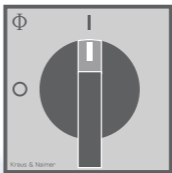




Switch Wiring Diagrams

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
ON/OFF Switches 0-1				
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

Contents

Double-throw Switches		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
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
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
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 Switches/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°	A017	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

Contents

		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 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

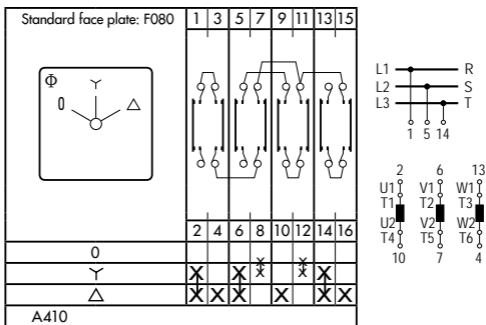
* with slip clutch

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

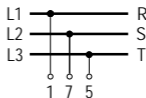
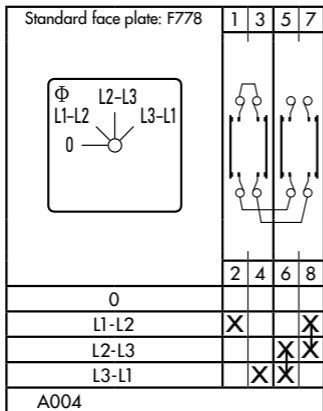
The information is presented with either a switch chart only or a switch chart and connection diagrams when appropriate.



A410 Star-Delta Switch

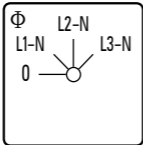

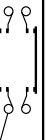
The large image shows the switch chart. A cross in a column indicates that the contact above it is closed, when the switch is in the position as indicated to the left of the cross. For example, contact 3/4 closes in the delta position. A vertical line between 2 or more crosses indicate that the contact 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.

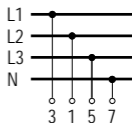
Voltmeter switches



A004 Voltmeter Switch
3 phase 3 wire

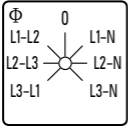
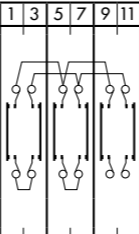
Voltmeter switches

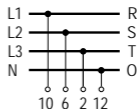
Standard face plate: F781				1	3	5	7
							
				2	4	6	8
0							
L1-N					X		X
L2-N				X			
L3-N						X	X
WAA005							



WAA005 Voltmeter Switch
 (formerly A005) 3 phase to neutral

Voltmeter switches

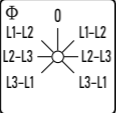
Standard face plate: F785	1	3	5	7	9	11
						
	2	4	6	8	10	12
L3-L1		X			X	
L2-L3		X	X			
L1-L2				X	X	
0						
L1-N					X	X
L2-N			X			
L3-N	X					X
A007						

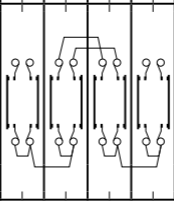


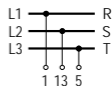
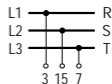
A007 Voltmeter Switch
3 phase to neutral

Voltmeter switches

Standard face plate: F788

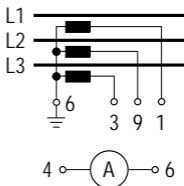
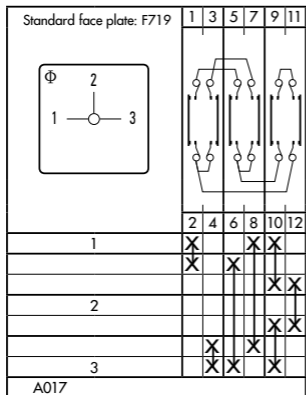


	1	3	5	7	9	11	13	15
								
	2	4	6	8	10	12	14	16
L3-L1		X				X		
L2-L3				X				X
L1-L2		X						X
0								
L1-L2	X						X	
L2-L3			X				X	
L3-L1	X				X			



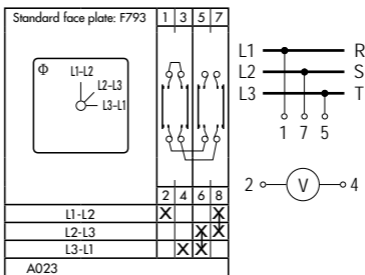
WAA008 Voltmeter Switch
(formerly A008) 2 separate 3 phase

Ammeter switches

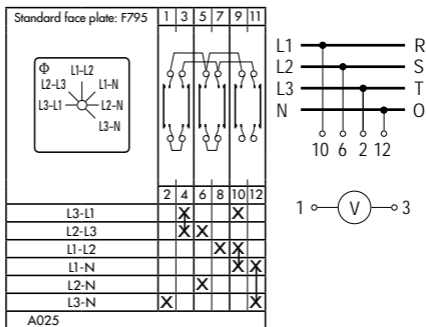


A017 Ammeter Switch
1 pole, 3 Current transformers

Voltmeter switches

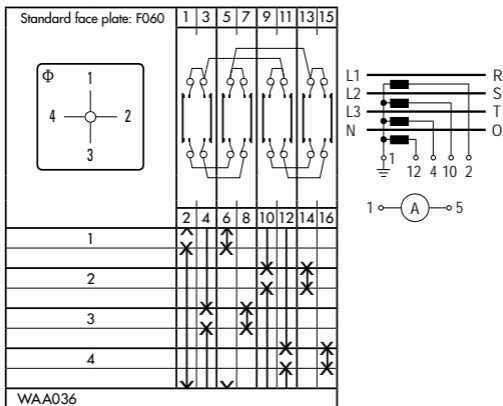


A023 Voltmeter Switch, 3 phase 3 wire



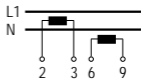
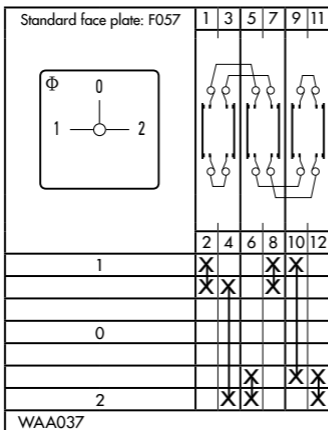
A025 Voltmeter Switch, 3 phase 3 wire,
3 phase to neutral

Ammeter switches



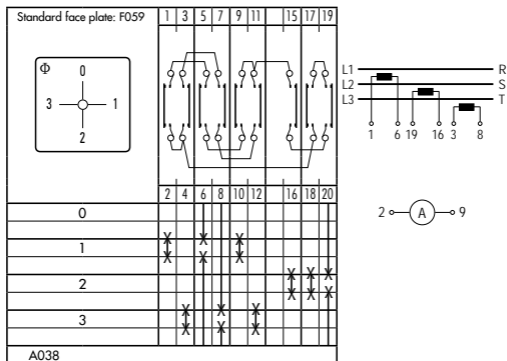
WAA036 Ammeter Switch
 (formerly A036) 1 pole, 4 Current transformers

Ammeter switches



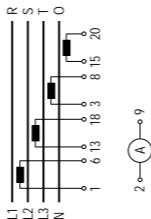
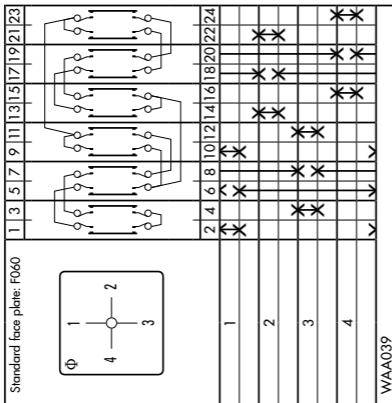
WAA037 Ammeter Switch
 (formerly A037) 2 pole, 2 Current transformers

Ammeter switches



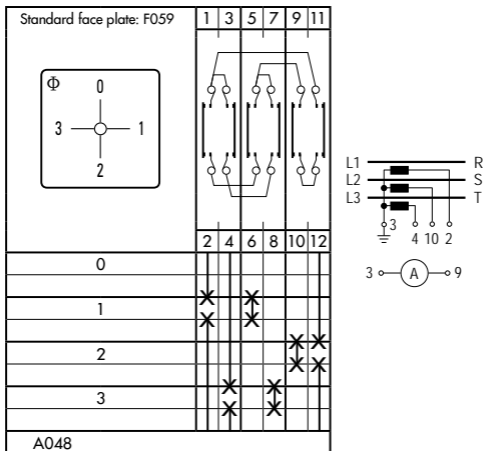
A038 Ammeter Switch
2 pole, 3 Current transformers

Ammeter switches



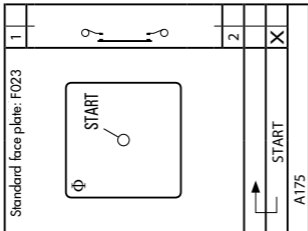
WAA039 Ammeter Switch
(formerly A039) 2 pole, 4 Current transformers

Ammeter switches

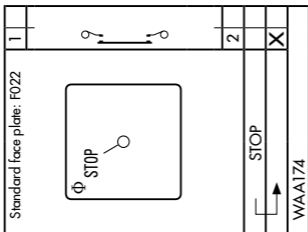


A048 Ammeter Switch
1 pole, 3 Current transformers

Control Switches

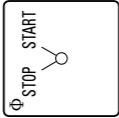
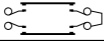


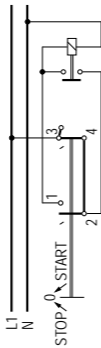
A175 Start switch
1 pole



WAA174 Stop switch
(formerly A174) 1 pole

Control Switches

Standard face plate: F024		1	3
			
		2	4
STOP			X
START			X
A176			



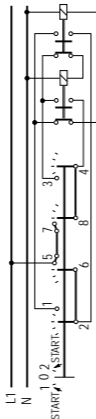
A176 Stop start switch

2 pole see page 31

Electrically isolated contacts see page 86

Control Switches

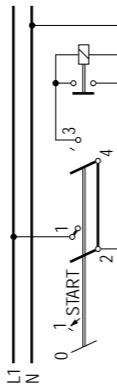
Standard face plate: F121		1	3	5	7
START	1	X	X		
0				X	X
2					
START		X	X		
WAA177					



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

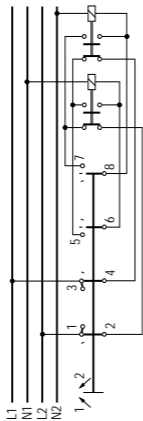
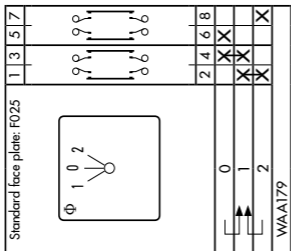
Control Switches

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



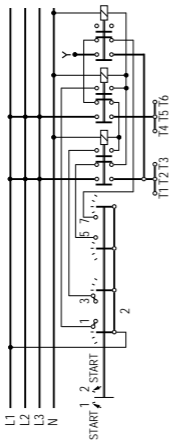
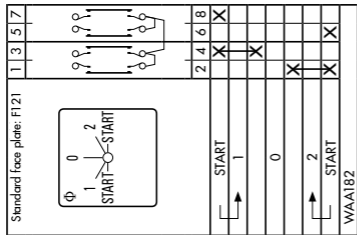
A178 Stop start switch
 1 pole, with spring return from start to run
 Electrically isolated contacts see page 86

Control Switches



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

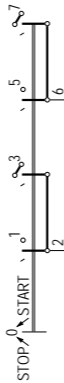
Control Switches



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

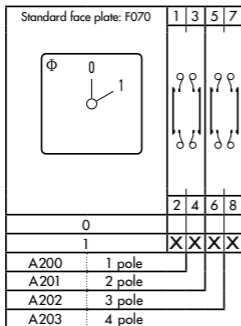
Control Switches

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



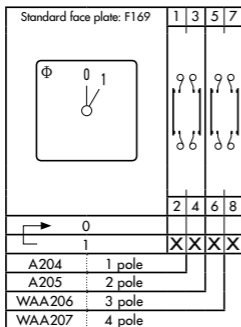
WAA183 Stop start switch
(formerly A183) 2 pole

ON/OFF Switches



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

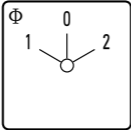
ON/OFF Switches 5- up to 12 pole
see page 56



A204 up to WAA207
(formerly A207)

ON/OFF Switches
with spring return,
30° Switching

Double-throw Switches

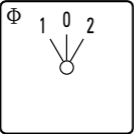






Standard face plate: F071		1	3	5	7	9	11	13	15
									
2	4			6	8	10	12	14	16
1		X		X		X		X	
0									
2		X		X		X		X	
A210	1 pole								
A211	2 pole								
A212	3 pole								
A213	4 pole								

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

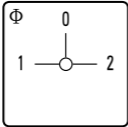


Double-throw Switches

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

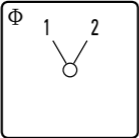




Standard face plate: F057		1	3	5	7
					
		2	4	6	8
1		X		X	
		X		X	
0					
2			X		X
			X		X
A218	1 pole				
A219	2 pole				

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
									
		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								

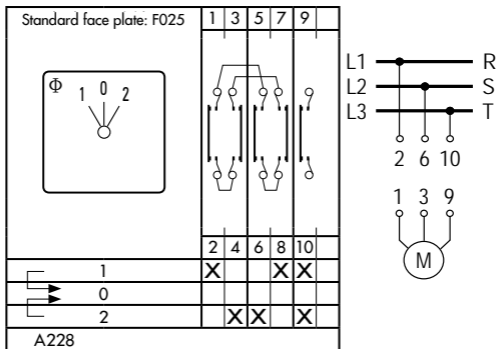
A220 up to A223

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

Electrically isolated contacts see page 83

Double-throw Switches without „OFF“ 5-12 pole see page 58

Motor Switches



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

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 without „OFF“

Multi-step Switches 1 pole with „OFF“

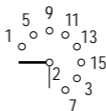
2 Step	A240	
3 Step	A241	
4 Step	A242	
5 Step	A243	
6 Step	A244	
7 Step	WAA245 (formerly A245)	

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“

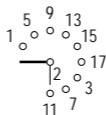
8 Step

WAA246
(formerly A246)



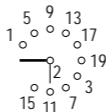
9 Step

WAA247
(formerly A247)



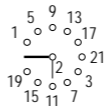
10 Step

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.

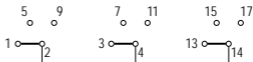
Multi-step Switches 2 pole with „OFF“

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)	

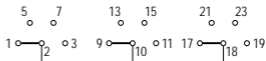
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

Multi-step Switches 3 pole without „OFF“

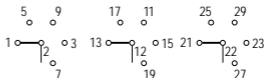
3 Step
A270



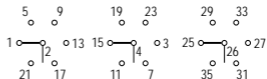
4 Step
A271



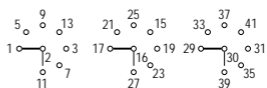
5 Step
WAA272
(formerly A272)



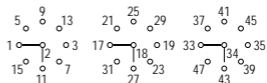
6 Step
WAA273
(formerly A273)



7 Step
WAA274
(formerly A274)



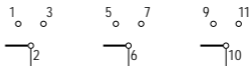
8 Step
WAA275
(formerly A275)



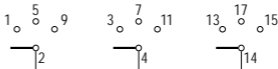
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

Multi-step Switches 3 pole with „OFF“

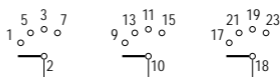
2 Step
A280



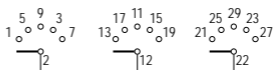
3 Step
A281



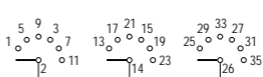
4 Step
WAA282
(formerly A282)



5 Step
WAA283
(formerly A283)

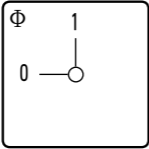

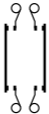


6 Step
WAA284
(formerly A284)



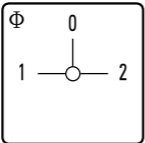
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

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				

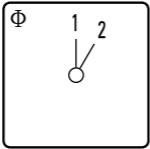





A290 up to A293
ON/OFF Switches 90° Switching

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

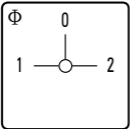
Double-throw Switches

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

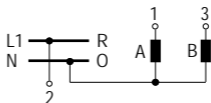
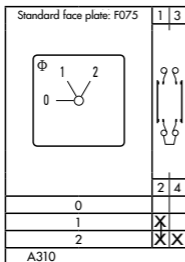
*Electrically isolated contacts see page 86

Double-throw Switches

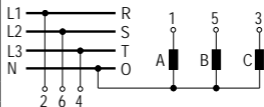
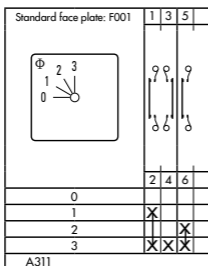
Standard face plate: F057	1	3	5	7	9	11
						
2		4	6	8	10	12
1	X		X		X	
	X		X		X	
0						
2		X		X		X
		X		X		X
WAA299						

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

General Application Switches

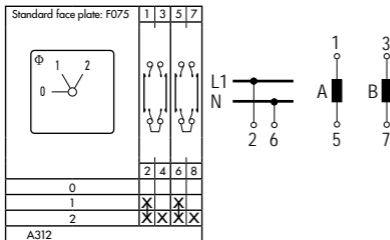


A310 General Application Switch
2 Gang, 1 pole
0, A, A+B

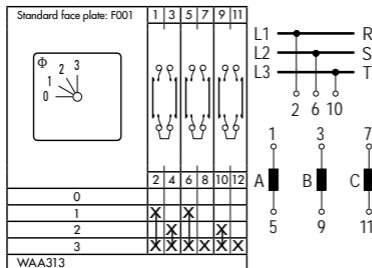


A311 General Application Switch
3 Gang, 1 pole
0, A, A+B, A+B+C

General Application Switches

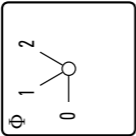
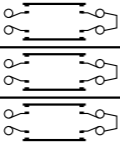


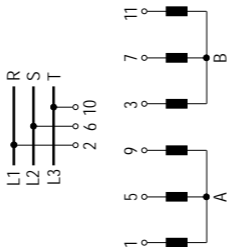
A312 General Application Switch
2 Gang, 2 pole
0, A, A+B



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

General Application Switches

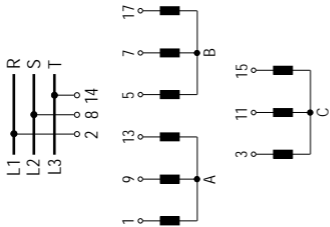
Standard face plate: F075 	1	3	5	7	9	11
						
	2	4	6	8	10	12
	X	X	X	X	X	X
0						
1	X	X	X	X	X	X
2	X	X	X	X	X	X
WAA314						



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

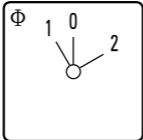




General Application Switches

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	
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							

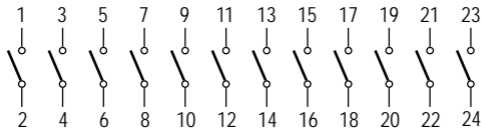
A324 up to A326
ON/OFF Switches, 90° Switching

2 Gang Series Switching

Standard face plate: F001		1	3	5	7	9	11	
		<p>1 pole</p>		<p>2 pole</p>		<p>3 pole</p>		
		2	4	6	8	10	12	
			X		X		X	
			X	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

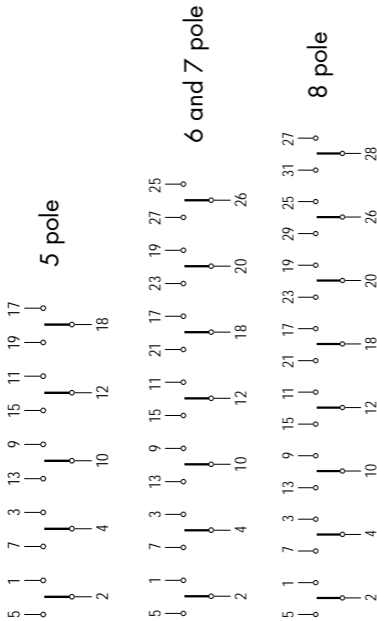
A346 10 pole

WAA347 (formerly A347) 11 pole

A348 12 pole

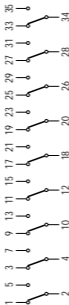
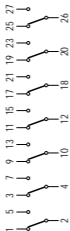
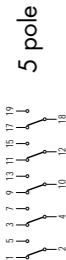
ON/OFF Switches, 60° Switching

Double-throw Switches



Double-throw Switches with „OFF“ 60° Switching
 A361 5 pole
 A362 6 pole
 WAA363 (formerly A363) 7 pole
 WAA364 (formerly A364) 8 pole

Double-throw Switches



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

A369 5 pole A371 7 pole

WAA373 9 pole
(formerlyA373)

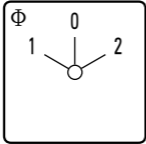
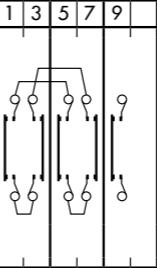
WAA375 11 pole
(formerlyA375)

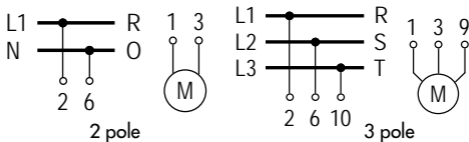
A370 6 pole A372 8 pole

WAA374 10 pole
(formerlyA374)

WAA376 12 pole
(formerlyA376)

Motor Switches

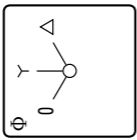
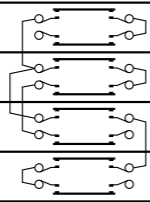
Standard face plate: F071		1	3	5	7	9		
								
		2	4	6	8	10		
1			X	X		X		
0								
2		X			X	X		
A400		2 pole						
A401		3 pole						

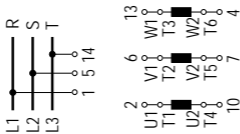


A400, A401 Motor Reversing Switches

With spring return to „OFF“ see page 37

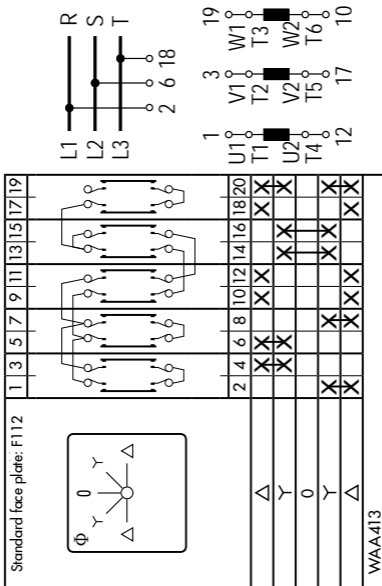
Motor Switches

Standard face plate: F080	1	3	5	7	9	11	13	15
								
	2	4	6	8	10	12	14	16
						*	X	X
		X	X	X	X			X
A410	X	X	X	X	X		X	



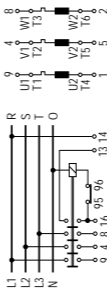
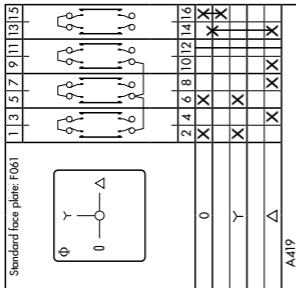
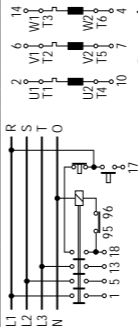
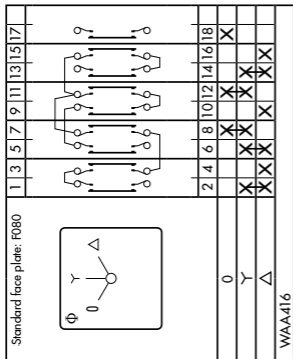
A410 Star-delta Switch

Motor Switches



WAA413 Star-delta Switch
(formerly A413) Reversing

Motor Switches

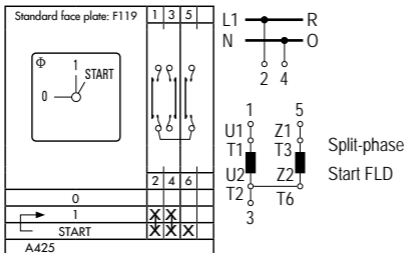


Star-delta Switches

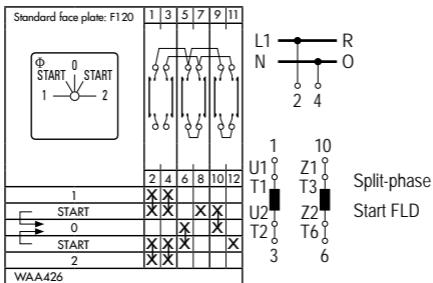
WAA416 With auxiliary contact,
(formerly A416) closed in „OFF“ position

A419 For use with
reversing contactors

Motor Switches

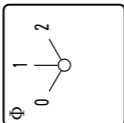
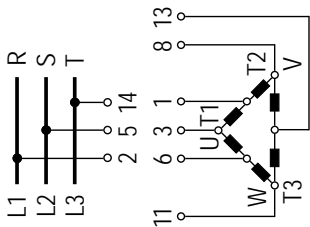


A425 Start and Run Switch
Split-phase start



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
A440								

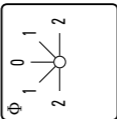
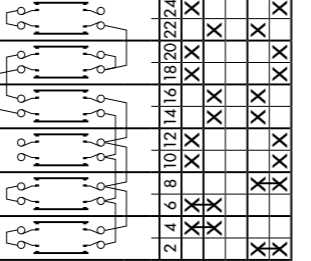
A440 2 speed, single winding

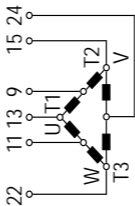
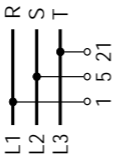
0 - AΔ - AΥ

A441 AΔ - 0 - AΥ

without „OFF“ see page 69

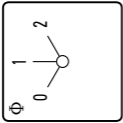
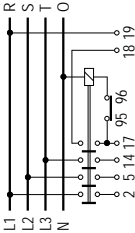
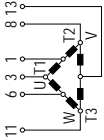
Motor Switches

Standard face plate: F105	1	3	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	
0												
1	X		X			X	X			X	X	
2	X	X		X	X			X	X		X	
A442												



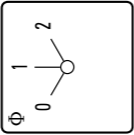
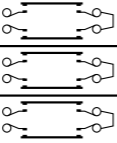
A442 2 speed, single winding with reverse
 $A\bar{Y}\bar{Y} - A\Delta - 0 - A\Delta - A\bar{Y}\bar{Y}$

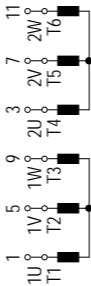
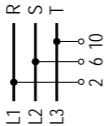
Motor Switches

Standard face plate: F703		1	3	5	7	9	11	13	15	17	19
											
0		2	4	6	8	10	12	14	16	18	20
1										X	X
2						X					
		X	X	X	X	X	X	X	X	X	X
WAA444											

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

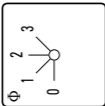
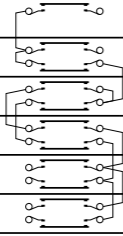
Motor Switches

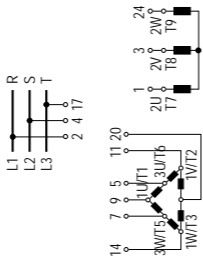
Standard face plate: F703										
										
1	3	5	7	9	11					
2	4	6	8	10	12					
						0				
						1	X	X	X	
						2	X	X	X	X
WAA451										



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

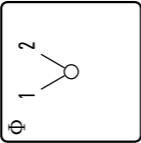
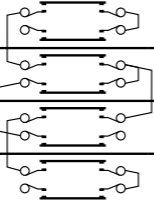
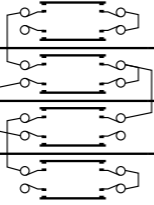
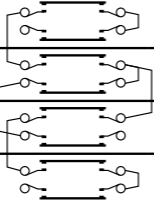
Motor Switches

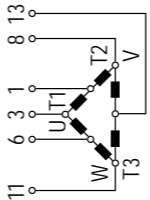
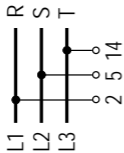
Standard face plate: F109													23
													
1	3	5	7	9	11	13	15	17	19				23
2	4	6	8	10	12	14	16	18	20	24			
0													
1				X	X					X			
2	X	X											X
3			X	X						X	X		X
WAA457													



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

Motor Switches

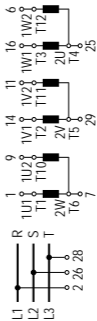
Standard face plate: F072		1	3	5	7	9	11	13	15	
										
		2	4	6	8	10	12	14	16	
1		X				X			X	
2	X		X	X			X	X		
A466										



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

Motor Switches

Standard face plate: F294																																						
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39																			
																				40																		
																				2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
																				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		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
WAA468																																						



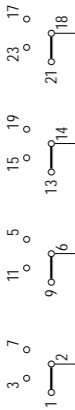
WAA468
(formerly A468)

Motor Control Switch
2 speed reversing for 2 way operation
with slip clutch for „OFF“ load use

Multi-step Switches 4 pole without „OFF“

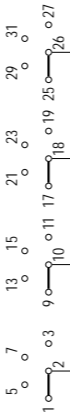
3 Step

A476



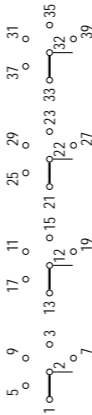
4 Step

A477



5 Step WAA478

(formerly A478)

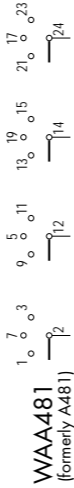


Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

2 Step



3 Step



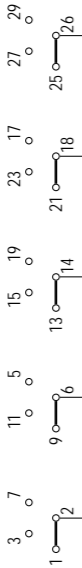
4 Step



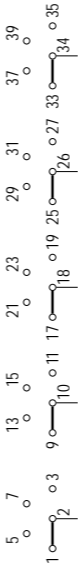
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate.

Multi-step Switches 4 pole with „OFF“

Multi-step Switches 5 pole without „OFF“



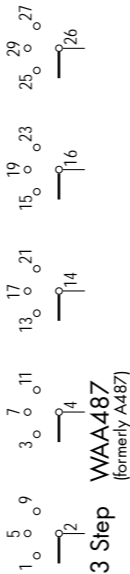
3 Step WAA484
(formerly A484)



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.

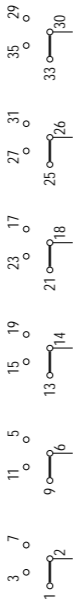
Multi-step Switches 5 pole with „OFF“



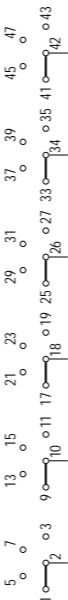
Numbers shown at the connection points on the above diagrams, correspond to the terminal numbers on the switch. The position of connection points correspond to the positions indicated on the face plate

Multi-step Switches 6 pole

without „OFF“

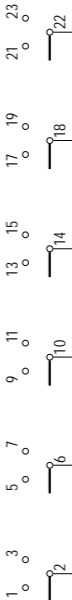


3 Step
WAA489
 (formerly A489)



4 Step
WAA490
 (formerly A490)

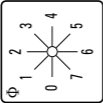

with „OFF“



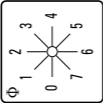

2 Step
WAA491
 (formerly A491)

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					
				2	X		
				2	X	X	
				2	X	X	
				2	X		X
				2	X	X	
				2	X	X	
				2	X		X
				2	X	X	
				2	X		X
				2	X	X	
				2	X		X
WAA542				2	X	X	
A543				2	X	X	

A543 0-11

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

WAA542 0-7 + complement
(formerly A542)

Coding Switches/Binary Code

Standard face plate: F009		1	3	5	7	9	11	13	15
		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				
		5	X			X	X		
		6		X	X				
		7	X	X	X				X
		8				X	X	X	X
		9	X					X	
		10		X					X
WAA545		11	X	X					X

WAA545 0-11 + complement
(formerly A545)

Standard face plate: F007		1	3	5	7
		2	4	6	8
		0			
		1	X		
		2		X	X
		3	X	X	
		4			X
		5	X		
		6	X	X	X
		7	X	X	X
		8			X
A550		9	X		X

A550 0-9

Coding Switches/BCD-Code

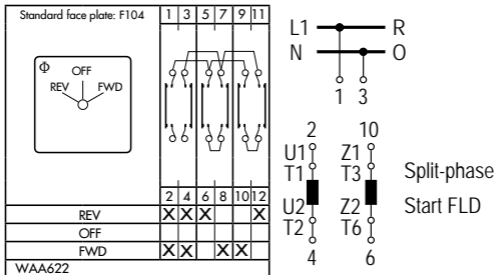
Standard face plate: F007		1	3	5	7	9	11	13	15	
		2	4	6	8	10	12	14	16	
						X	X	X	X	X
			X				X			
			X	X					X	
					X					
			X			X				
			X	X	X					
			X	X	X	X				
			X	X	X	X	X			X
					X	X	X	X		
	X									
WAA552										

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		
WAA551					

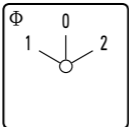




WAA551 0-9
(formerly A551)

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

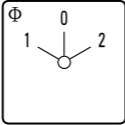
A710 up to A713 Double-throw Switch with „OFF”, 60° Switching

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				

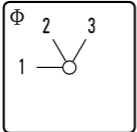


A714 up to A715 Double-throw Switch with „OFF“ with spring return to center, 30° Switching

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

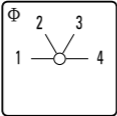




Multi-step Switch with electrically isolated contacts

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

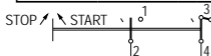
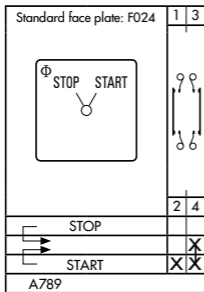
Multi-step Switch with electrically isolated contacts

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								

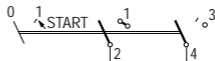
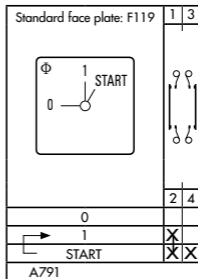
A731, A751

Multi-step Switch without „OFF“, 4 Positions

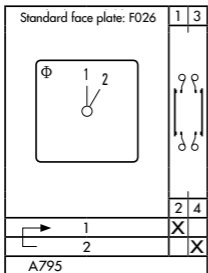
Control Switch with electrically isolated contacts



A789 Stop start switch



A791 Stop start switch with spring return from start to run

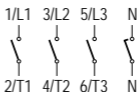


A795 Double-throw Switch without „OFF“, 1 pole with spring return

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



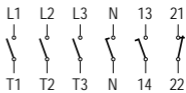
3 pole



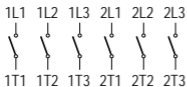
4 pole (3+N)



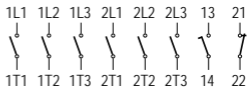
3 pole, 1NO+1NC



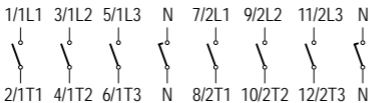
4 pole, 1NO+1NC



6 pole

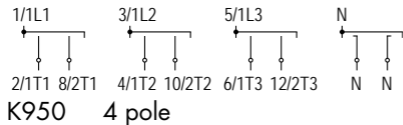
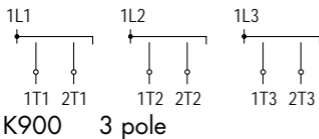


6 pole, 1NO+1NC



8 pole

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



Notes

Notes

Notes

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Switch Wiring Diagrams as App:

