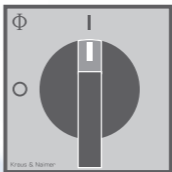


# Switch Wiring Diagrams

POCKETBOOK





## Switch wiring diagrams

### THE BLUE LINE

This pocketbook has been compiled to assist our customers in the selection of our most commonly used cam switches. It contains Kraus & Naimer standard contact arrangements for C-, CA-, CG- and CH-series cam switches.

For details on special or non-standard switches, please contact our local sales office.

# Contents

		Code- no.	Stages C/CG/CH	Page
<b>ON/OFF Switches 0-1</b>				
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
<b>Double-throw Switches</b>				
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

# Contents

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

# Contents

			Code- no.	Stages C/CG/CH	Page	
<b>Double-throw Switches</b>						
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	
<b>Multi-step Switches without „OFF“ position</b>						
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
<b>Multi-step Switches without „OFF“ position</b>					
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
<b>Multi-step Switches with „OFF“ position</b>					
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
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
	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
<b>Multi-step Switches with „OFF“ position</b>					
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
<b>General Application Switches</b>					
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
<b>General Application Series - Switching</b>					
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
<b>Coding Switches/Binary Code</b>					
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
<b>Coding Switches/BCD-Code</b>					
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
<b>Voltmeter-Double-throw Switches</b>				
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
<b>Ammeter-Double-throw Switches</b>				
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
<b>Control Switches</b>					
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

# Contents

		Code- no.	Stages C/CG/CH	Page
<b>Motor Switches</b>				
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 with slip clutch for „OFF“ load use	60°	WAA444	5	66
	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 - AY	45°	WAA457	6	68
Start and Run Switches				
Split-phase start Reversing	90°+30°	A425	2	63
Split-phase start	60°+30°	WAA426	3	63
Split-phase reversing auto cutout of start field winding	60°	A622	3	80

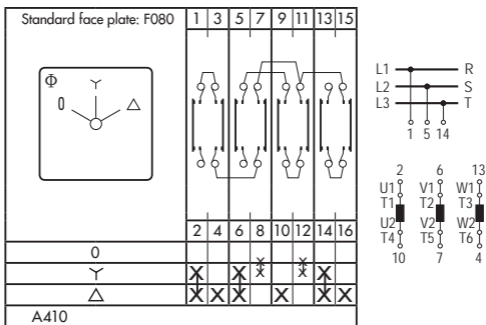
\* with slip clutch

## Caption

Contactor or Relay	
Thermal Relay	
Motor	
Coil / Inductance	
Ammeter	
Voltmeter	
Earth / Ground	
NO-contact	
NC-contact	
Motor - star circuit	
Motor - delta circuit	
Motor - double star circuit	

## Connection Details

The information is presented with either a switch chart only or a switch chart and connection diagrams when appropriate.

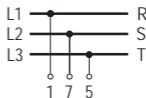


### A410 Star-Delta Switch

The large image shows the switch chart. A cross in a column indicates that the contact above it is closed, when the switch is in the position as indicated to the left of the cross. For example, contact 3/4 closes in the delta position. A vertical line between 2 or more crosses indicate that the contact remains closed while the switch moves from one position to the next. The images on the right show the wiring connections for both the supply and load. For example, L1 connects to switch terminal 1 while U1 or T1 connects to terminal 2.

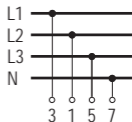
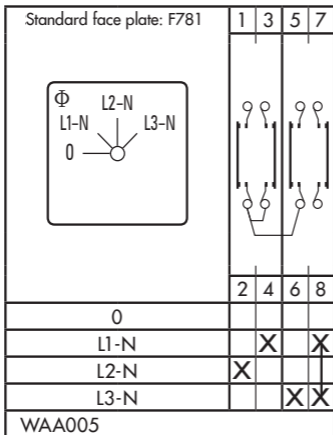
# Voltmeter switches

Standard face plate: F778	1	3	5	7
0				
L1-L2	X			X
L2-L3			X	X
L3-L1		X	X	
A004				



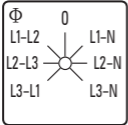
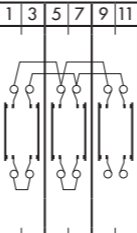
A004 Voltmeter Switch  
3 phase 3 wire

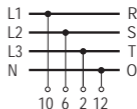
# Voltmeter switches



WAA005 Voltmeter Switch  
(formerly A005) 3 phase to neutral

# Voltmeter switches

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						

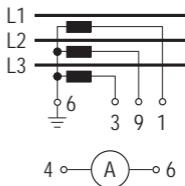
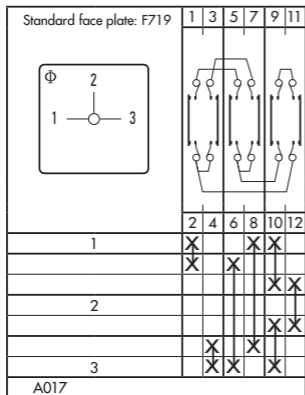


