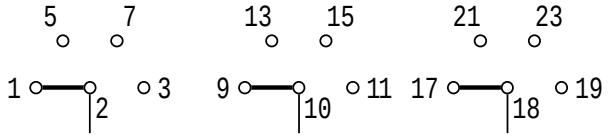
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 3 pole without „OFF“

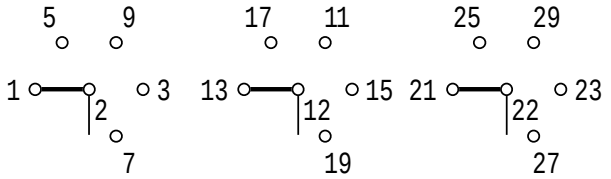
3 Step
A270



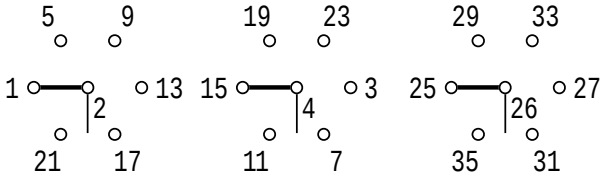

4 Step
A271



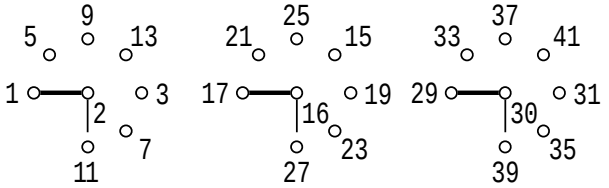

5 Step
WAA272
(formerly A272)



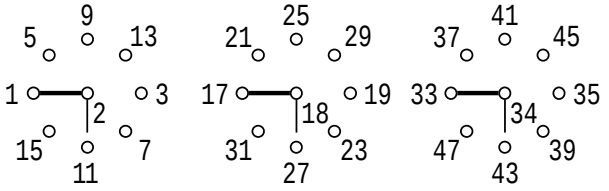

6 Step
WAA273
(formerly A273)




7 Step
WAA274
(formerly A274)



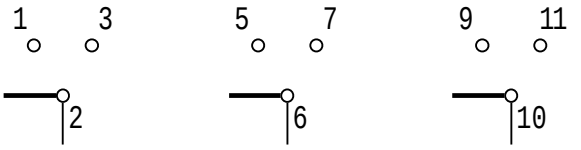

8 Step
WAA275
(formerly A275)



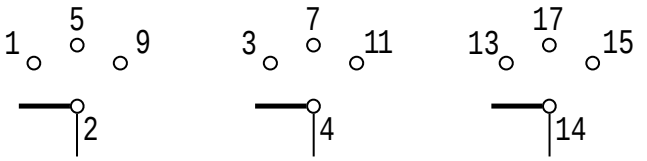

Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 3 pole with „OFF“

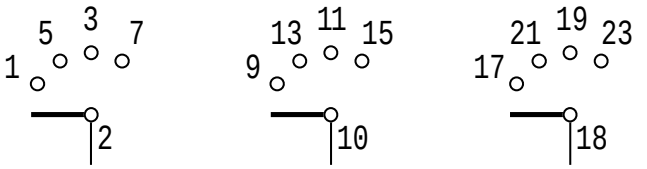
2 Step
A280



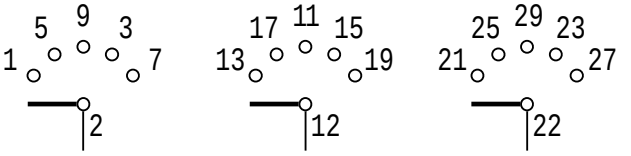

3 Step
A281



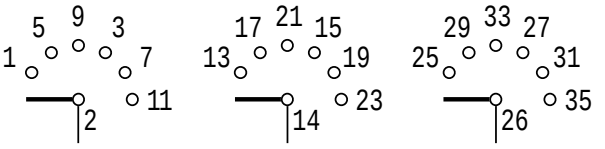

4 Step
WAA282
(formerly A282)




5 Step
WAA283
(formerly A283)

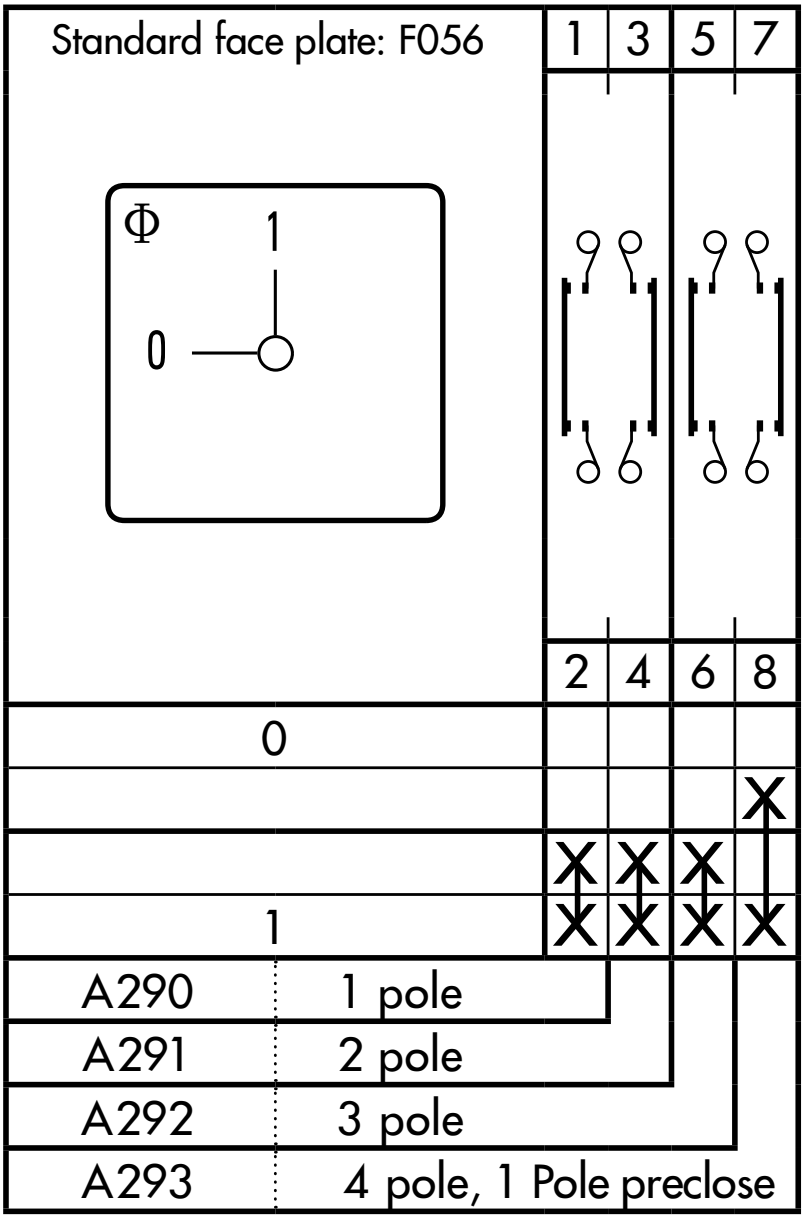



6 Step
WAA284
(formerly A284)



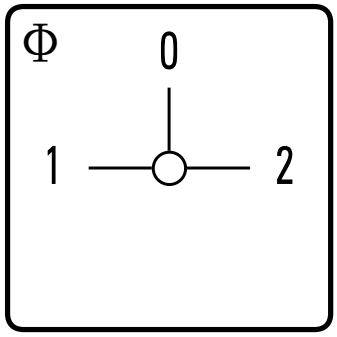

Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

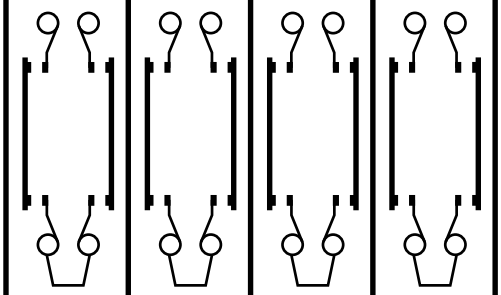
# ON/OFF 开关




A290 up to A293
ON/OFF Switches 90° Switching

# 双掷开关

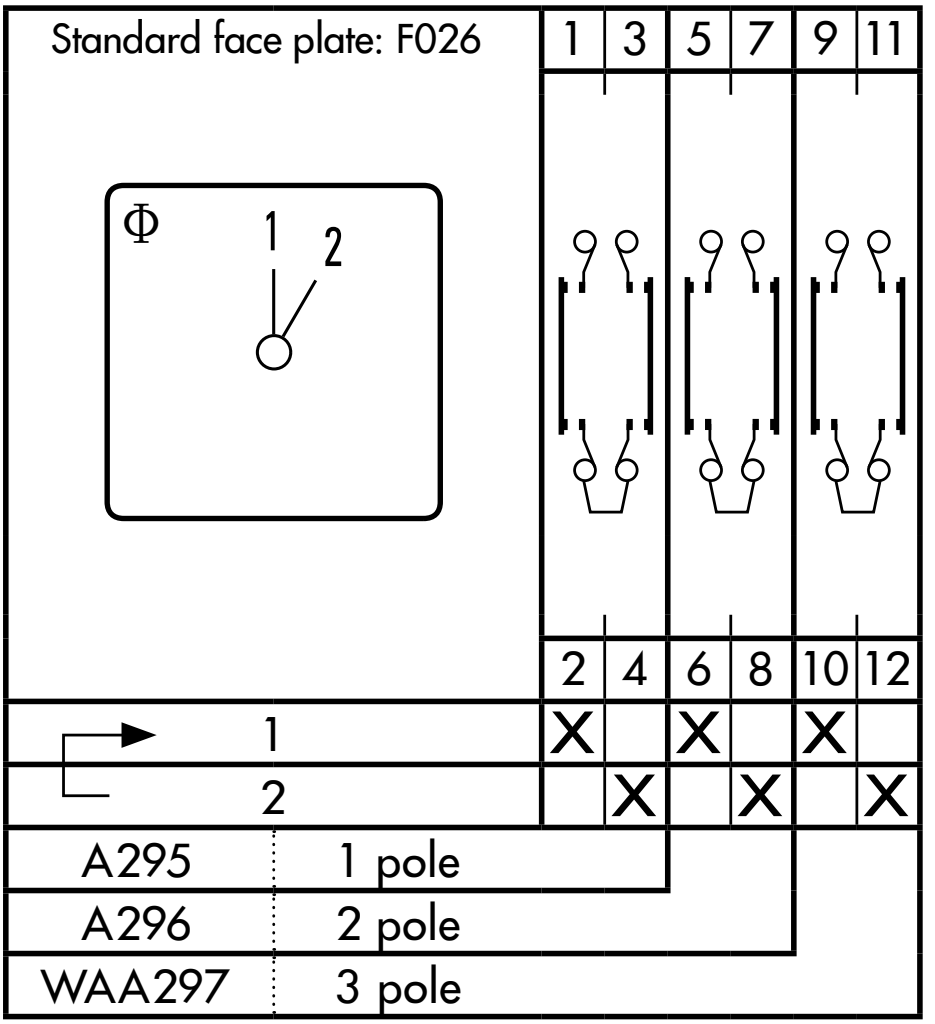


| Standard face plate: F057 | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 1 | X | | X | | X | | X | |
| | X | | X | | X | | | |
| | | | | | | | X | |
| 0 | | | | | | | | |
| | | | | | | | | X |
| | | X | | X | | X | | |
| 2 | | X | | X | | X | | X |
| WAA294 | 4 pole, 1 Pole preclose | | | | | | | |

WAA294 Double-throw Switch with „OFF“,
(formerly A294) 90° Switching

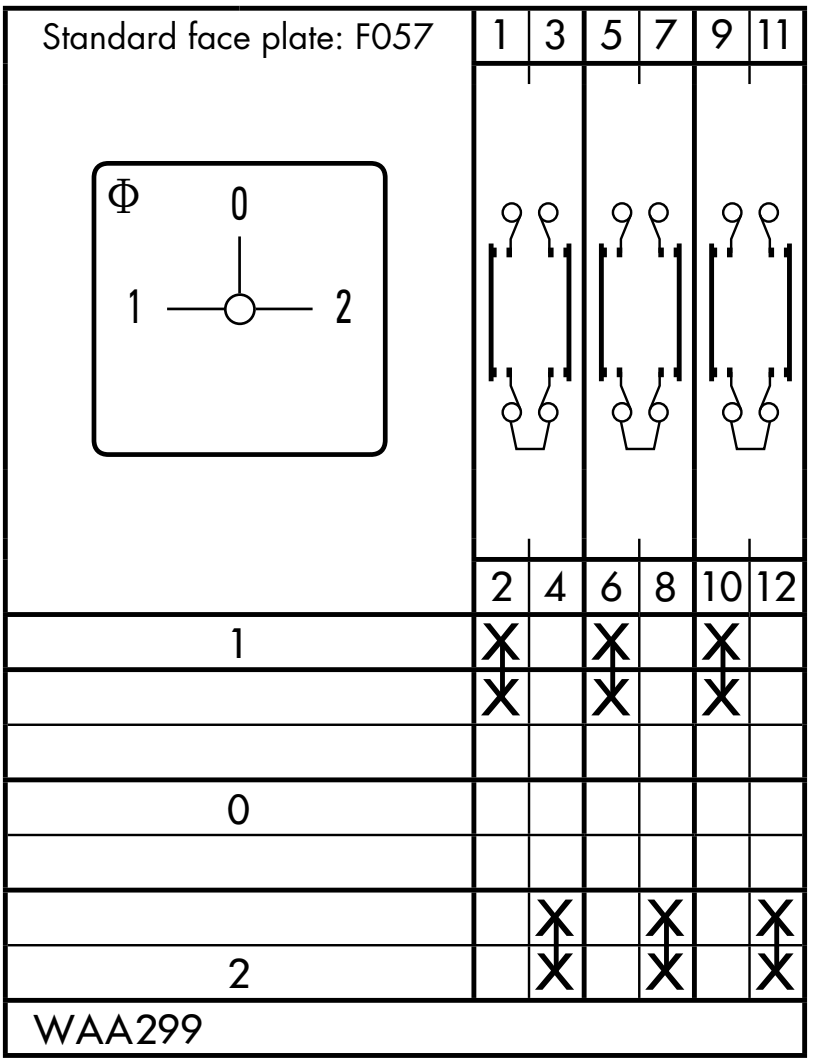
# 双掷开关




A295* up to WAA297 (formerly A297)
Double-throw Switches without „OFF“,
with spring return, 30° Switching

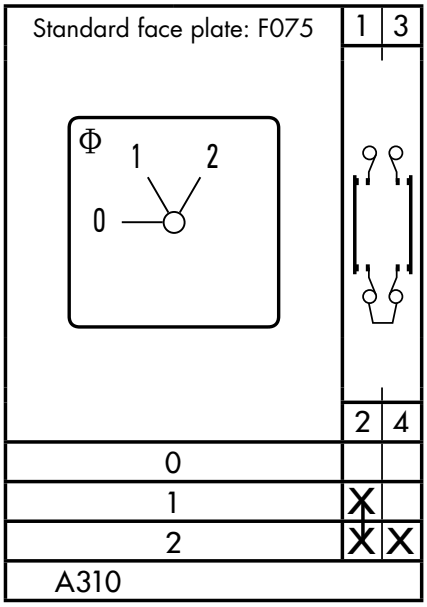
*Electrically isolated contacts see page 86

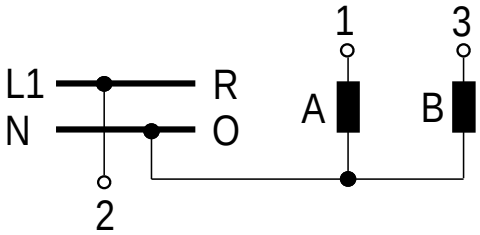
# 双掷开关



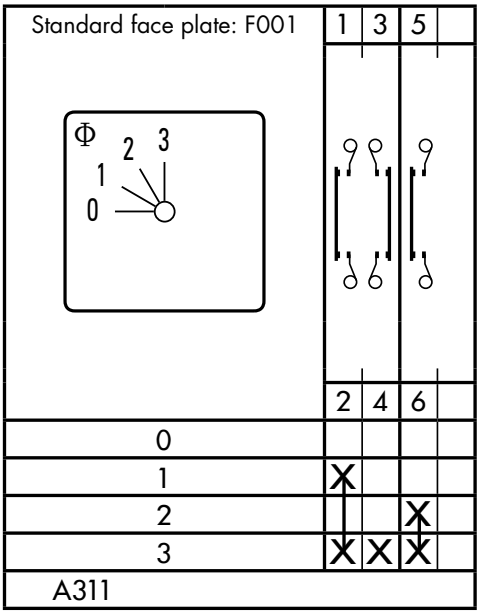

WAA299 Double-throw Switch with „OFF“
(formerly A299) 90° Switching, 3 pole

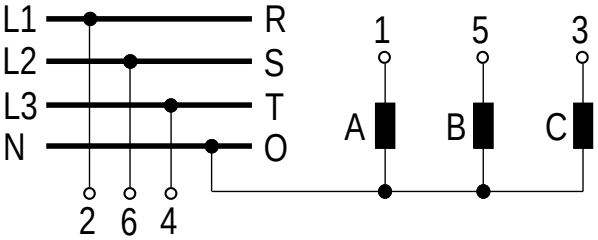
# 通用型开关



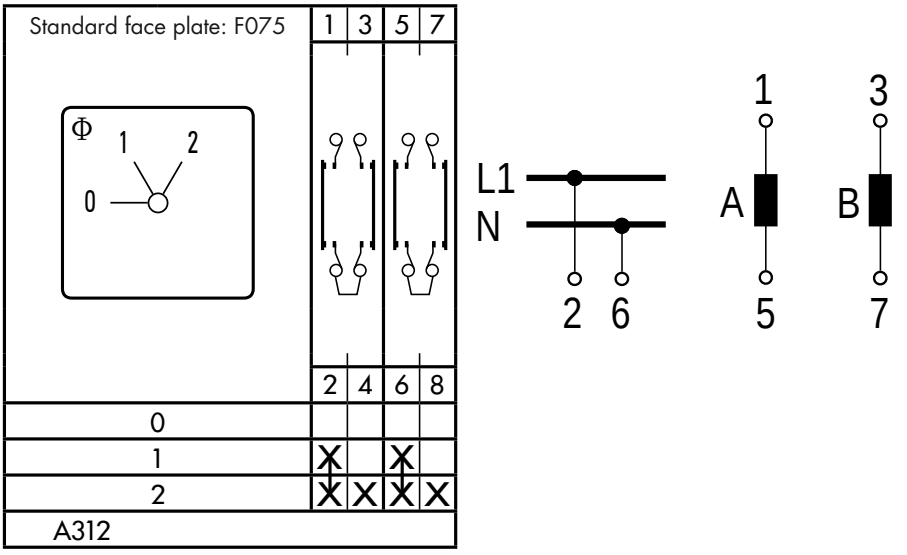

A310 General Application Switch
2 Gang, 1 pole
0, A, A+B



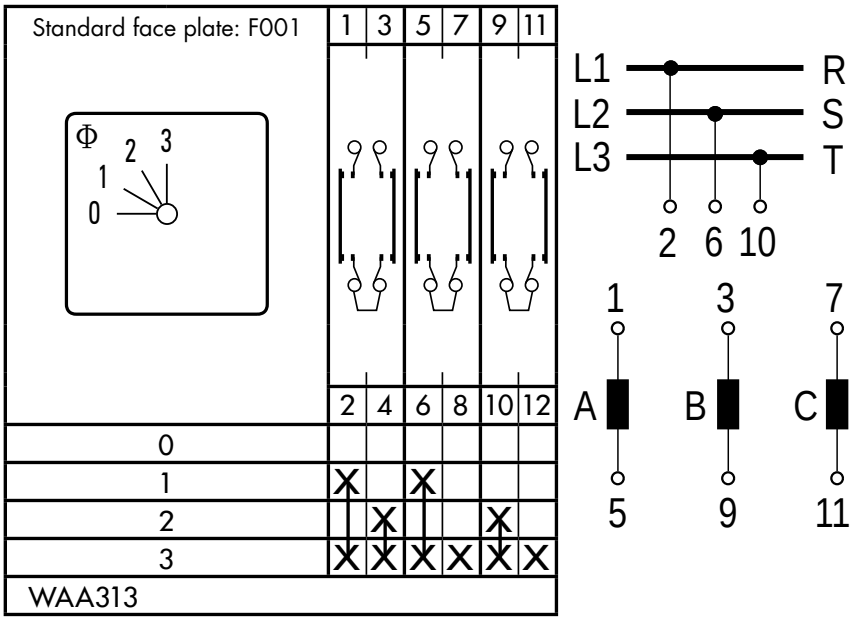




A311 General Application Switch
3 Gang, 1 pole
0, A, A+B, A+B+C

# 通用型开关

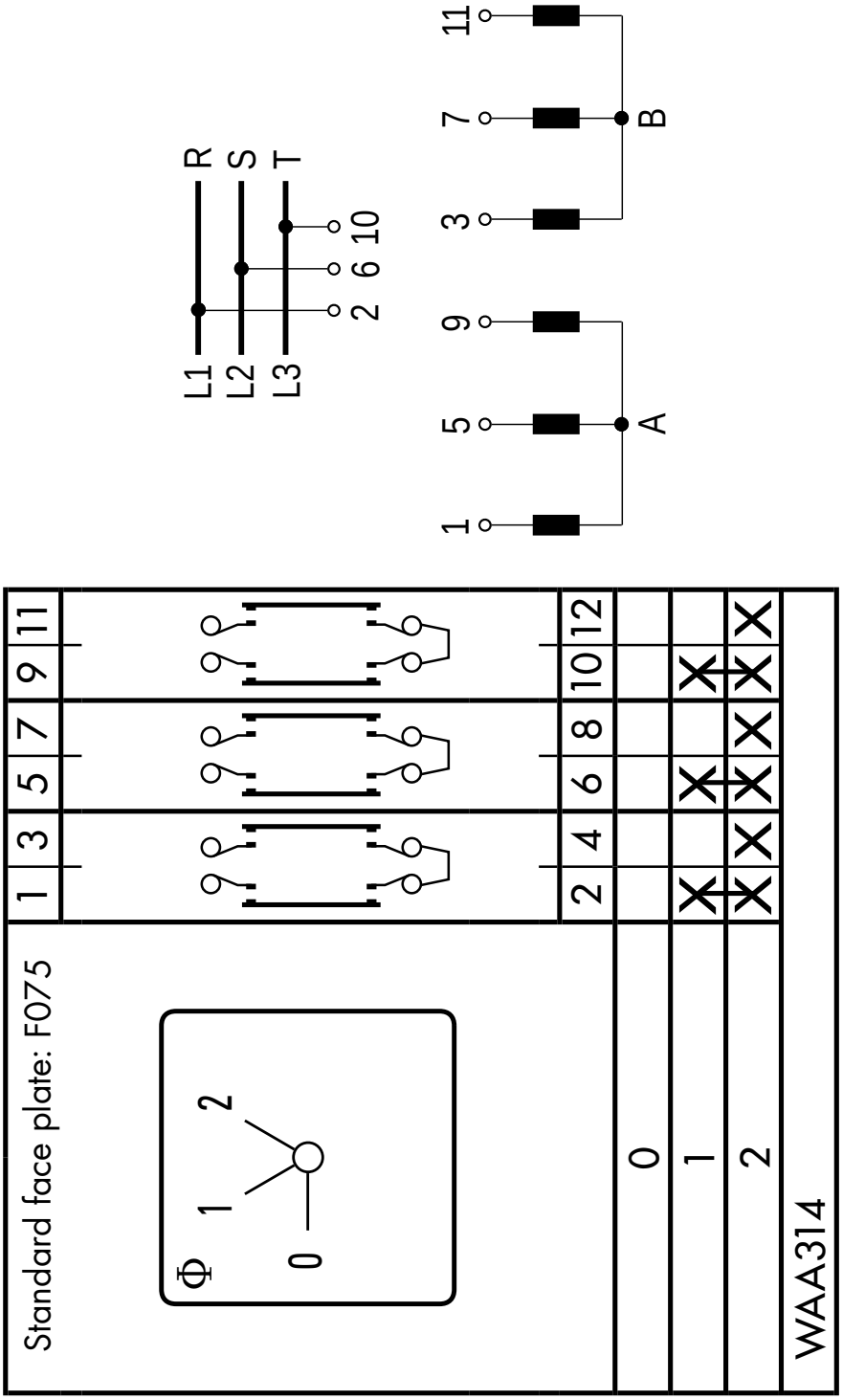



A312 General Application Switch
2 Gang, 2 pole
0, A, A+B



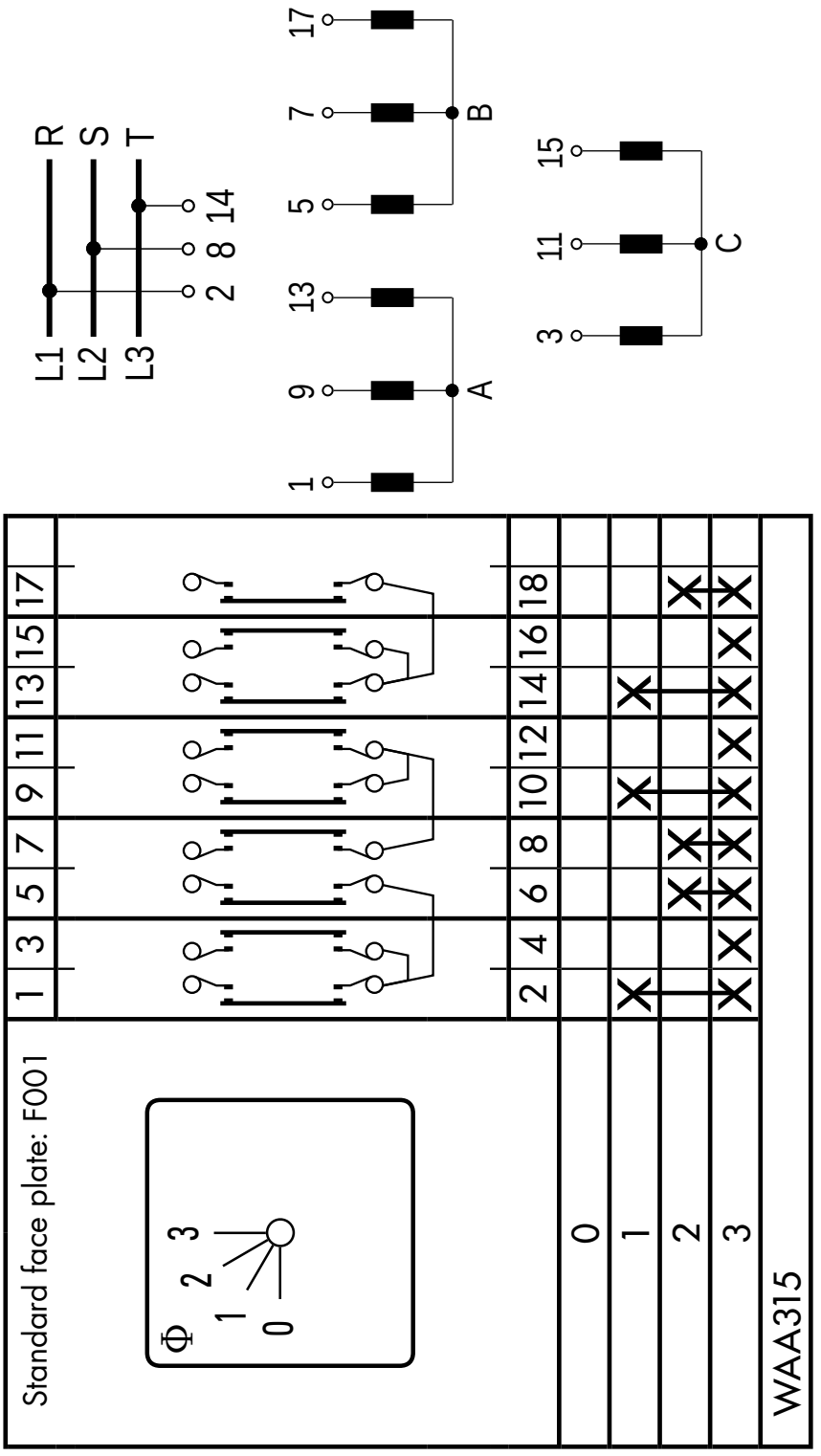

WAA313 General Application Switch
(formerly A313) 3 Gang, 2 pole
0, A, A+B, A+B+C

# 通用型开关



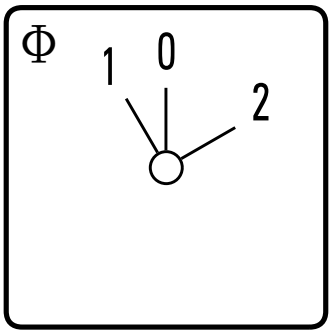

WAA314 General Application Switch
(formerly A314) 2 Gang, 3 pole
0, A, A+B

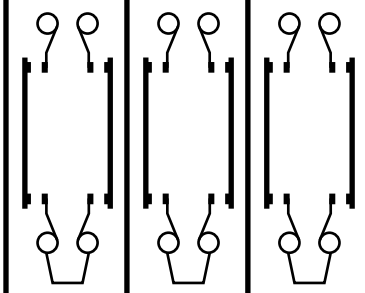
# 通用型开关




WAA315 General Application Switch
(formerly A315) 3 Gang, 3 pole
0, A, A+B, A+B+C

# 双掷开关



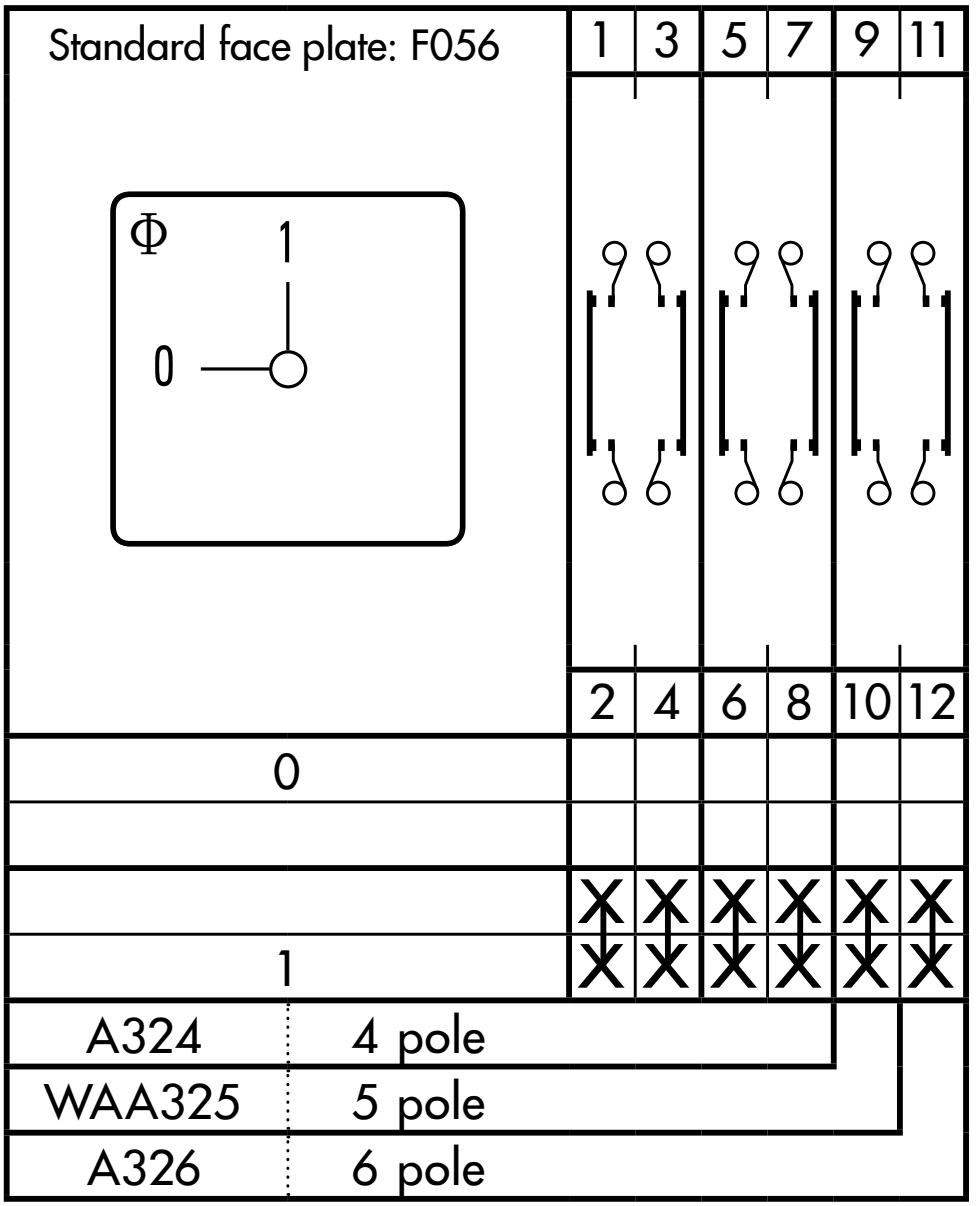
Standard face plate: F341

| | 1 | 3 | 5 | 7 | 9 | 11 |
|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 |
| 1 | | X | | X | | X |
| 0 | | | | | | |
| | | | | | | |
| 2 | X | | X | | X | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | |
|---|---|
| A320 | 1 pole |
| A321 | 2 pole |
| A322 | 3 pole |

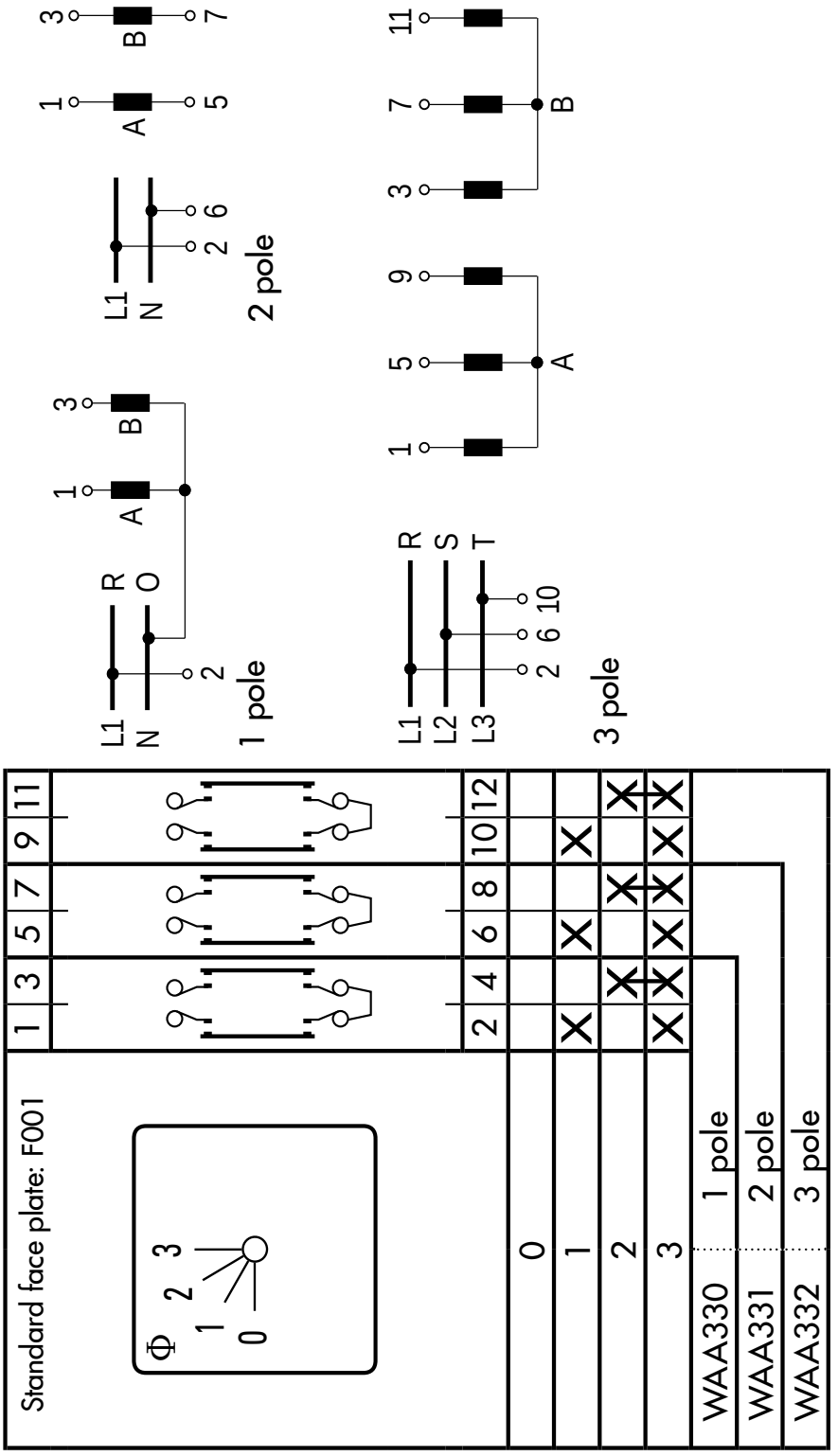
A320 up to A322
Double-throw Switches with „OFF“ with spring return from left to center

# ON/OFF 开关



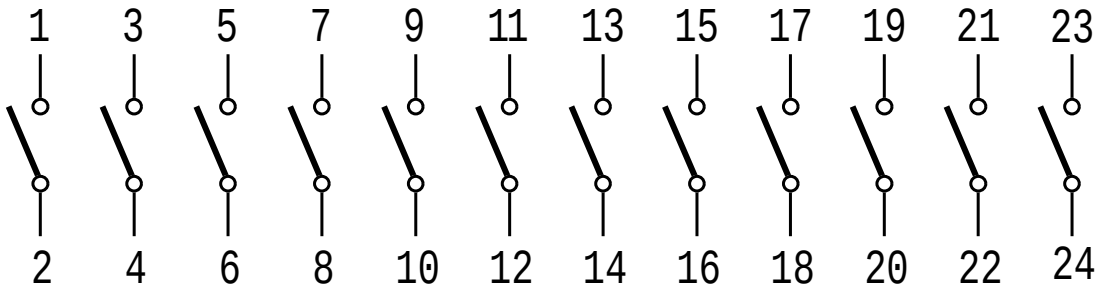

A324 up to A326
ON/OFF Switches, 90° Switching

# 双联串联开关



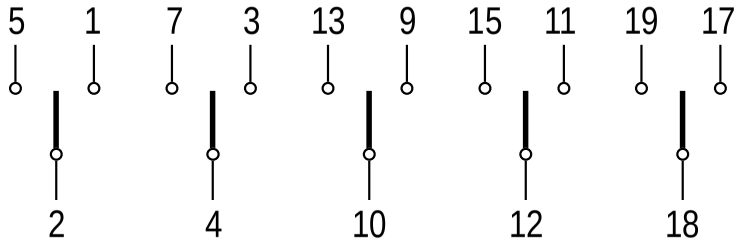

WAA330 up to WAA332 2 Gang Series Switching
(formerly A330 up to A332) 0,A,B,A+B

# ON/OFF 开关

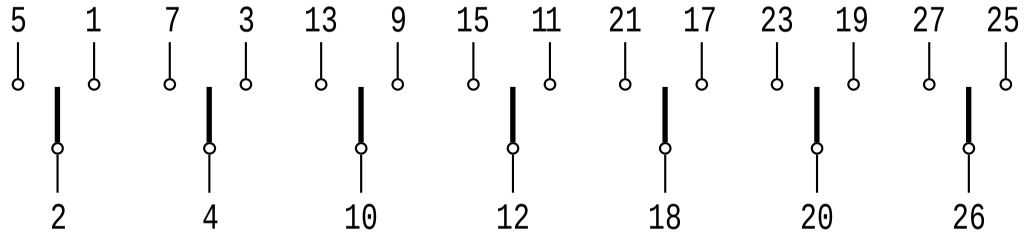



| | |
|---|---|
| WAA341 (formerly A341) | 5 pole |
| A342 | 6 pole |
| A343 | 7 pole |
| A344 | 8 pole |
| WAA345 (formerly A345) | 9 pole |
| A346 | 10 pole |
| WAA347 (formerly A347) | 11 pole |
| A348 | 12 pole |

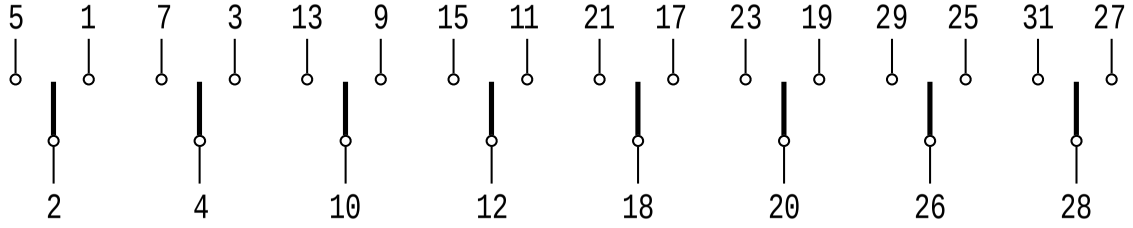
ON/OFF Switches, 60° Switching




5 pole




6 and 7 pole




8 pole

双掷开关

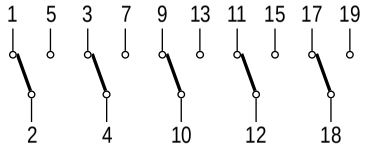
Double-throw Switches with „OFF“ 60° Switching

A361 5 pole

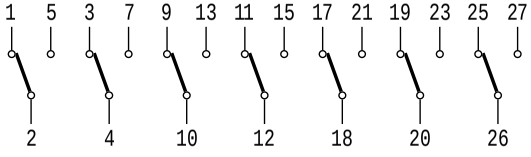
A362 6 pole

WAA363 (formerly A363) 7 pole

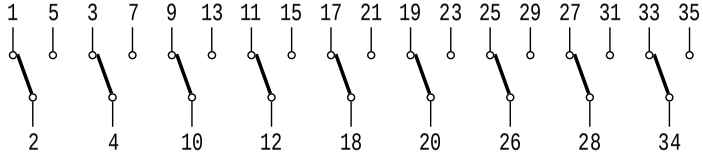
WAA364 (formerly A364) 8 pole



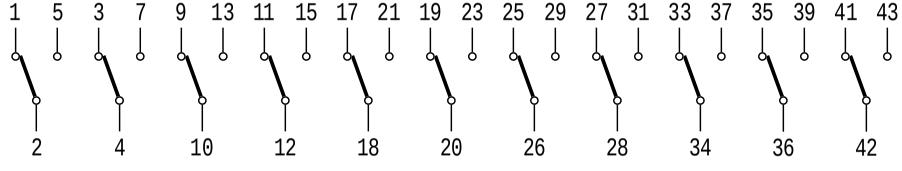

5 pole



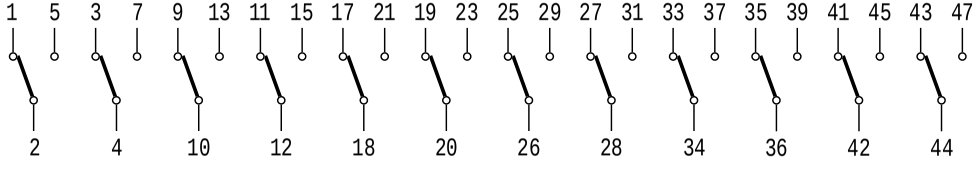

6- and 7 pole




8- and 9 pole




10- and 11 pole



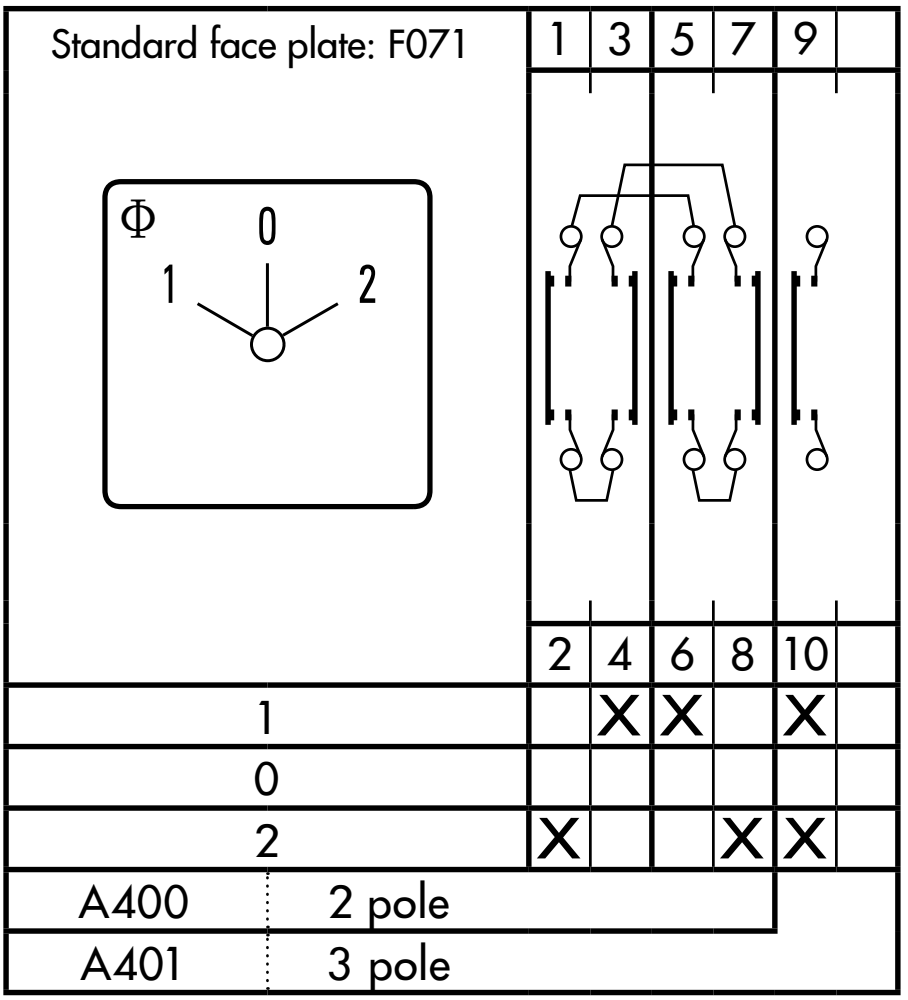

12 pole

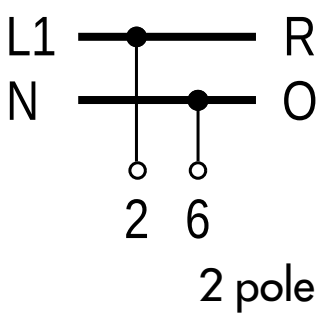
双掷开关

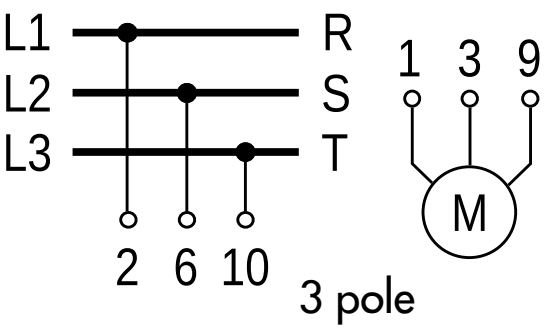
## Double-throw Switches without „OFF“, 60° Switching

| | | | |
|---|---|---|---|
| A369 5 pole | A371 7 pole | WAA373 9 pole (formerlyA373) | WAA375 11 pole (formerlyA375) |
| A370 6 pole | A372 8 pole | WAA374 10 pole (formerlyA374) | WAA376 12 pole (formerlyA376) |

# 电机开关



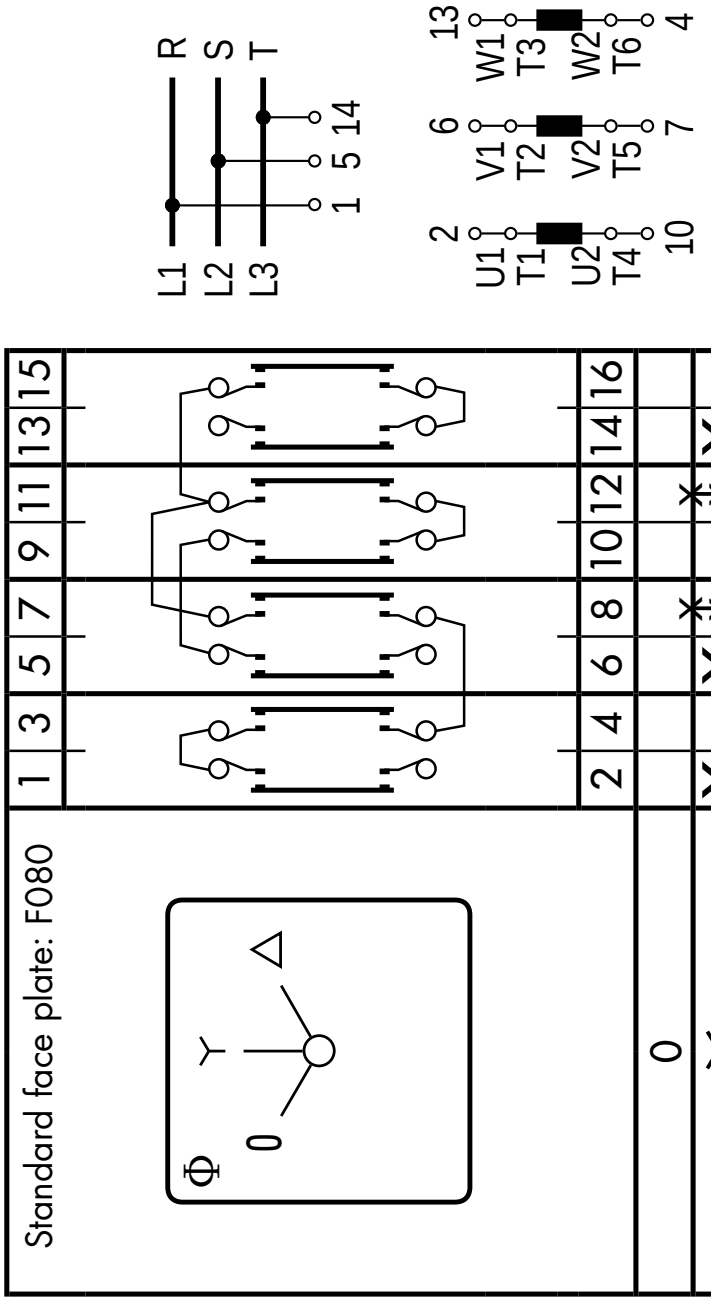



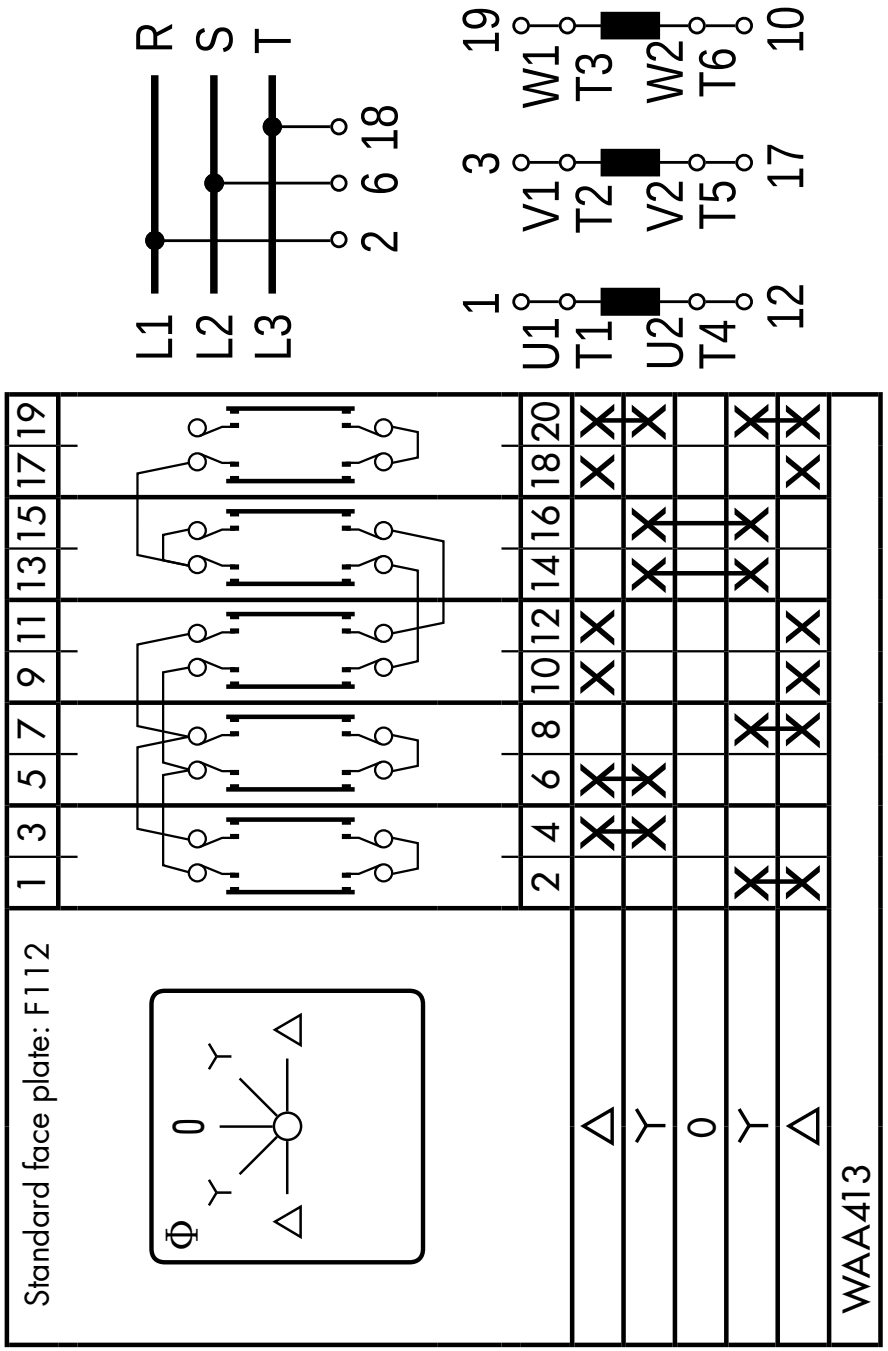

## A400, A401 Motor Reversing Switches

With spring return to „OFF“ see page 37

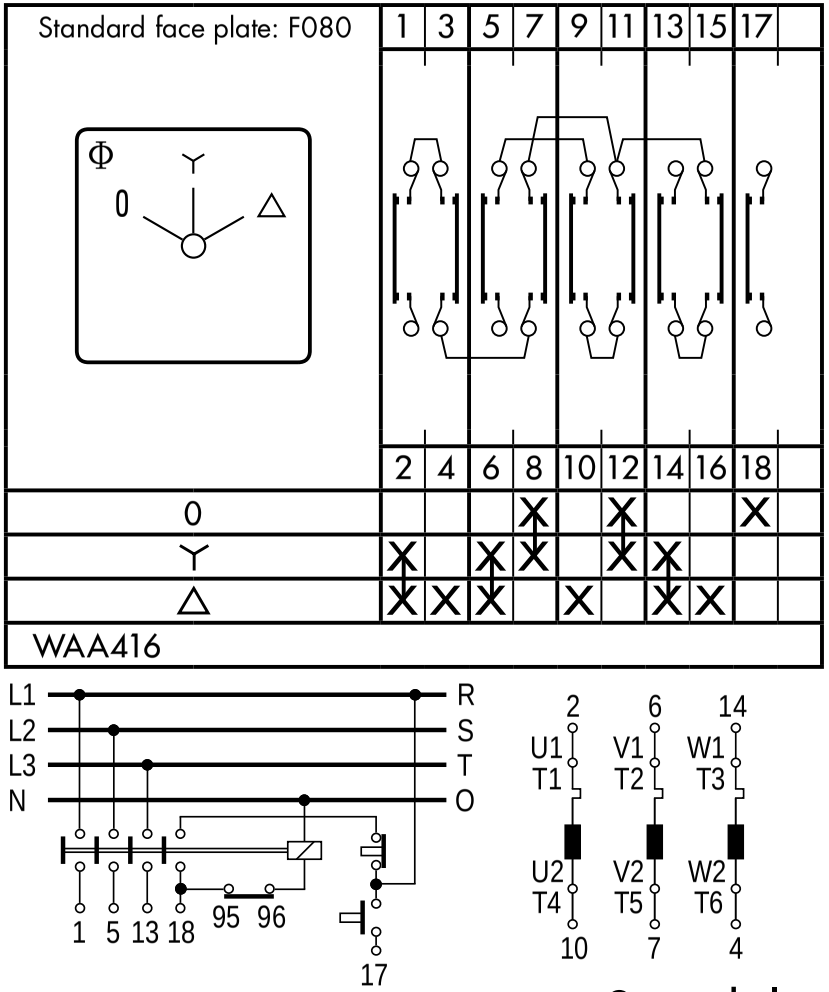
# 电机开关

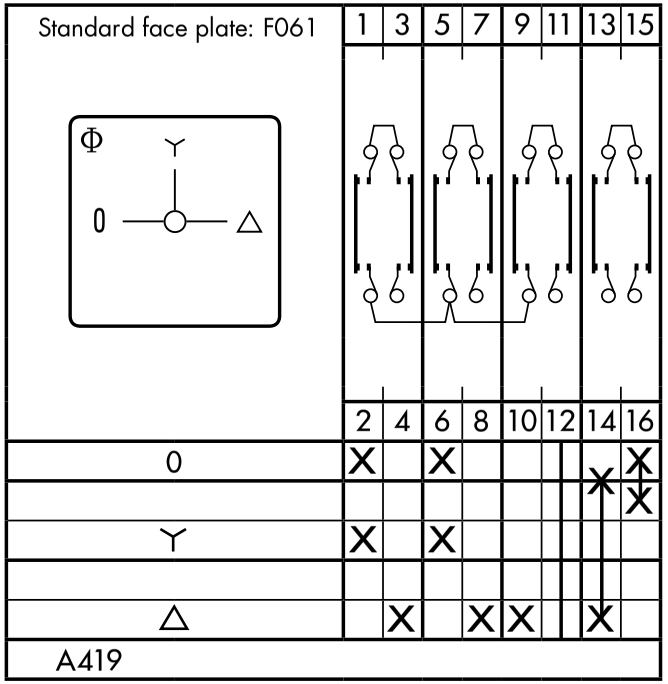



A410 Star-delta Switch




# WAA413 Star-delta Switch
(formerly A413) Reversing



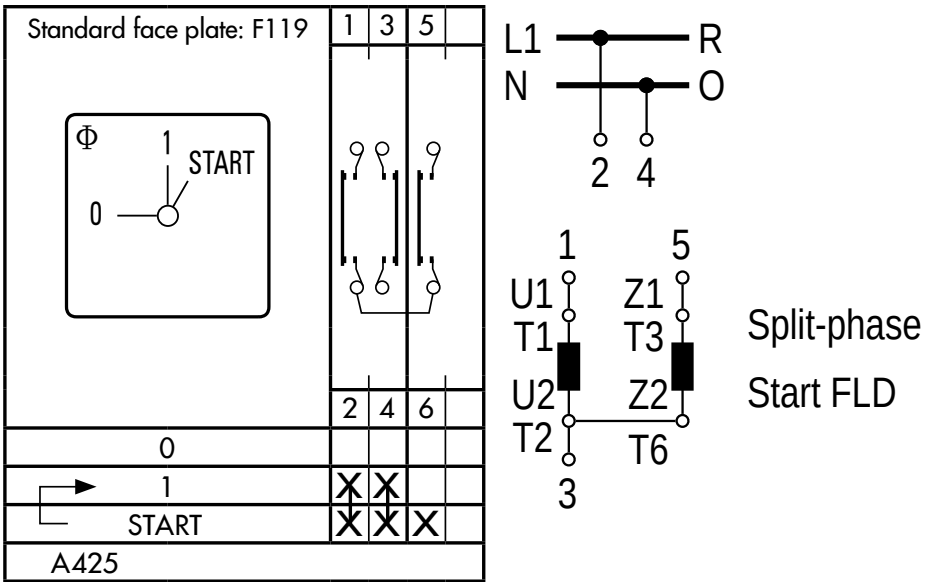




# Star-delta Switches

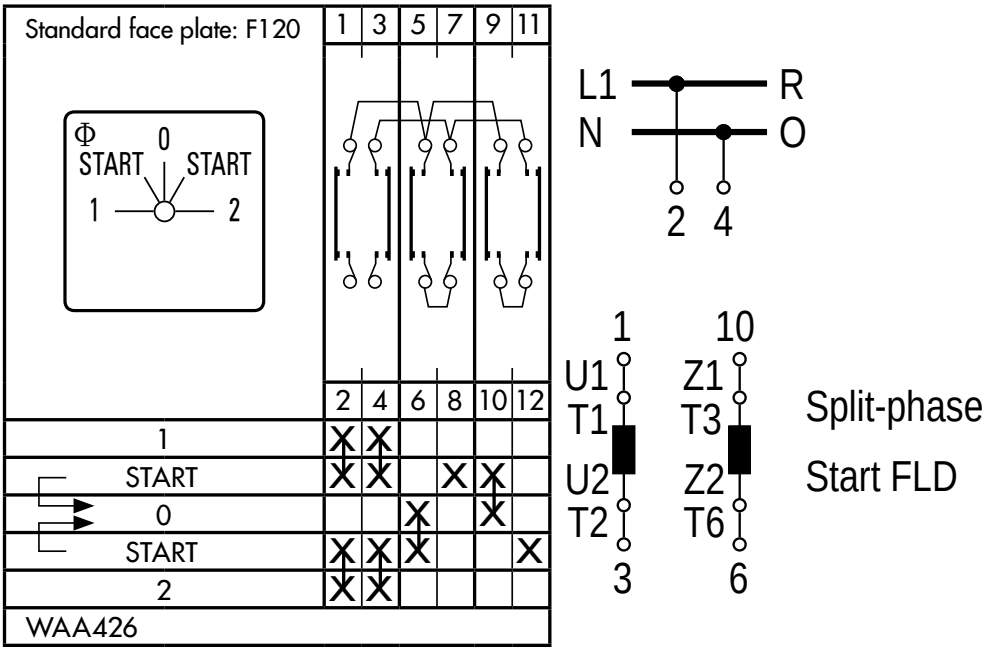
**WAA416** (formerly A416) With auxiliary contact, closed in „OFF“ position

**A419** For use with reversing contactors

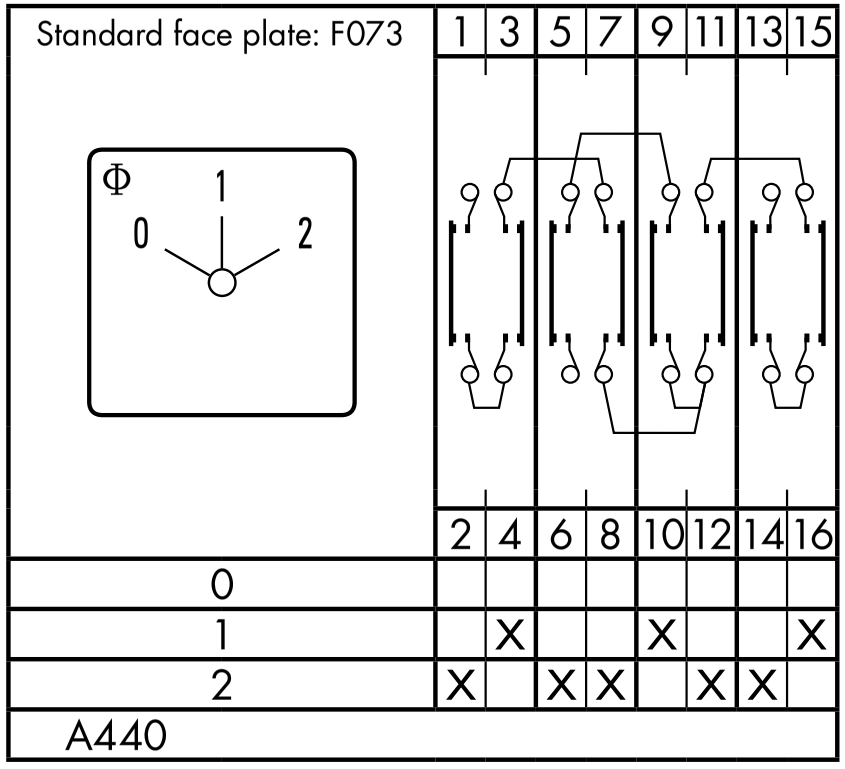
# 电机开关

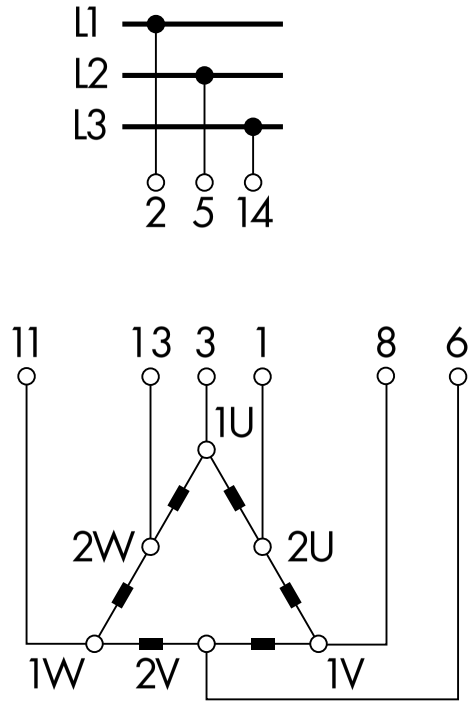



## A425 Start and Run Switch
## Split-phase start




## WAA426 Start and Run Switch
(formerly A426) Split-phase start reversing



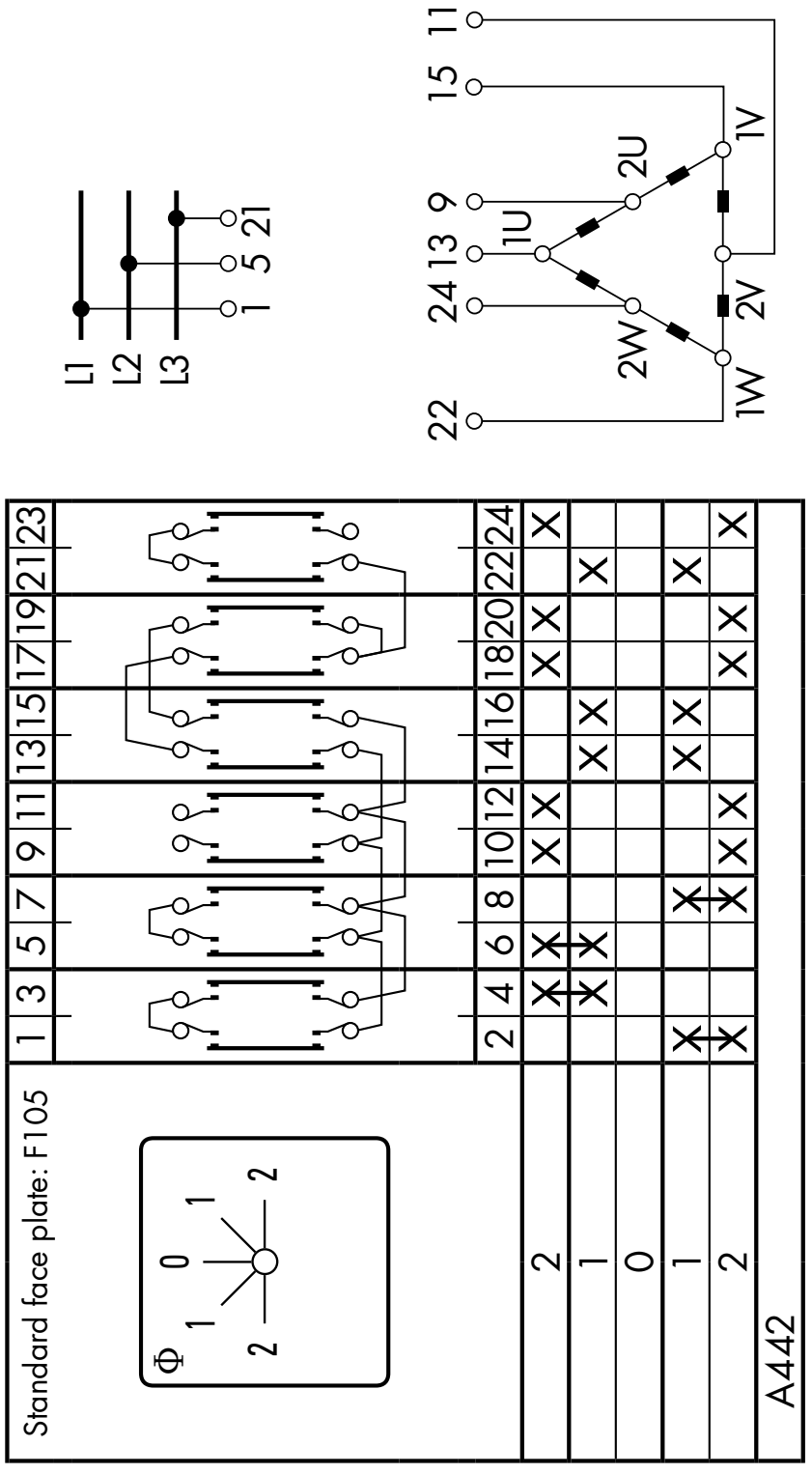




电机开关

A440 2 speed, single winding
0 - A△ -A⋎⋎
A441 A△ - 0 - A⋎⋎

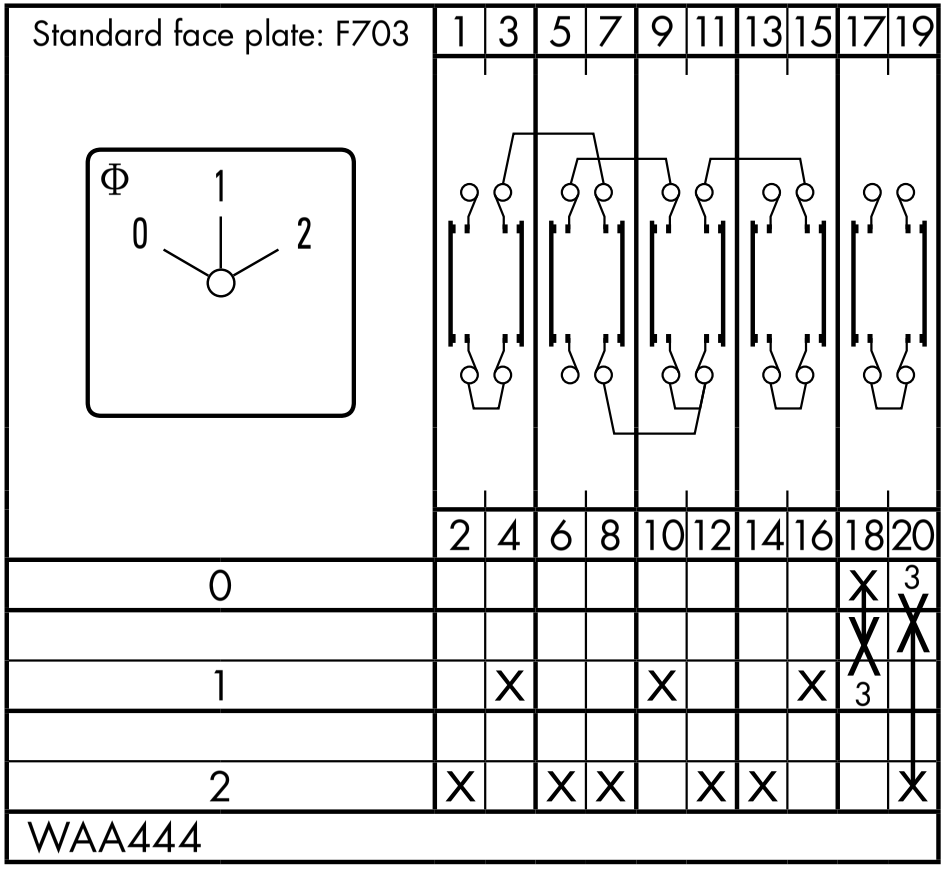
without „OFF“ see page 69

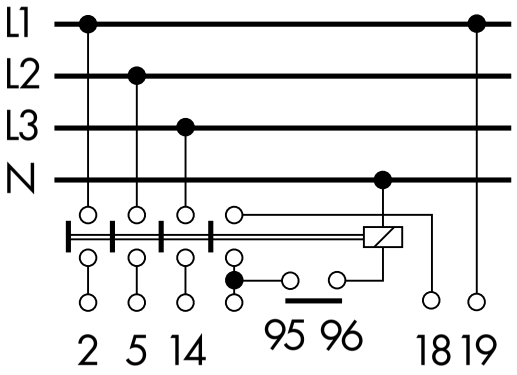
# 电机开关

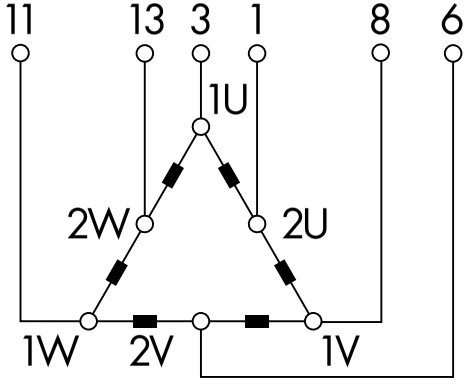



A442 2 speed, single winding with reverse

A⋎⋎ - A∆ - 0 - A∆ - A⋎⋎



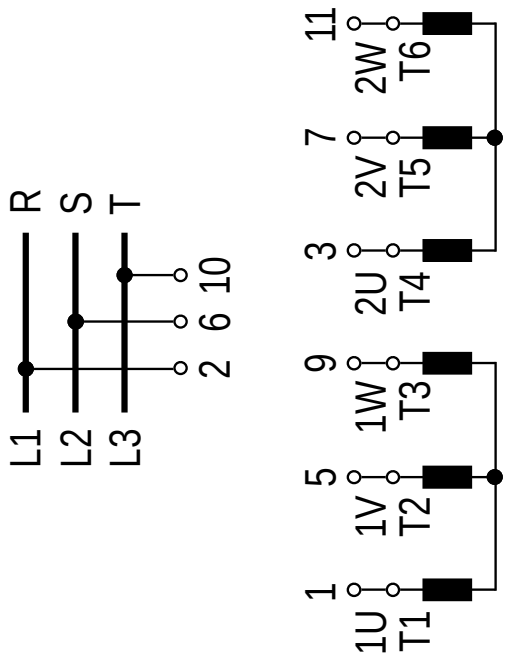



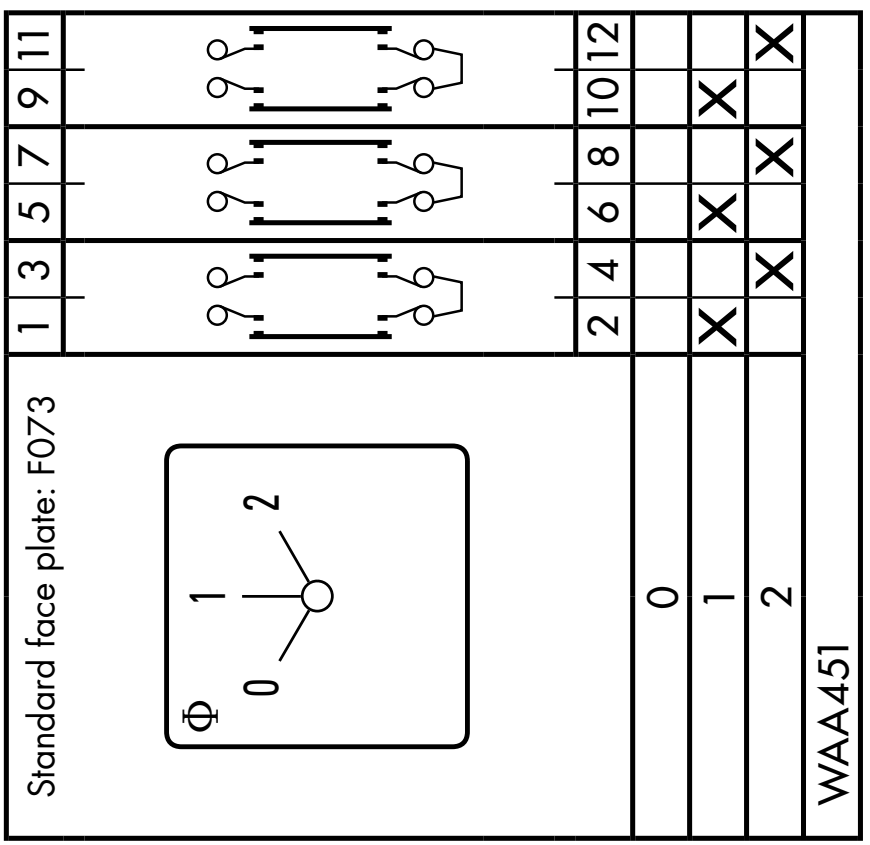




电机开关

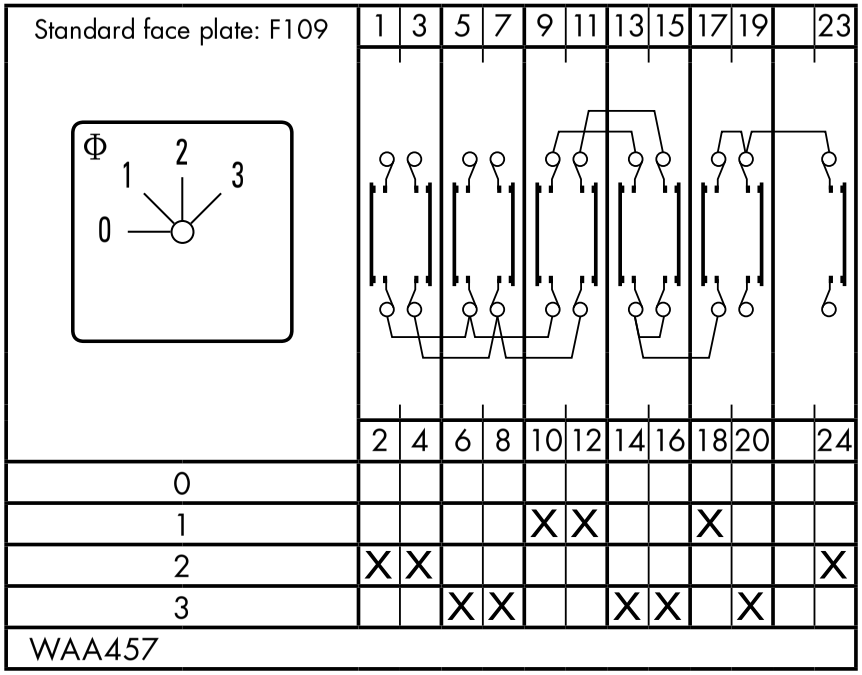
# WAA444 Motor Control Switch
(formerly A444) For use with reversing contactors

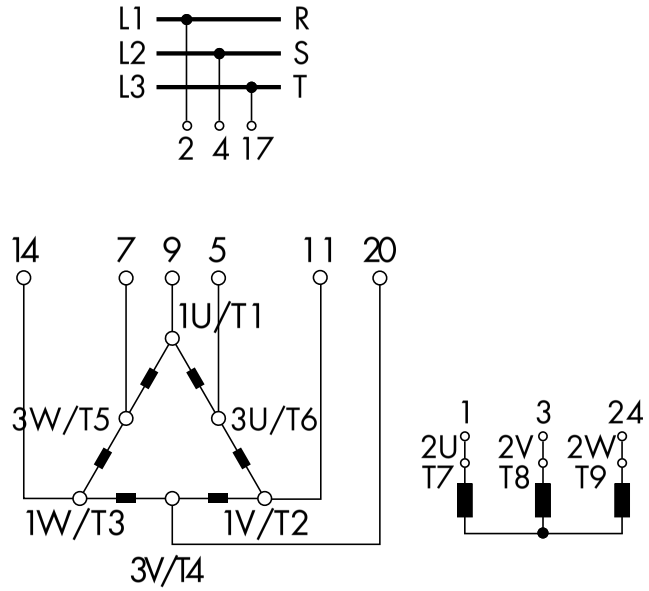
# 电机开关




WAA451 Motor Control Switch
(formerly A451) 2 speed, 2 winding
0 - A - B, Y or Δ



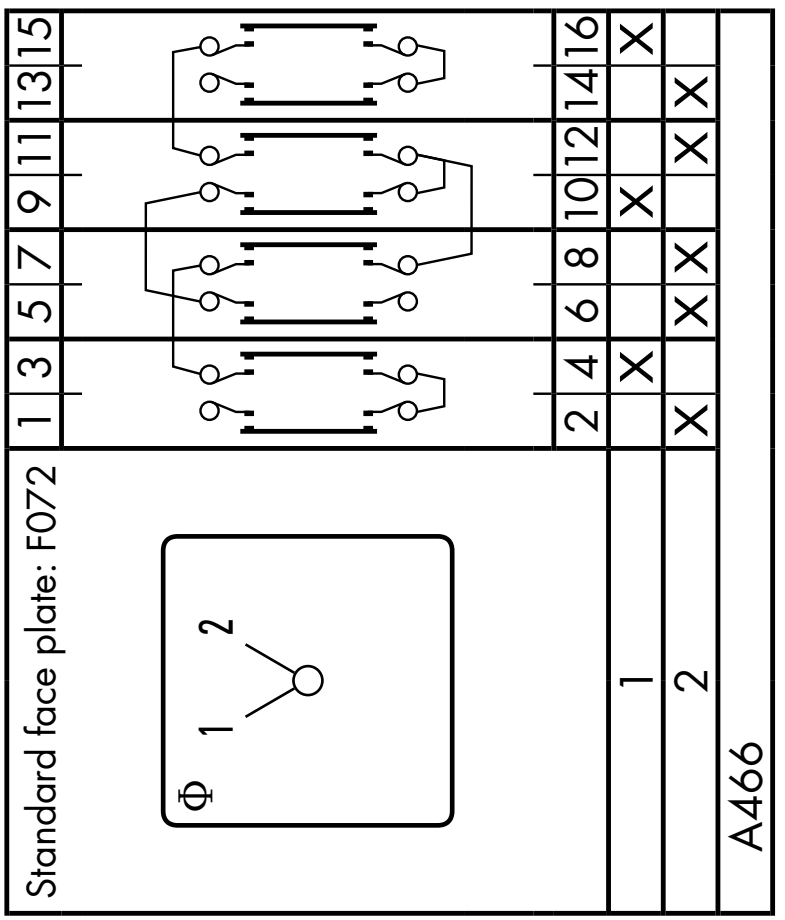

电机开关

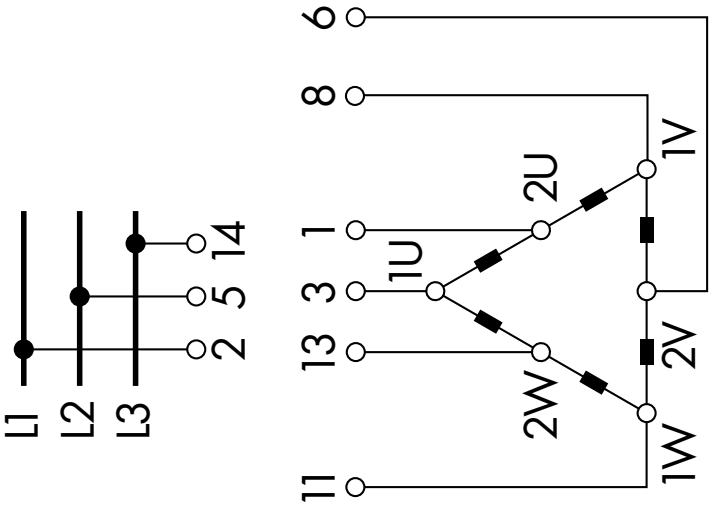
# WAA457 Motor Control Switch

(formerly A457) 3 speed, 2 winding

0 - A△ - BY - AYY

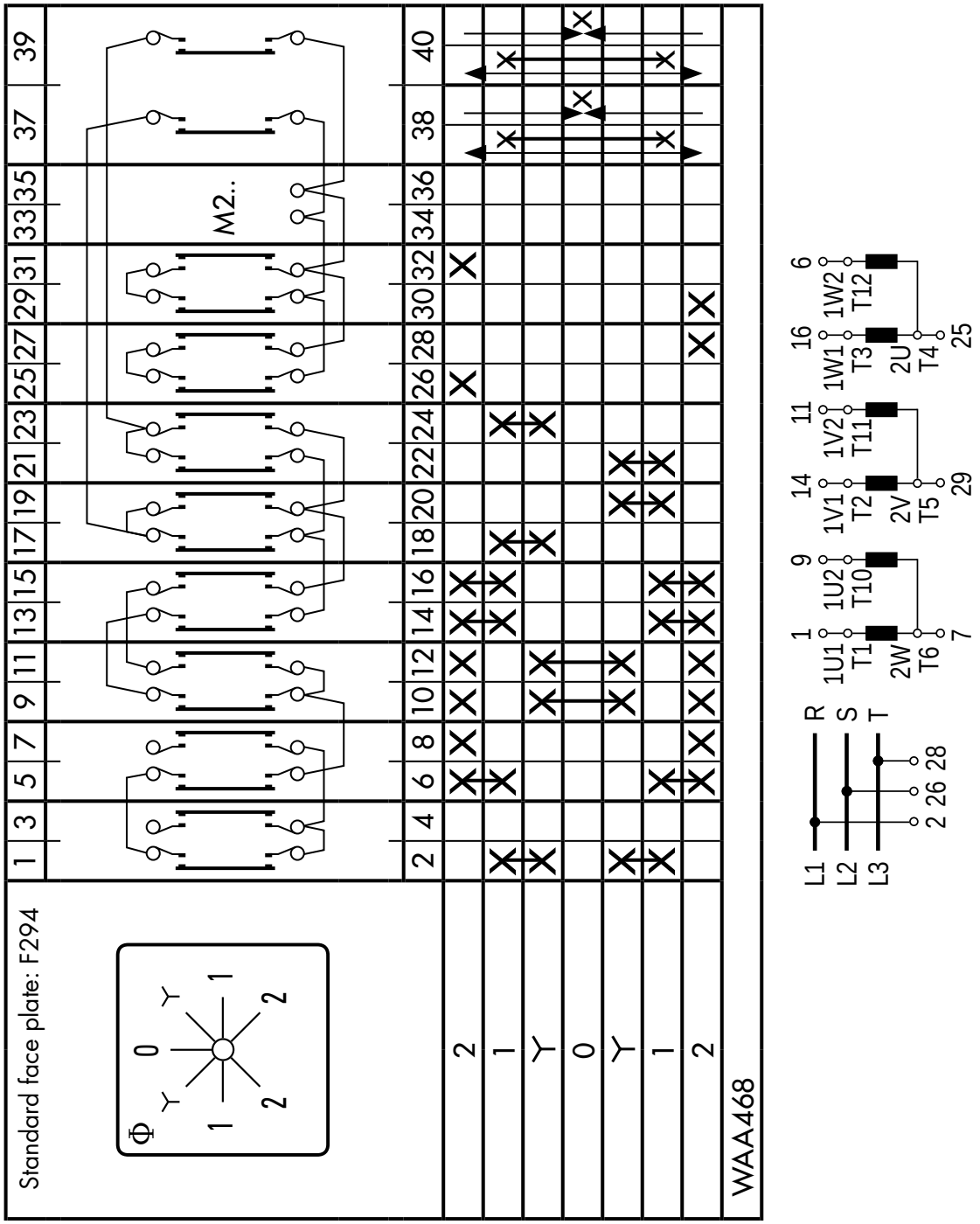
# 电机开关




A466 2 speed, single winding without „OFF"
AΔ - AYY

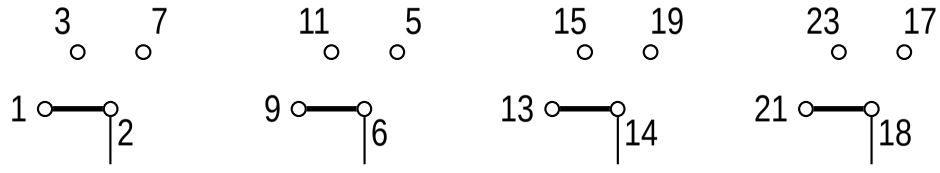
# 电机开关



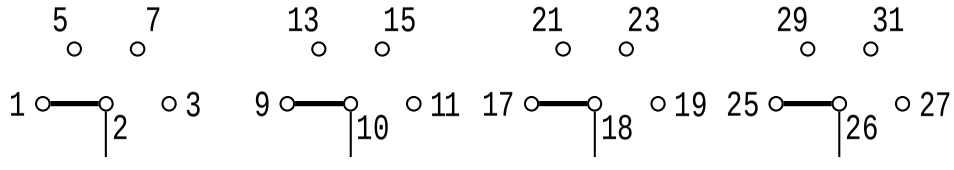

WAA468 Motor Control Switch
(formerly A468) 2 speed reversing for 2 way operation
with slip clutch for „OFF“ load use

# 多级开关 4 pole without „OFF"

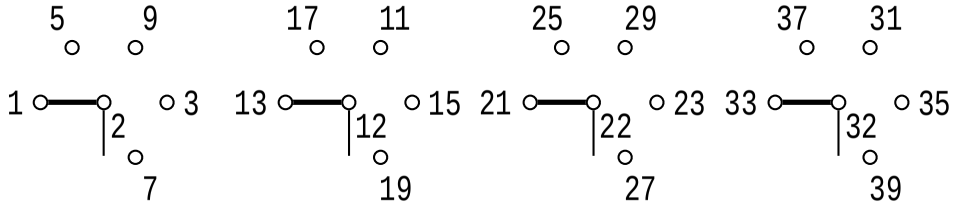
3 Step A476




4 Step A477




5 Step WAA478
(formerly A478)

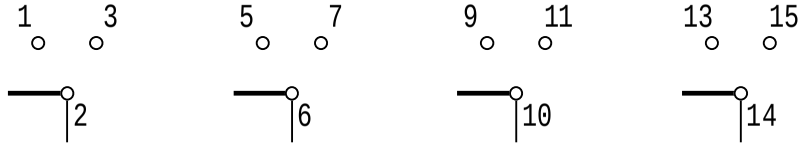



Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 4 pole with „OFF"

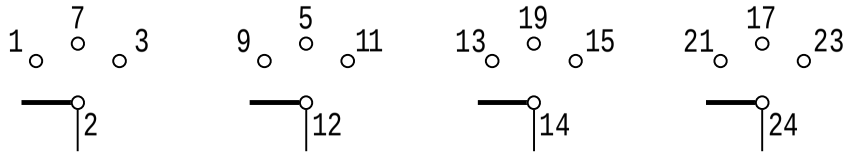
2 Step

WAA480
(formerly A480)



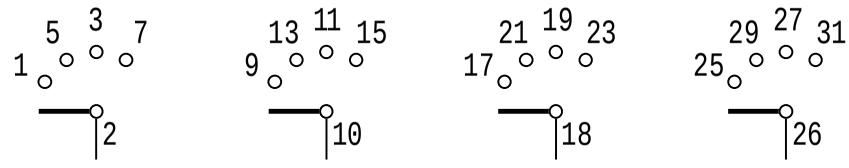

3 Step

WAA481
(formerly A481)



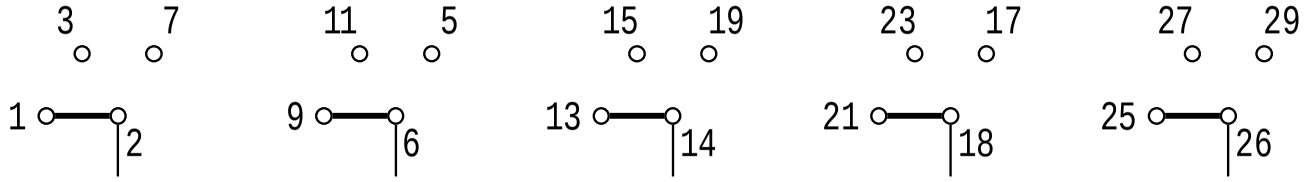

4 Step

WAA482
(formerly A482)

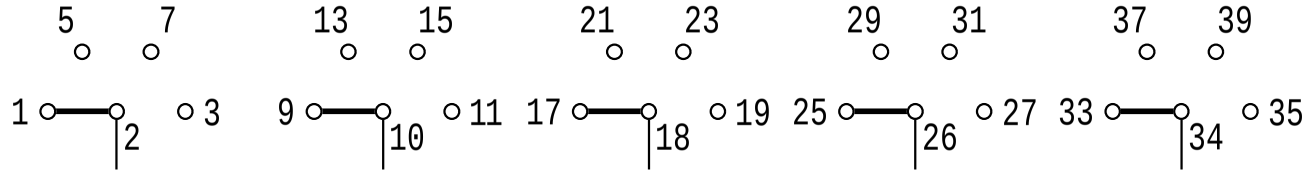



Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 5 pole without „OFF"



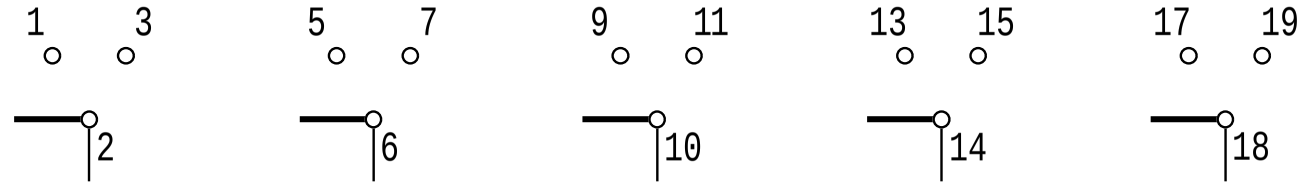

3 Step WAA484
(formerly A484)



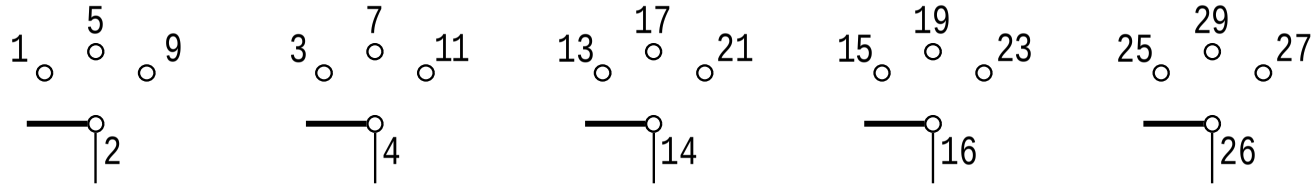

4 Step WAA485
(formerly A485)

Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# 多级开关 5 pole with „OFF"



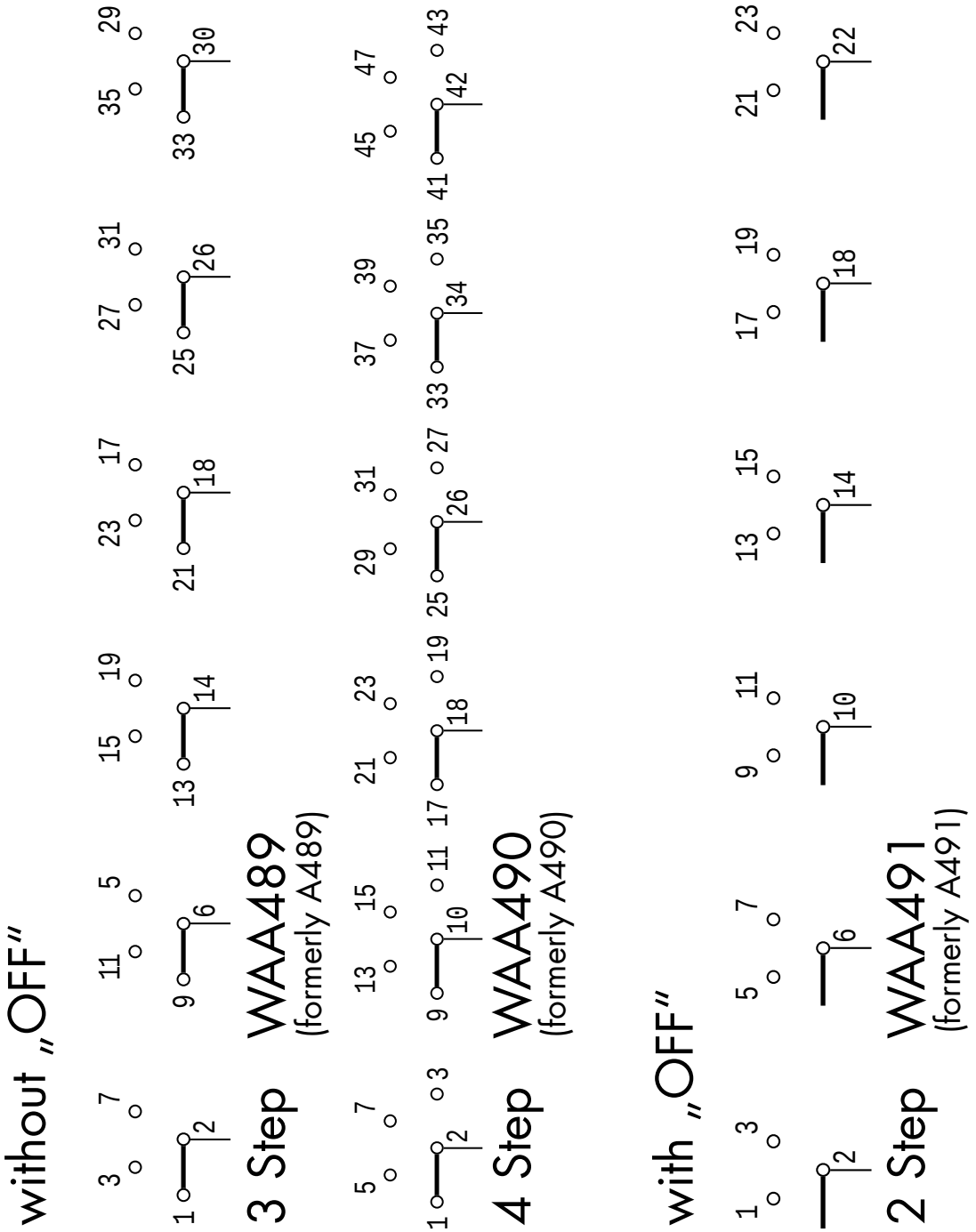

2 Step WAA486
(formerly A486)




3 Step WAA487
(formerly A487)

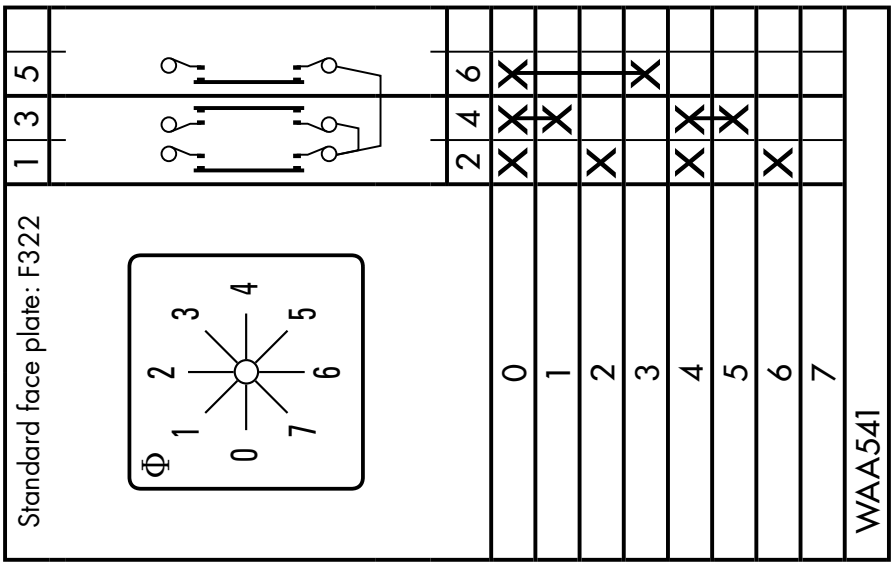
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate

# 多级开关 6 pole

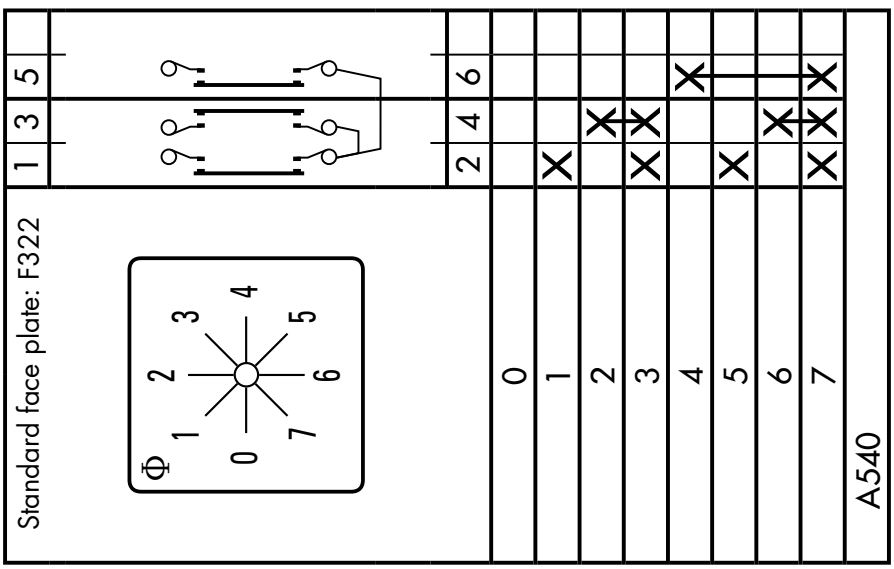



Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate

# 编码开关/二进制码

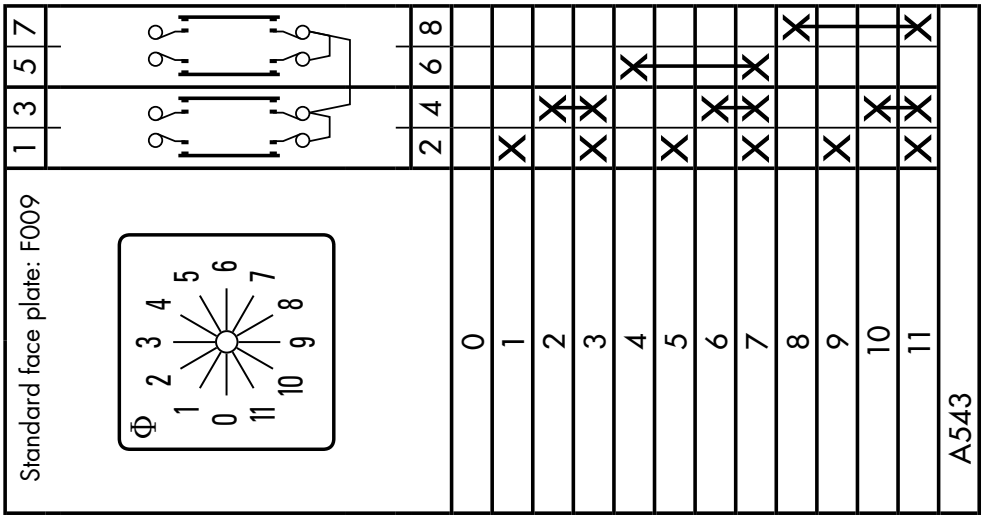



WAA541 0-7+complement
(formerly A541)

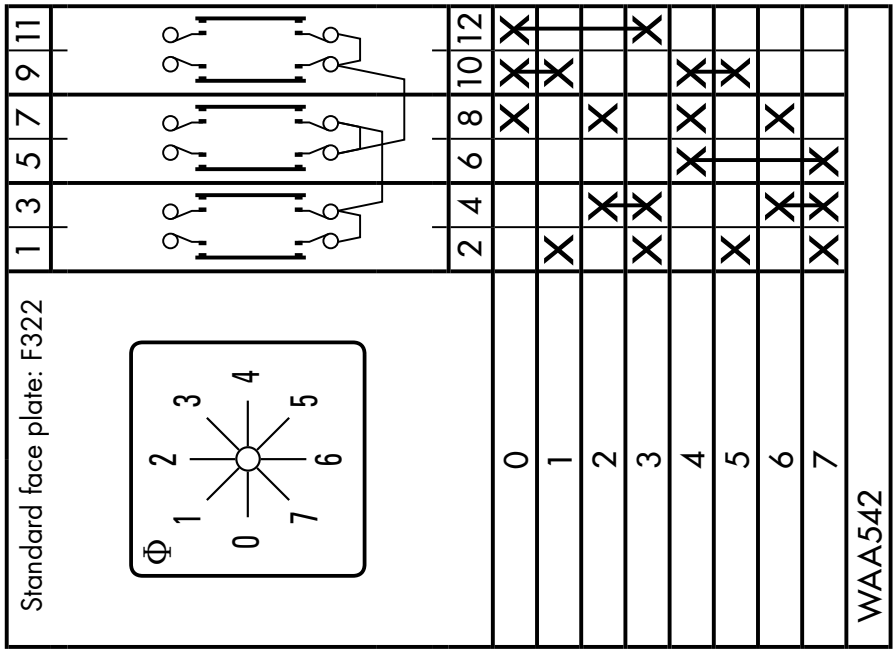



A540 0-7

# 编码开关/二进制码

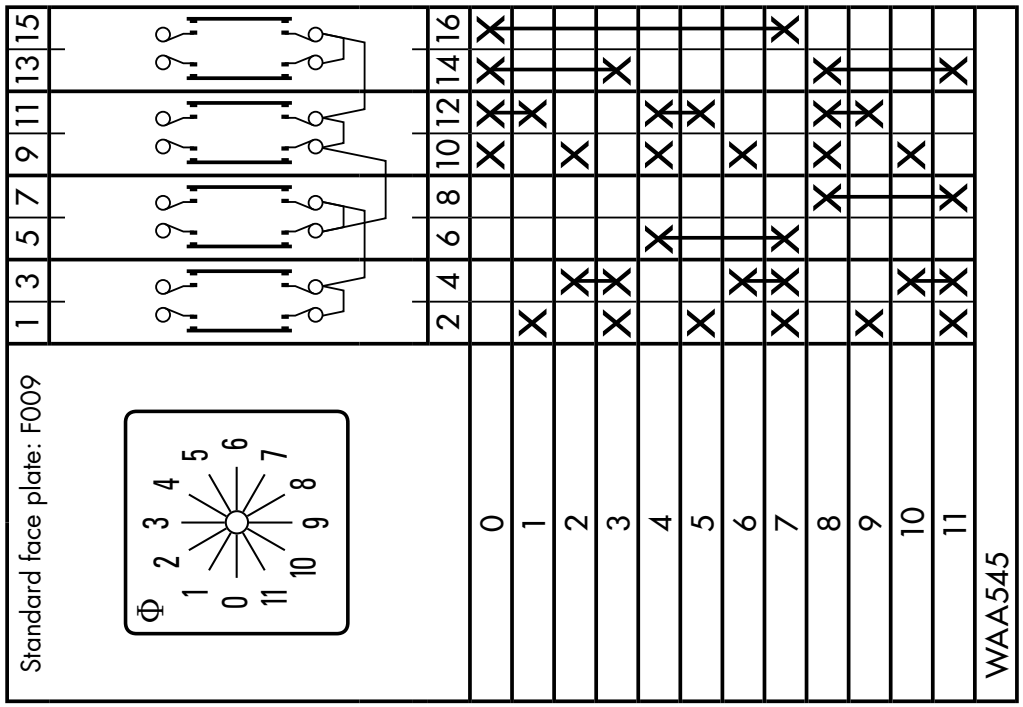



A543 0-11

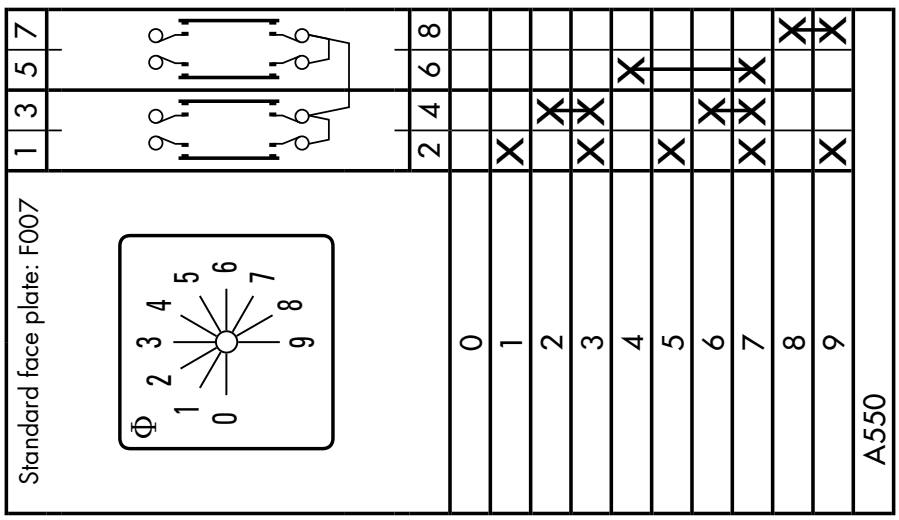



WAA542 0-7+complement
(formerly A542)

# 编码开关/二进制码

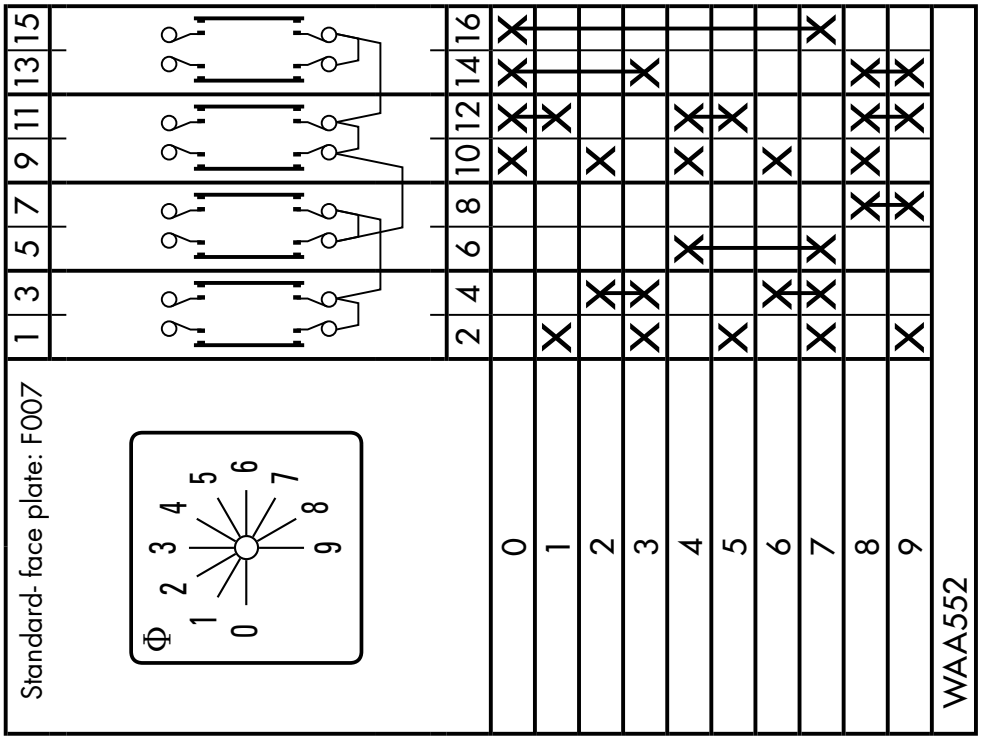



WAA545 0-11+complement
(formerly A545)

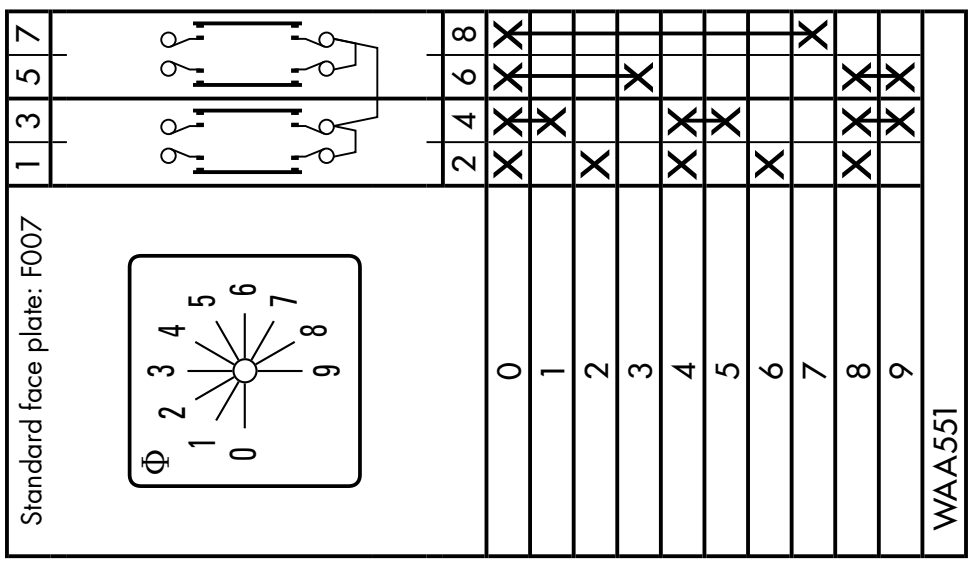



A550 0-9

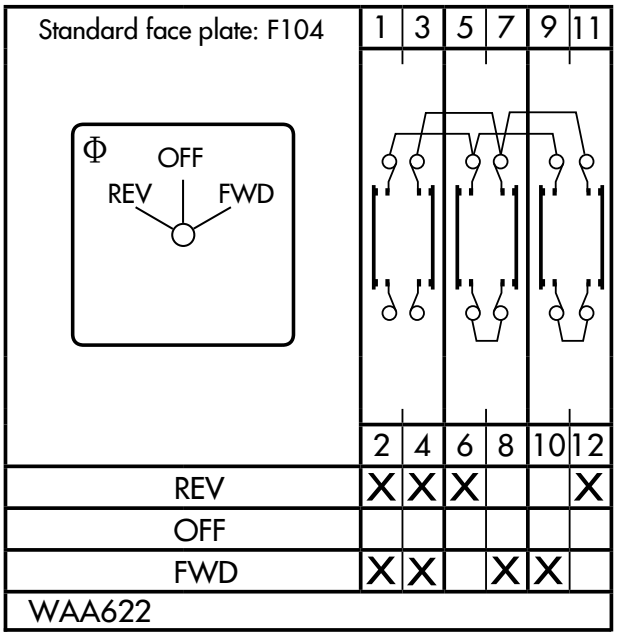
# 编码开关/二进制码

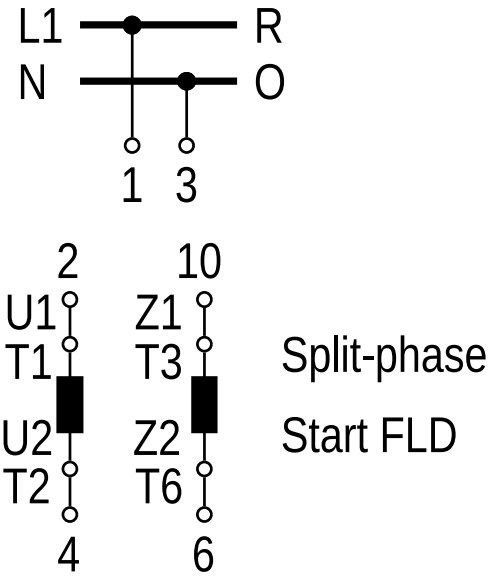



WAA552 0-9+complement
(formerly A552)




WAA551 0-9
(formerly A551)



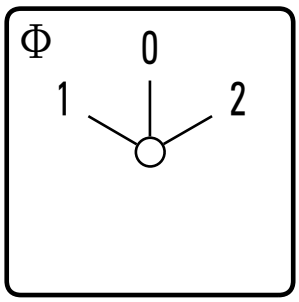



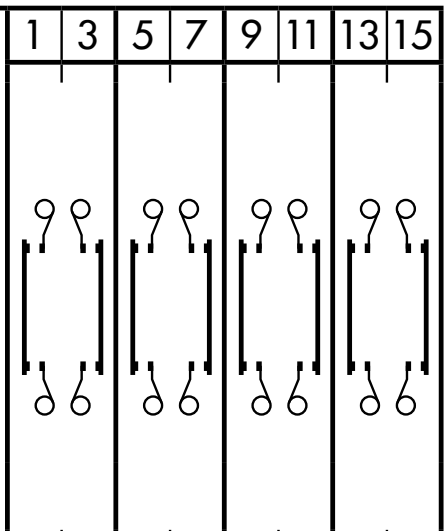

WAA622
(formerly A622)

Start and Run Switch
Split-phase reversing
auto cutout of start
field winding

# 具有电气隔离触点的双掷开关

Standard face plate: F071



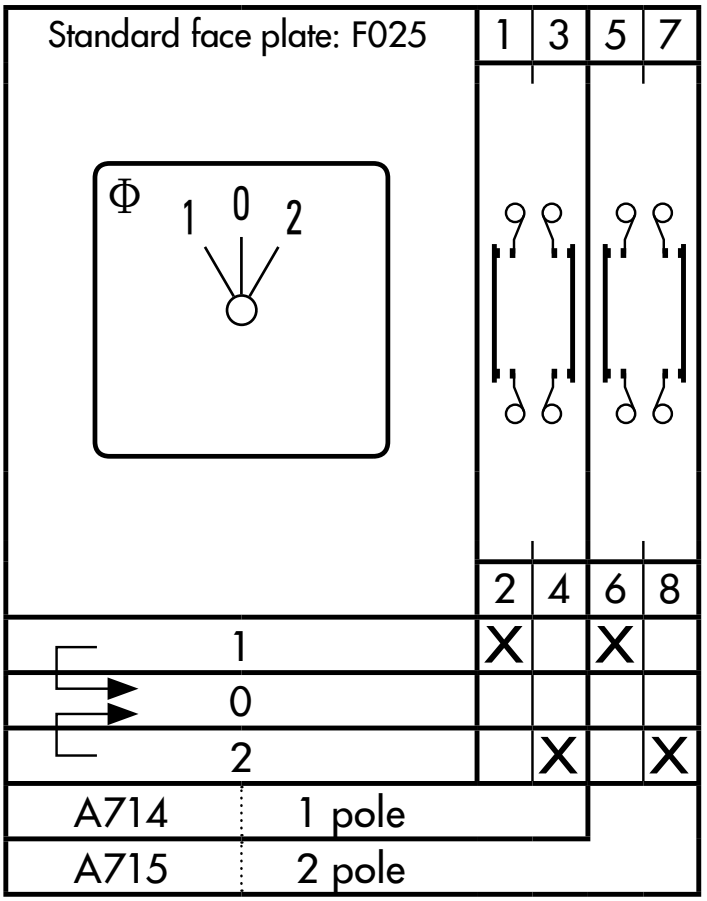



| | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 1 | | X | | X | | X | | X |
| 0 | | | | | | | | |
| 2 | X | | X | | X | | X | |

| | |
|---|---|
| A710 | 1 pole |
| A711 | 2 pole |
| A712 | 3 pole |
| A713 | 4 pole |

A710 up to A713 Double-throw Switch
with „OFF“, 60° Switching

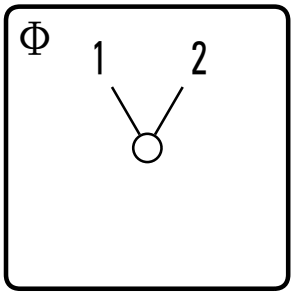
# 具有电气隔离触点的双掷开关

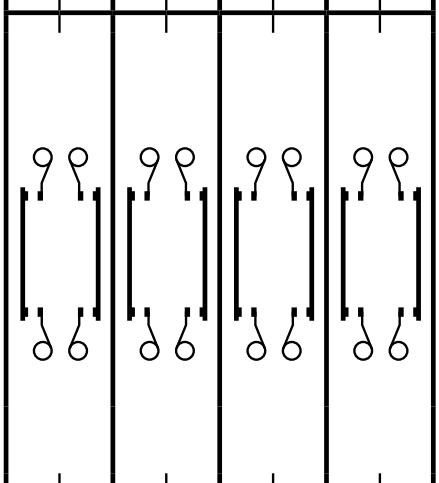



A714 up to A715 Double-throw Switch
with „OFF“with spring return
to center, 30° Switching

# 具有电气隔离触点的双掷开关

Standard face plate: F072



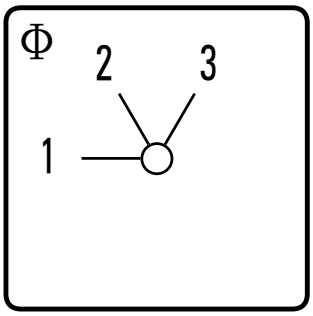
| | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 1 | X | | X | | X | | X | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 2 | | X | | X | | X | | X |

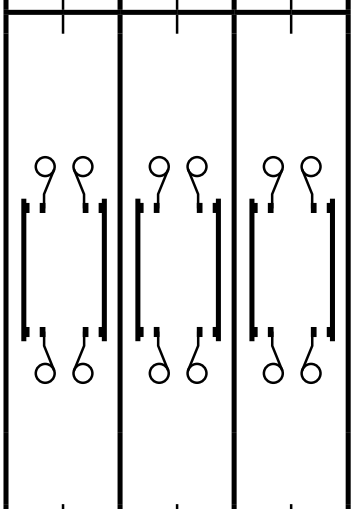
| | |
|---|---|
| A720 | 1 pole |
| A721 | 2 pole |
| A722 | 3 pole |
| A723 | 4 pole |

A720 up to A723
Double-throw Switch without „OFF“,
60° Switching

# 具有电气隔离触点的多档位开关

Standard face plate: F076



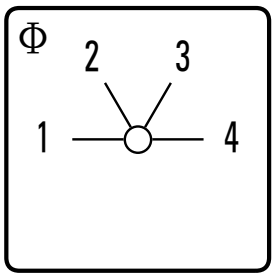
| | 1 | 3 | 5 | 7 | 9 | 11 |
|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 |
| 1 | X | | | | X | |
| | | | | | | |
| 2 | | X | | | | X |
| | | | | | | |
| 3 | | | X | X | | |

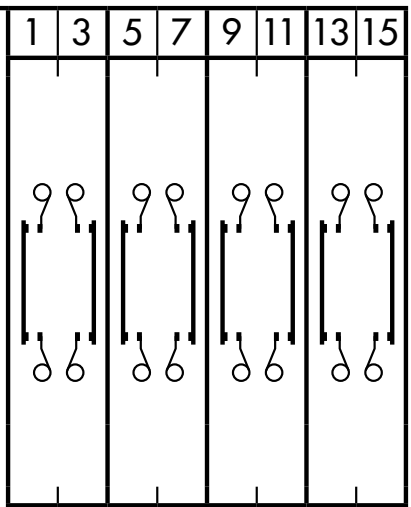
| | |
|---|---|
| A730 | 1 pole |
| A750 | 2 pole |

A730, A750
Multi-step Switch without „OFF“, 3 Positions

# 具有电气隔离触点的多档位开关

Standard face plate: F077



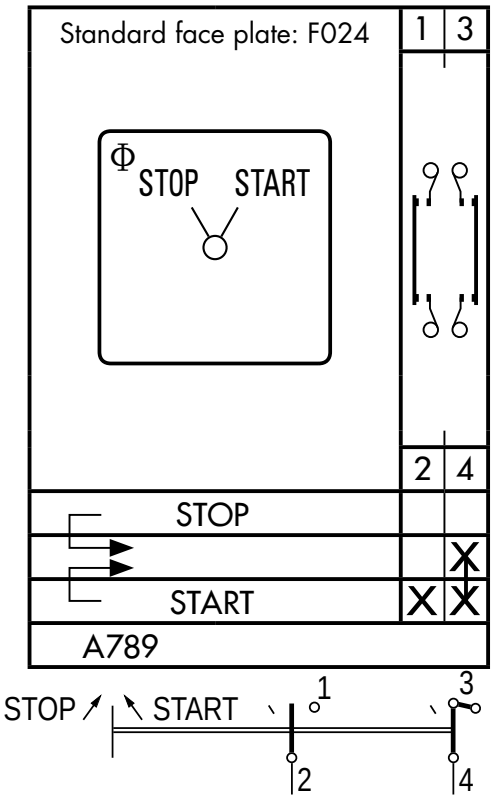



| | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 1 | X | | | | X | | | |
| | | | | | | | | |
| 2 | | | X | | | | X | |
| | | | | | | | | |
| 3 | | | | X | | | | X |
| | | | | | | | | |
| 4 | | X | | | | X | | |

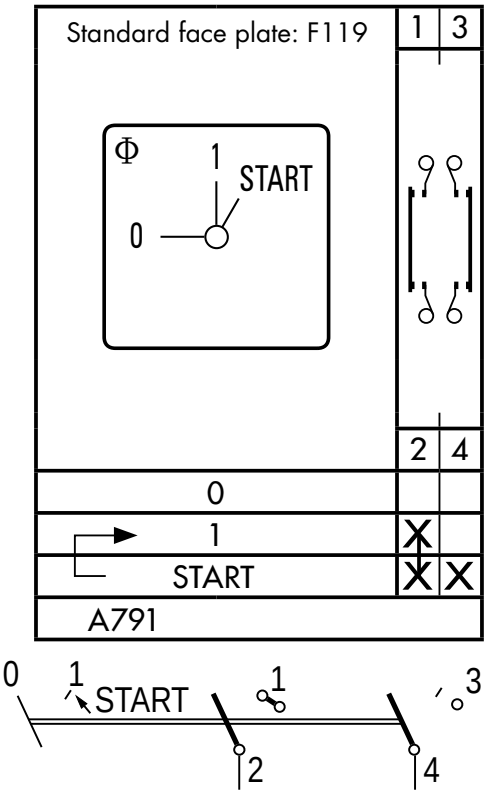
| | |
|---|---|
| A731 | 1 pole |
| A751 | 2 pole |

## A731, A751
## Multi-step Switch without „OFF“, 4 Positions

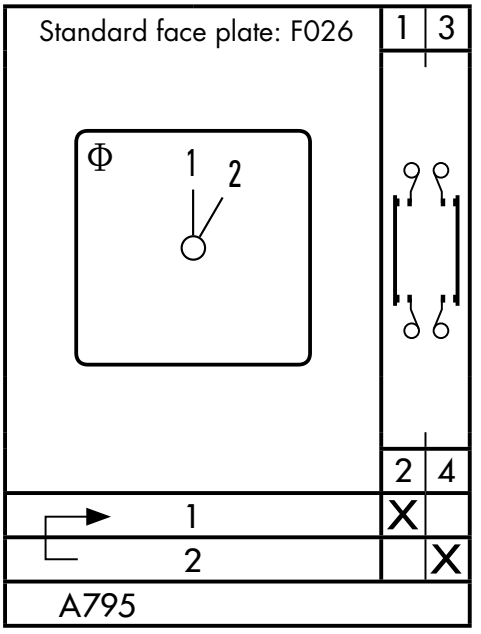
# 具有电气隔离触点的控制开关




A789 Stop start switch

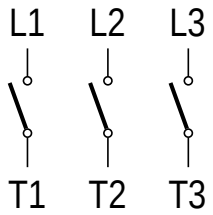



A791 Stop start switch with spring return from start to run

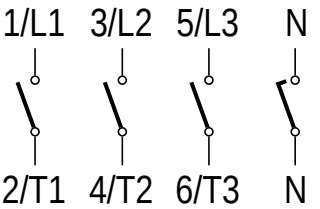



A795 Double-throw Switch without „OFF“, 1 pole with spring return

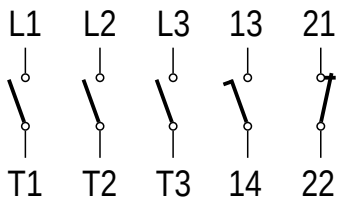
# KG-, KH- KF-系列主开关



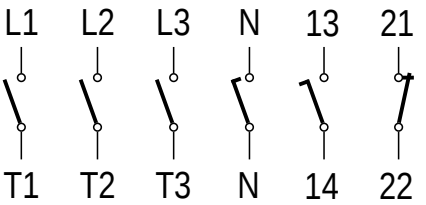

3 pole



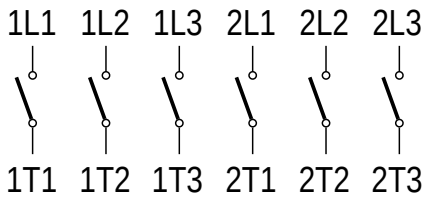

4 pole (3+N)



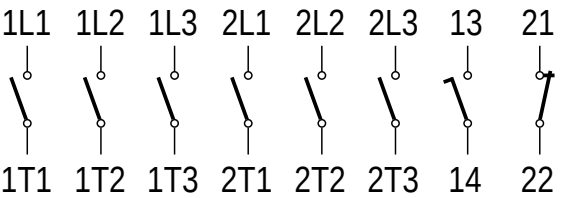

3 pole,1NO+1NC



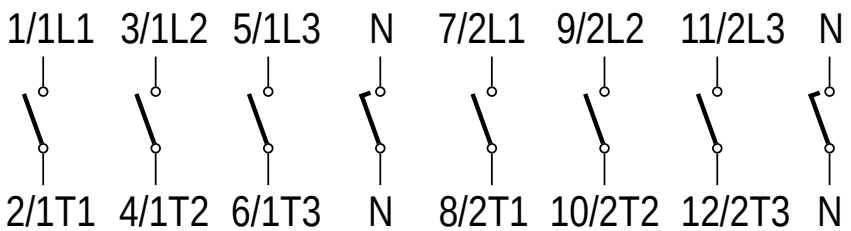

4 pole,1NO+1NC




6 pole

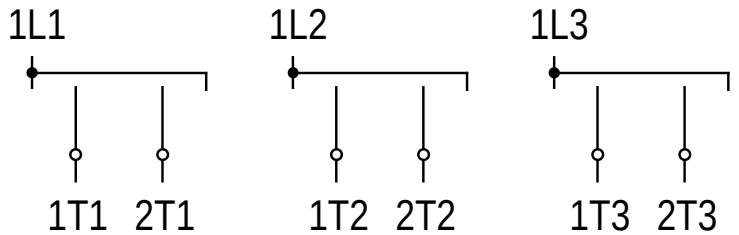



6 pole,1NO+1NC

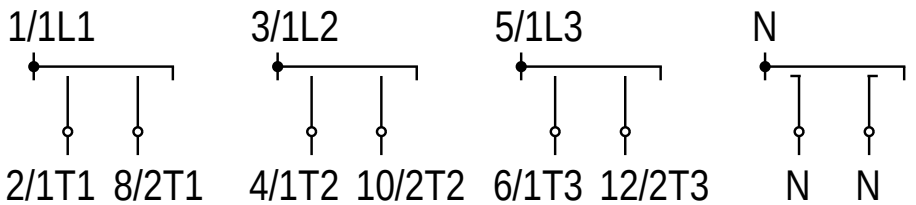



8 pole

# KG-、KH-和KF-系列带“ OFF ”位的双投开关




K900 3 pole




K950 4 pole

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