A007 Voltmeter Switch  
3 phase to neutral



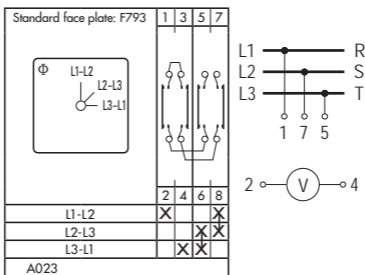


# Ammeter switches

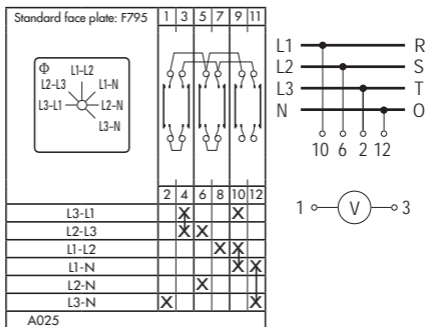


WAA017 Ammeter Switch  
1 pole, 3 Current transformers

## Voltmeter switches



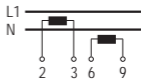
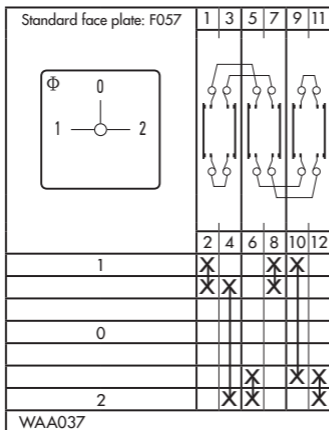
A023 Voltmeter Switch, 3 phase 3 wire



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

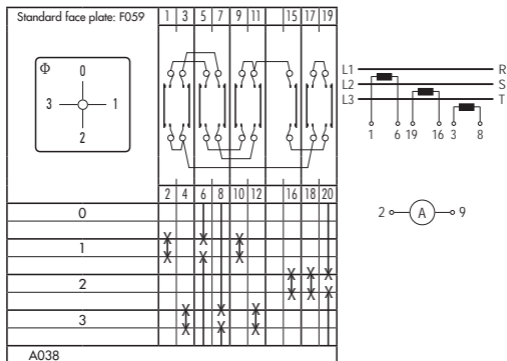


# Ammeter switches



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

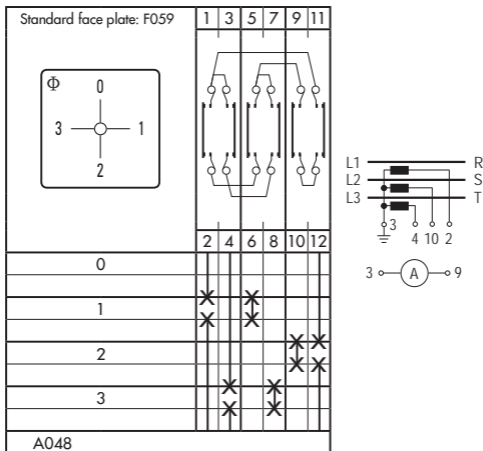
# Ammeter switches



A038 Ammeter Switch  
2 pole, 3 Current transformers



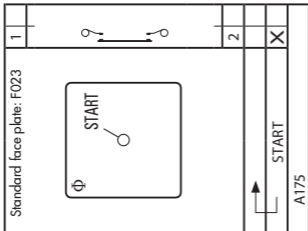
# Ammeter switches



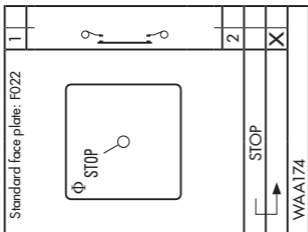
A048 Ammeter Switch  
1 pole, 3 Current transformers



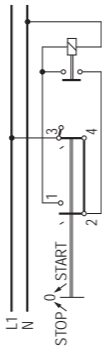
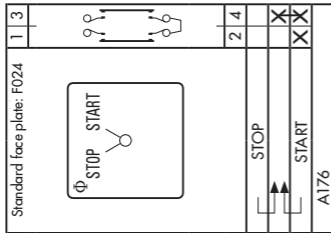
# Control Switches



**A175 Start switch**  
1 pole



**WAA174 Stop switch**  
(formerly A174) 1 pole



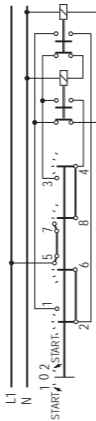
## A176 Stop start switch

2 pole see page 31

Electrically isolated contacts see page 86

# Control Switches

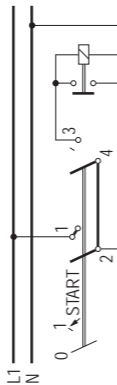
Standard face plate: F121		1	3	5	7
START	↑	X	X	X	X
1				X	
0				X	
2	↑				
START		X			
WAA177					



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

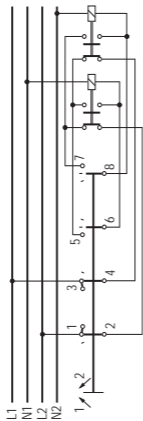
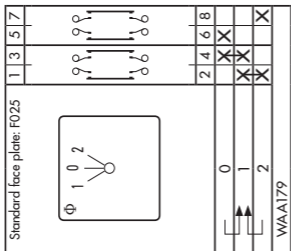
# Control Switches

Standard face plate: F119	1	3	
	2	4	
	0		X
	1		X
	START		X
A178			



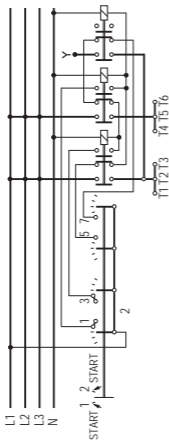
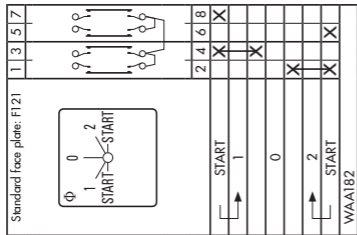
**A178 Stop start switch**  
 1 pole, with spring return from start to run  
 Electrically isolated contacts see page 86

# Control Switches



**WAA179** Contactor control with spring return to „OFF“  
(formerly A179)

# Control Switches



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

# Control Switches

Standard face plate: F024	1	3	5	7
STOP	2	4	6	8
START	X	X	X	X
WAA183	X	X	X	X



**WAA183** Stop start switch  
(formerly A183) 2 pole

# ON/OFF Switches

Standard face plate: F070		1	3	5	7
		2	4	6	8
0					
1		X	X	X	X
A200	1 pole				
A201	2 pole				
A202	3 pole				
A203	4 pole				

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

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

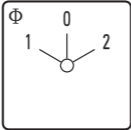
Standard face plate: F169		1	3	5	7
		2	4	6	8
0					
1		X	X	X	X
A204	1 pole				
A205	2 pole				
WAA206	3 pole				
WAA207	4 pole				

A204 up to WAA207  
(formerly A207)

ON/OFF Switches  
with spring return,  
30° Switching



## Double-throw Switches

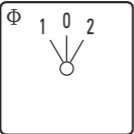






Standard face plate: F071		1	3	5	7	9	11	13	15
									
		2	4	6	8	10	12	14	16
1		X		X		X		X	
0									
2		X		X		X		X	
A210	1 pole								
A211	2 pole								
A212	3 pole								
A213	4 pole								

### 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

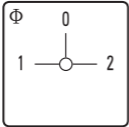

## Double-throw Switches

Standard face plate: F025		1	3	5	7	9	11
							
		2	4	6	8	10	12
	1	X		X		X	
	0						
	2		X		X		X
A214	1 pole						
A215	2 pole						
A216	3 pole						

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

Electrically isolated contacts see page 82

## Double-throw Switches

Standard face plate: F057		1	3	5	7
					
2	4			6	8
1		X		X	
		X		X	
0					
2			X		X
			X		X
A218	1 pole				
A219	2 pole				

A218, A219

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

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

## Double-throw Switches

Standard face plate: F072		1	3	5	7	9	11	13	15
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



# Multi-step Switches 1 pole without „OFF“

3 Step A230 *		8 Step WAA235 (formerly A235)	
4 Step A231 **		9 Step WAA236 (formerly A236)	
5 Step A232		10 Step WAA237 (formerly A237)	
6 Step A233		11 Step WAA238 (formerly A238)	
7 Step WAA234 (formerly A234)		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

## Multi-step Switches 1 pole with „OFF“

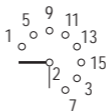
2 Step	A240	
3 Step	A241	
4 Step	A242	
5 Step	A243	
6 Step	A244	
7 Step	WAA245 (formerly A245)	

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.

## Multi-step Switches 1 pole with „OFF“

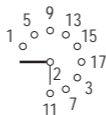
8 Step

WAA246  
(formerly A246)



9 Step

WAA247  
(formerly A247)



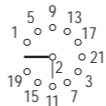
10 Step

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.



## Multi-step Switches 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.

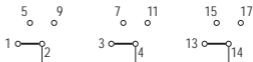
## Multi-step Switches 2 pole with „OFF“

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)	

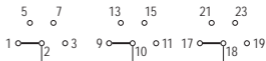
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# Multi-step Switches 3 pole without „OFF“

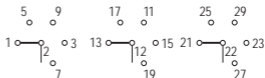
3 Step  
A270



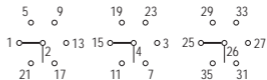
4 Step  
A271



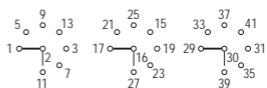
5 Step  
WAA272  
(formerly A272)



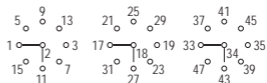
6 Step  
WAA273  
(formerly A273)



7 Step  
WAA274  
(formerly A274)



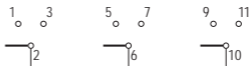
8 Step  
WAA275  
(formerly A275)



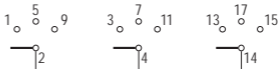
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

## Multi-step Switches 3 pole with „OFF“

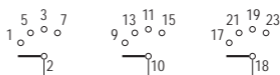
2 Step  
A280



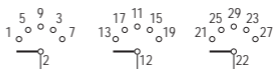
3 Step  
A281



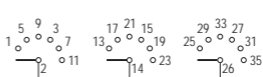
4 Step  
WAA282  
(formerly A282)



5 Step  
WAA283  
(formerly A283)

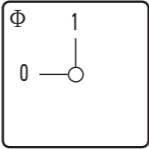
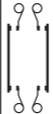



6 Step  
WAA284  
(formerly A284)



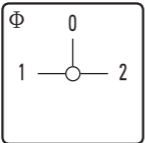
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

# ON/OFF Switches

Standard face plate: F056		1	3	5	7
					
		2	4	6	8
0					
					X
		X	X	X	X
1		X	X	X	X
A290	1 pole				
A291	2 pole				
A292	3 pole				
A293	4 pole, 1 Pole preclose				

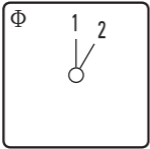





A290 up to A293  
ON/OFF Switches 90° Switching

## Double-throw Switches

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
2			X		X		X		X
			X		X		X		X
WAA294		4 pole, 1 Pole preclose							

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

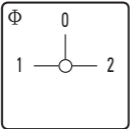



## Double-throw Switches

Standard face plate: F026		1	3	5	7	9	11
							
		2	4	6	8	10	12
	1	X		X		X	
	2		X		X		X
A295	1 pole						
A296	2 pole						
WAA297	3 pole						

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

\*Electrically isolated contacts see page 86

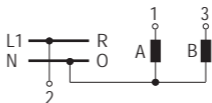
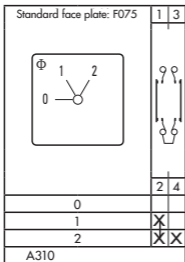
## Double-throw Switches

Standard face plate: F057	1	3	5	7	9	11
						
2		4	6	8	10	12
1	X		X		X	
	X		X		X	
0						
2		X		X		X
		X		X		X
WAA299						

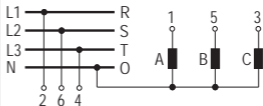
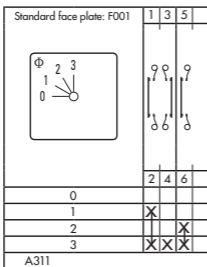
WAA299 Double-throw Switch with „OFF“  
 (formerly A299) 90° Switching, 3 pole



# General Application Switches

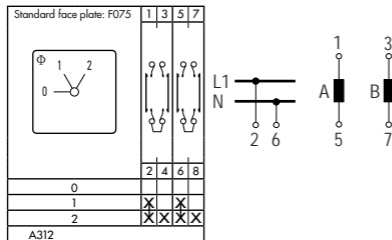


**A310** General Application Switch  
2 Gang, 1 pole  
0, A, A+B

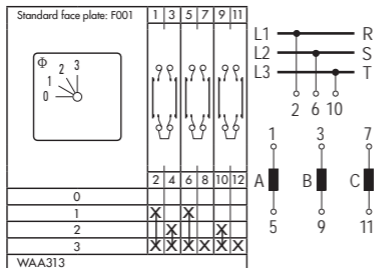


**A311** General Application Switch  
3 Gang, 1 pole  
0, A, A+B, A+B+C

# General Application Switches

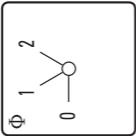
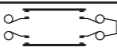

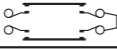


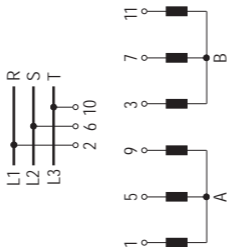
**A312** General Application Switch  
2 Gang, 2 pole  
0, A, A+B



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

# General Application Switches

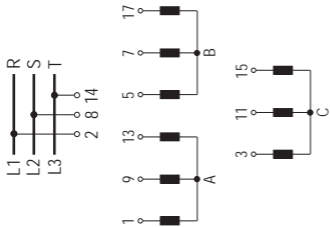
Standard face plate: F075 	1	3	5	7	9	11			
									
	2	4	6	8	10	12			
				X	X	X			
0									
1			X	X	X				
2			X	X	X				
WAA314									



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

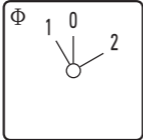





# General Application Switches

Standard face plate: F001		1	3	5	7	9	11	13	15	17	
		2	4	6	8	10	12	14	16	18	
		0									
		1	X				X				
2		X	X	X	X					X	
3	X	X	X	X	X	X	X	X	X	X	
WAA315											



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

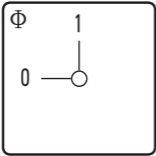



## Double-throw Switches

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 Switches

Standard face plate: F056		1	3	5	7	9	11
							
		2	4	6	8	10	12
0							
		X	X	X	X	X	X
1		X	X	X	X	X	X
A324	4 pole						
WAA325	5 pole						
A326	6 pole						

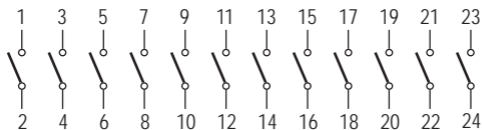
A324 up to A326  
ON/OFF Switches, 90° Switching

## 2 Gang Series Switching

Standard face plate: F001		1	3	5	7	9	11
		 1 pole		 2 pole		 3 pole	
		2	4	6	8	10	12
		1	X	X	X	X	X
2	X	X	X	X	X		
3	X	X	X	X	X		
WAA330	1 pole						
WAA331	2 pole						
WAA332	3 pole						

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

## ON/OFF Switches



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

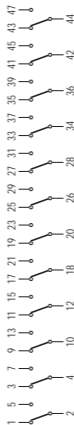
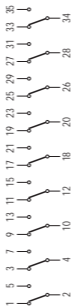
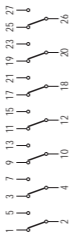
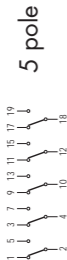
A348 12 pole

ON/OFF Switches, 60° Switching





# Double-throw Switches



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

A369 5 pole    A371 7 pole

WAA373 9 pole  
(formerlyA373)

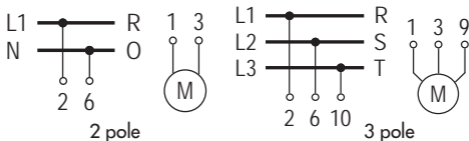
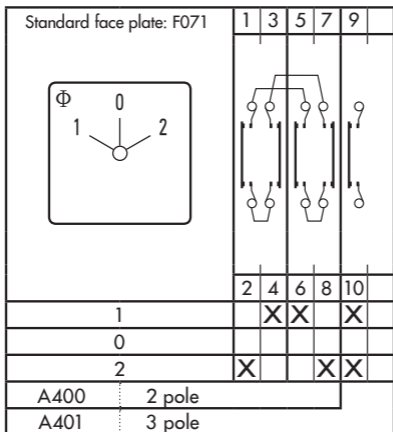
WAA375 11 pole  
(formerlyA375)

A370 6 pole    A372 8 pole

WAA374 10 pole  
(formerlyA374)

WAA376 12 pole  
(formerlyA376)

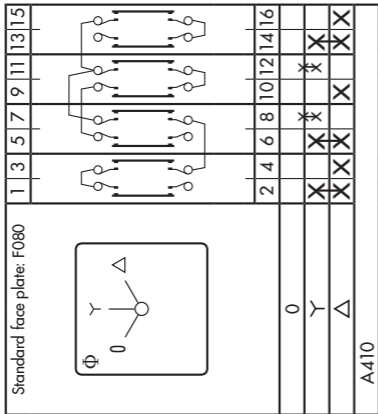
# Motor Switches



## A400, A401 Motor Reversing Switches

With spring return to „OFF“ see page 37

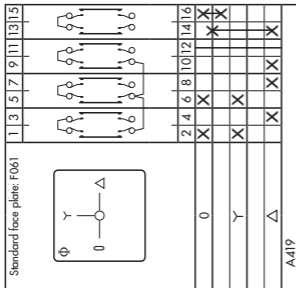
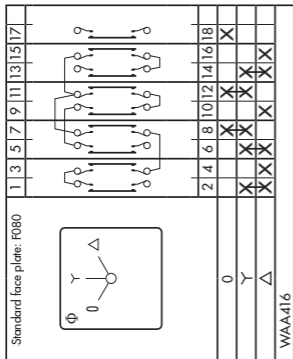
# Motor Switches



A410 Star-delta Switch



# Motor Switches

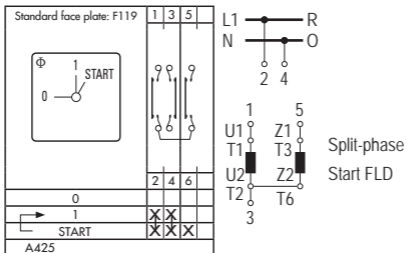


## Star-delta Switches

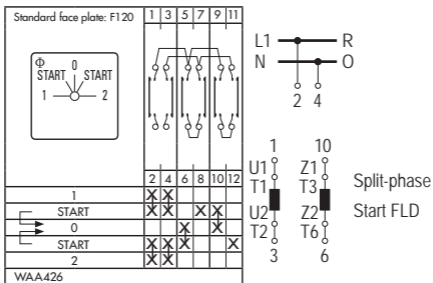
**WAA416** With auxiliary contact, (formerly A416) closed in „OFF“ position

**A419** For use with reversing contactors

# Motor Switches

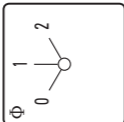
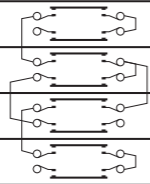
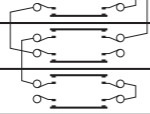



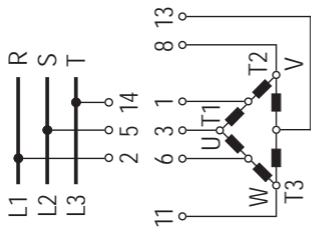
**A425 Start and Run Switch**  
Split-phase start



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

## Motor Switches

Standard face plate: F073	1	3	5	7	9	11	13	15	
									
	2	4	6	8	10	12	14	16	
	0								
1	X				X			X	
2	X	X	X	X	X	X	X	X	
A440									



A440 2 speed, single winding

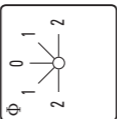
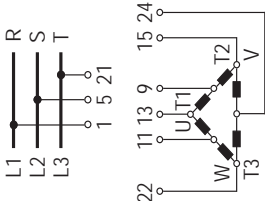
0 - AΔ - AΥ

A441 AΔ - 0 - AΥ

without „OFF“ see page 69



# Motor Switches

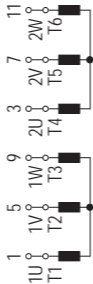
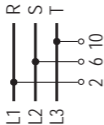
Standard face plate: F105		1	3	5	7	9	11	13	15	17	19	21	23	
														
		2	4	6	8	10	12	14	16	18	20	22	24	
		X	X	X	X	X	X	X	X	X	X	X	X	X
		X	X	X	X	X	X	X	X	X	X	X	X	X
		X	X	X	X	X	X	X	X	X	X	X	X	X
0														
1														
2	X	X	X	X	X	X	X	X	X	X	X	X	X	
A442														

A442 2 speed, single winding with reverse  
 $\text{AYY} - \text{A}\Delta - \text{O} - \text{A}\Delta - \text{AYY}$



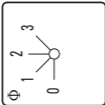
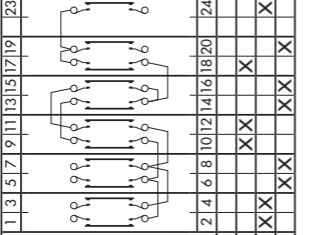
# Motor Switches

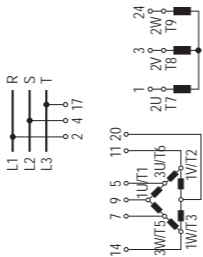
Standard face plate: F703										
1	3	5	7	9	11					
2	4	6	8	10	12					
						0				
						1	X		X	
						2		X	X	X
WAA451										



**WAA451** Motor Control Switch  
 (formerly A451) 2 speed, 2 winding  
 0 - A - B, Y or  $\Delta$

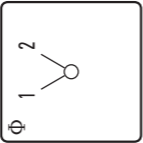
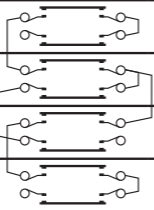
# Motor Switches

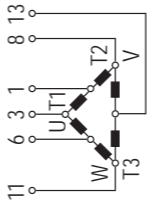
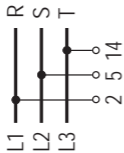
Standard face plate: F109	1	3	5	7	9	11	13	15	17	19	23
											
0	2	4	6	8	10	12	14	16	18	20	24
1				X	X				X		
2	X	X									X
3			X	X			X	X		X	X
WAA457											



**WAA457** Motor Control Switch  
 (formerly A457) 3 speed, 2 winding  
 0 - AΔ - BΥ - AΥ

# Motor Switches

Standard face plate: F072		1	3	5	7	9	11	13	15
									
	1	2	4	6	8	10	12	14	16
			X			X			X
	2	X		X	X		X	X	
A466									



A466 2 speed, single winding without „OFF“  
 $A\Delta - A\Upsilon$



## Multi-step Switches 4 pole without „OFF“

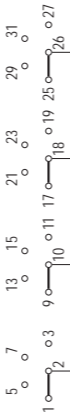
3 Step

A476



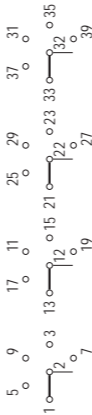
4 Step

A477



5 Step WAA478

(formerly A478)

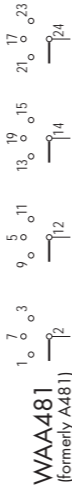


Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

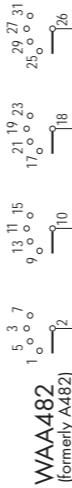
## 2 Step



## 3 Step



## 4 Step

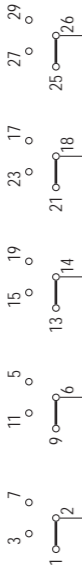


Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

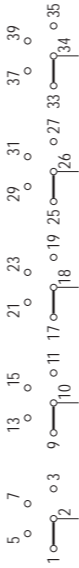
## Multi-step Switches 4 pole with „OFF“



## Multi-step Switches 5 pole without „OFF“



**3 Step WAA484**  
(formerly A484)



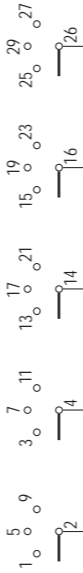
**4 Step WAA485**  
(formerly A485)

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.

## Multi-step Switches 5 pole with „OFF“



**2 Step**  
**WAA486**  
(formerly A486)

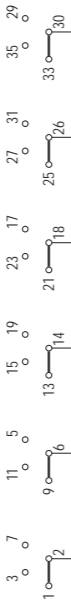


**3 Step**  
**WAA487**  
(formerly A487)

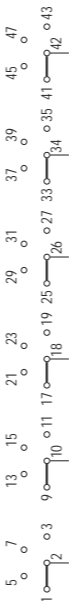
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate

## Multi-step Switches 6 pole

without „OFF“

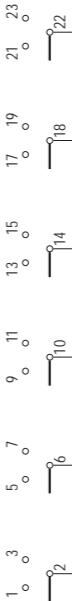


**3 Step**  
**WAA489**  
(formerly A489)



**4 Step**  
**WAA490**  
(formerly A490)

with „OFF“



**2 Step**  
**WAA491**  
(formerly A491)

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

# Coding Switches/Binary Code

Standard face plate: F322		1	3	5
0		X	X	X
1			X	
2		X		
3				X
4		X	X	
5			X	
6		X		
7				
WAA541				

**WAA541 0-7 +complement**  
(formerly A541)

Standard face plate: F322		1	3	5
0				
1		X		
2			X	
3		X	X	
4				X
5		X		
6			X	
7		X	X	X
A540				

**A540 0-7**

# Coding Switches/Binary Code

Standard face plate: F009		1	3	5	7
		2	4	6	8
0					
1	X				
2		X			
3		X	X		
4				X	
5	X				
6		X	X		
7		X	X	X	
8					X
9	X				
10				X	
11		X	X		
A543					

A543 0-11

Standard face plate: F322		1	3	5	7	9	11
		2	4	6	8	10	12
0							
1	X				X	X	
2		X				X	
3		X	X				X
4				X	X		
5	X					X	
6		X	X				X
7		X	X	X			
WAA542							

WAA542 0-7 + complement  
(formerly A542)

# Coding Switches/Binary Code

Standard face plate: F007

	1	3	5	7
0				
1	X			
2	X	X		
3	X	X		
4			X	
5	X			
6	X	X		
7	X	X		
8			X	X
9	X			X

A550

A550 0-9

Standard face plate: F009

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

WAA545

WAA545 0-11 + complement  
(formerly A545)

# Coding Switches/BCD-Code

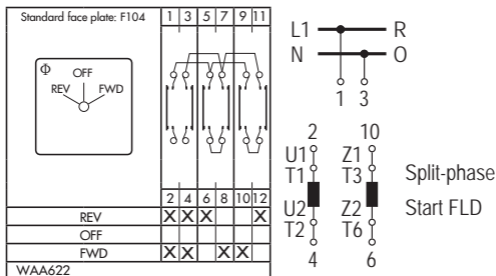
Standard face plate: F007		1	3	5	7	9	11	13	15	
		2	4	6	8	10	12	14	16	
						X	X	X	X	X
			X				X			
			X	X				X		
					X					X
			X			X				
			X	X	X					
				X			X			
			X	X	X	X				X
				X						
	X				X					
	X	X	X	X	X			X		
						X				
	X					X				
	X	X	X	X	X	X		X		
	X									
WAA552										

**WAA552 0-9+complement**  
(formerly A552)

Standard face plate: F007		1	3	5	7	
		2	4	6	8	
			X	X	X	X
			X			
			X	X		
					X	
			X			
			X	X	X	
				X		
			X			X
	X	X	X	X		
	X					
	X	X	X	X		
	X					
	X	X	X	X		
	X					
	X	X	X	X		
WAA551						

**WAA551 0-9**  
(formerly A551)

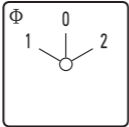




# Motor Switches



WAA622 Start and Run Switch  
 (formerly A622) Split-phase reversing  
 auto cutout of start  
 field winding

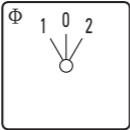






## Double-throw Switches with electrically isolated contacts

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	-----		-----		-----		-----	

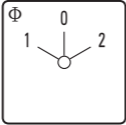
A710 up to A713 Double-throw Switch with „OFF“, 60° Switching

## Double-throw Switches with electrically isolated contacts

Standard face plate: F025		1	3	5	7
					
		2	4	6	8
	1	X		X	
	0				
	2		X		X
A714	1 pole				
A715	2 pole				

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

## Double-throw Switches with electrically isolated contacts

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	—————								

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

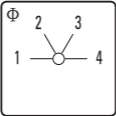




# Multi-step Switch with electrically isolated contacts

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

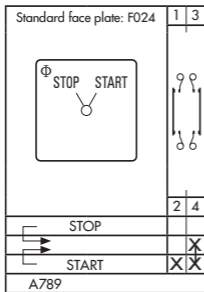
## Multi-step Switch with electrically isolated contacts

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								

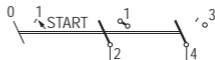
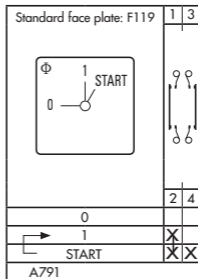
A731, A751

Multi-step Switch without „OFF“, 4 Positions

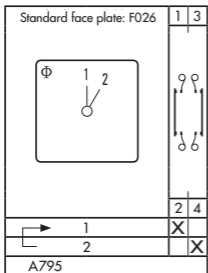
## Control Switch with electrically isolated contacts



A789 Stop start switch



A791 Stop start switch with spring return from start to run

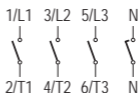


A795 Double-throw Switch without „OFF“, 1 pole with spring return

## Main Switches of KG-, KH- and KF-series



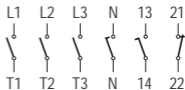
3 pole



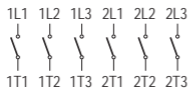
4 pole (3+N)



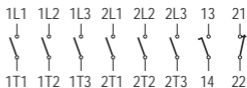
3 pole, 1NO+1NC



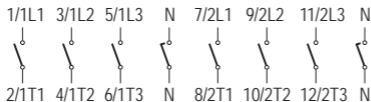
4 pole, 1NO+1NC



6 pole

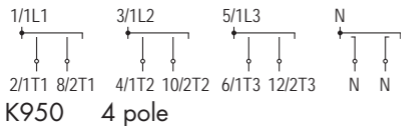
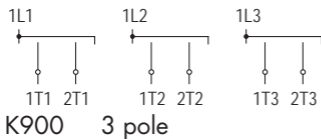


6 pole, 1NO+1NC



8 pole

## Double-throw Switches with „OFF“ of KG-, KH- and KF-series





# Notes

# Notes

# Notes

www.krausnaimer.com

Switch Wiring Diagrams as App:

