



Sample image

Datasheet

Article number: 70003568
Designation: CA10.A441.EF
Description: Schalter
Contact development: A441
Face plate engraving: F071
Type of mounting: EF

Type Size: S0
Classification Contact: Rigid contact bridge
Classification Contact Mat: Silver
Classification Terminal: Screw terminal

IEC 60947-3 EN 60947-3, VDE 0660 Teil 107						
Rated insulation voltage Ui						
Voltage (V) AC / DC						
690 AC / DC						
Rated impulse withstand voltage Uimp						
Voltage (kV)		Overvoltage category	Pollution degree	Supply system	Function	
6		III	3	Valid for lines with grounded common neutral termination	switch	
4		III	3	Valid for lines with grounded common neutral termination	Switch disconnecter	
Rated uninterrupted current Iu/Ith						
Current (A)		Ambient temperature (°C)	Peak temperature (°C)	additional requirements		
20		55	60	Ambient temperature +55°C during 24 hours with peaks up to +60°C		
Conventional enclosed thermal current Ithe						
Current (A)	Ambient temperature (°C)	Peak temperature (°C)	Additional requirements	No. of stages (from - to)	Mounting	Mounting size
20	35	40	Ambient temperature +35°C during 24 hours with peaks up to +40°C	--	--	--
Rated operational current Ie						
Utilization category			Voltage (V)	Current (A)		
AC-15			220 - 240	6		
AC-15			380 - 440	4		
AC-20A			690	20		
AC-21A			20 - 690	20		
AC-22A			220 - 500	20		
AC-22A			660 - 690	20		
Rated operational power						
Utilization category	Voltage (V)	No. of phases	No. of poles	Power (kW)		
AC-6b	380 - 400	3	3	--		
AC-6b	220 - 230	1	2	--		
AC-2	220 - 240	3	3	4		
AC-2	380 - 440	3	3	7,50		
AC-2	500 - 500	3	3	10		
AC-2	660 - 690	3	3	10		
AC-3	220 - 240	3	3	3		
AC-3	380 - 440	3	3	5,50		
AC-3	500 - 500	3	3	5,50		
AC-3	660 - 690	3	3	5,50		
AC-3	110 - 120	1	2	0,60		
AC-3	220 - 240	1	2	2,20		
AC-3	380 - 440	1	2	3		
AC-4	220 - 240	3	3	0,55		
AC-4	380 - 440	3	3	1,50		
AC-4	500 - 500	3	3	1,50		
AC-4	660 - 690	3	3	1,50		
AC-4	110 - 120	1	2	0,30		
AC-4	220 - 240	1	2	0,75		
AC-4	380 - 440	1	2	1,50		
AC-23A	220 - 240	3	3	3,70		
AC-23A	380 - 440	3	3	7,50		
AC-23A	500 - 500	3	3	7,50		
AC-23A	660 - 690	3	3	7,50		
AC-23A	110 - 120	1	2	0,75		
AC-23A	220 - 240	1	2	2,50		
AC-23A	380 - 440	1	2	3,70		

Max Fuse Rating IEC				
Fuse characteristic	No. of Fuses			Current (A)
gG	1			25
Tested AC and DC values				
Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V) AC / DC	Current (A)
DC-13	1	ON - OFF	24 DC	3
DC-13	1	ON - OFF	48 DC	1,70
DC-13	1	ON - OFF	60 DC	1,40
DC-13	1	ON - OFF	110 DC	0,70
DC-13	1	ON - OFF	220 DC	0,15
DC-13	2	ON - OFF	24 DC	6
DC-13	2	ON - OFF	48 DC	3
DC-13	2	ON - OFF	96 DC	1,70
DC-13	2	ON - OFF	120 DC	1,40
DC-13	2	ON - OFF	220 DC	0,70
DC-13	2	ON - OFF	440 DC	0,15
DC-21A	1	ON - OFF	24 DC	20
DC-21A	1	ON - OFF	48 DC	20
DC-21A	1	ON - OFF	60 DC	20
DC-21A	1	ON - OFF	110 DC	6
DC-21A	1	ON - OFF	220 DC	0,90
DC-21A	2	ON - OFF	48 DC	16
DC-21A	2	ON - OFF	96 DC	14
DC-21A	2	ON - OFF	120 DC	13
DC-21A	2	ON - OFF	220 DC	6
DC-21A	2	ON - OFF	440 DC	0,90
DC-21A	3	ON - OFF	72 DC	16
DC-21A	3	ON - OFF	144 DC	14
DC-21A	3	ON - OFF	180 DC	13
DC-21A	3	ON - OFF	330 DC	6
DC-21A	3	ON - OFF	660 DC	0,90
DC-21A	4	ON - OFF	96 DC	16
DC-21A	4	ON - OFF	192 DC	14
DC-21A	4	ON - OFF	240 DC	13
DC-21A	4	ON - OFF	440 DC	6
DC-21A	5	ON - OFF	120 DC	16
DC-21A	5	ON - OFF	240 DC	14
DC-21A	5	ON - OFF	300 DC	13
DC-21A	5	ON - OFF	550 DC	6
DC-21A	6	ON - OFF	144 DC	16
DC-21A	6	ON - OFF	288 DC	14
DC-21A	6	ON - OFF	360 DC	13
DC-21A	6	ON - OFF	660 DC	6
DC-21A	8	ON - OFF	192 DC	16
DC-21A	8	ON - OFF	384 DC	14
DC-21A	8	ON - OFF	480 DC	13
DC-22A	1	ON - OFF	24 DC	20
DC-22A	1	ON - OFF	48 DC	20
DC-22A	1	ON - OFF	60 DC	12
DC-22A	1	ON - OFF	110 DC	1,90
DC-22A	1	ON - OFF	220 DC	0,30
DC-22A	2	ON - OFF	48 DC	14
DC-22A	2	ON - OFF	96 DC	13
DC-22A	2	ON - OFF	120 DC	12
DC-22A	2	ON - OFF	220 DC	1,90
DC-22A	2	ON - OFF	440 DC	0,30
DC-22A	3	ON - OFF	72 DC	14
DC-22A	3	ON - OFF	144 DC	13
DC-22A	3	ON - OFF	180 DC	12
DC-22A	3	ON - OFF	330 DC	1,90
DC-22A	3	ON - OFF	660 DC	0,30
DC-22A	4	ON - OFF	96 DC	14
DC-22A	4	ON - OFF	192 DC	13
DC-22A	4	ON - OFF	240 DC	12
DC-22A	4	ON - OFF	440 DC	1,90
DC-22A	5	ON - OFF	120 DC	14
DC-22A	5	ON - OFF	240 DC	13
DC-22A	5	ON - OFF	300 DC	12
DC-22A	5	ON - OFF	550 DC	1,90
DC-22A	6	ON - OFF	144 DC	14
DC-22A	6	ON - OFF	288 DC	13
DC-22A	6	ON - OFF	360 DC	12
DC-22A	6	ON - OFF	660 DC	1,90
DC-22A	8	ON - OFF	192 DC	14
DC-22A	8	ON - OFF	384 DC	13
DC-22A	8	ON - OFF	480 DC	12
DC-23A	1	ON - OFF	24 DC	20
DC-23A	1	ON - OFF	48 DC	20

Tested AC and DC values

Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V) AC / DC	Current (A)
DC-23A	1	ON - OFF	60 DC	10
DC-23A	1	ON - OFF	110 DC	1,50
DC-23A	1	ON - OFF	220 DC	0,20
DC-23A	2	ON - OFF	48 DC	13
DC-23A	2	ON - OFF	96 DC	12
DC-23A	2	ON - OFF	120 DC	10
DC-23A	2	ON - OFF	220 DC	1,50
DC-23A	2	ON - OFF	440 DC	0,20
DC-23A	3	ON - OFF	72 DC	13
DC-23A	3	ON - OFF	144 DC	12
DC-23A	3	ON - OFF	180 DC	10
DC-23A	3	ON - OFF	330 DC	1,50
DC-23A	3	ON - OFF	660 DC	0,20
DC-23A	4	ON - OFF	96 DC	13
DC-23A	4	ON - OFF	192 DC	12
DC-23A	4	ON - OFF	240 DC	10
DC-23A	4	ON - OFF	440 DC	1,50
DC-23A	5	ON - OFF	120 DC	13
DC-23A	5	ON - OFF	240 DC	12
DC-23A	5	ON - OFF	300 DC	10
DC-23A	5	ON - OFF	550 DC	1,50
DC-23A	6	ON - OFF	144 DC	13
DC-23A	6	ON - OFF	288 DC	12
DC-23A	6	ON - OFF	360 DC	10
DC-23A	6	ON - OFF	660 DC	1,50
DC-23A	8	ON - OFF	192 DC	13
DC-23A	8	ON - OFF	384 DC	12
DC-23A	8	ON - OFF	480 DC	10

Rated conditional short-circuit current

Current (kA)	Text	cut-off current I _c (kA)	Durchlassenergie I ² t (kA ² s)
2	--	1,51	1,67

Rated breaking capacity

Voltage (V)	Current (A)	Utilization category / UL (DOL)
220 - 240	130	--
380 - 440	130	--
660 - 690	80	--

Rated short-circuit making capacity I_{cm}

Current (A)
450

UL60947-4-1, UL508
Nominal Voltage

Voltage (V) AC / DC
300 AC / DC

Rated insulation voltage U_i

Voltage (V) AC / DC
300 AC

Rated thermal current

Current (A)	Ambient temperature (°C)	Additional Text
20	0 - 40	--

Horsepower rating

Across-the-Line Motor Starting	Voltage (V)	No. of phases	No. of poles	Power (HP)
Reversing	110 - 120	1	2	0,17
Reversing	220 - 240	1	2	0,50
Reversing	277 - 277	1	2	0,60
Reversing	110 - 120	3	3	0,50
Reversing	220 - 240	3	3	1
DOL	110 - 120	1	2	0,50
DOL	220 - 240	1	2	1
DOL	277 - 277	1	2	2
DOL	110 - 120	3	3	1,50
DOL	220 - 240	3	3	3

Pilot duty rating code

Duty Code
A300

SCCR / Max. fuse rating
Conditions of acceptability

These devices are suitable for use on circuits capable of delivering not more than 5000 rms symmetrical amperes, 600V ac max. when protected by Class RK1 fuses. Manual Motor Controllers when intended for use as a motor disconnect are suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical amperes, 600V ac max. when protected by 30A Class J time delay fuses.

Temp. rating of wire

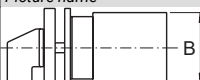
Temperature rating (°C)	Current (A) Text
60 - 75	--

Connecting instructions

Markings
When intended for use as a motor disconnect the device shall be provided with a method of being locked in the OFF-position.

General Use

AC / DC	Voltage (V)	Current (A)	No. of phases	No. of poles	No. of contacts in series
AC	300	20	1	2	1

General Use					
AC / DC	Voltage (V)	Current (A)	No. of phases	No. of poles	No. of contacts in series
AC	300	20	3	3	1
Suitable as Motor disconnect					
Yes/No					
Y					
CSA					
Nominal Voltage					
				Voltage (V)	AC / DC
				300 AC	
Rated insulation voltage Ui					
				Voltage (V)	AC / DC
				300 AC	
Rated thermal current					
		Current (A)	Ambient temperature (°C)		Additional Text
		20	0 - 40		--
Horsepower rating					
Across-the-Line Motor Starting				Voltage (V)	No. of phases
				110 - 120	1
DOL				220 - 240	2
DOL				277 - 277	1
DOL				110 - 120	2
DOL				220 - 240	3
DOL				110 - 120	3
DOL				220 - 240	3
Pilot duty rating code					
Duty Code					
A300					
Temp. rating of wire					
		Temperature rating (°C)	Current (A)		Text
		75			-- only
General Use					
AC / DC	Voltage (V)	Current (A)	No. of phases	No. of poles	No. of contacts in series
AC	300	20	1	1	1
MASTER DATA					
Max. number of stages					
				number of stages	Modul
				12 FL	
Switch Measures					
Picture name	B	F	H	H1	H2
	43	--	--	--	--
GENERAL TECHNICAL INFORMATION					
Tightening torque of screws					
				tightening torque (Nm)	tightening torque (lb-in)
				0,60	5
Tested AC and DC values					
Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V)	AC / DC	Current (A)
T≤1ms	1	ON - OFF	24	DC	20
T≤1ms	1	ON - OFF	48	DC	12
T≤1ms	1	ON - OFF	60	DC	4,50
T≤1ms	1	ON - OFF	110	DC	1
T≤1ms	1	ON - OFF	220	DC	0,40
T≤1ms	1	ON - OFF	440	DC	0,27
T≤1ms	2	ON - OFF	48	DC	20
T≤1ms	2	ON - OFF	95	DC	12
T≤1ms	2	ON - OFF	120	DC	4,50
T≤1ms	2	ON - OFF	220	DC	1
T≤1ms	2	ON - OFF	440	DC	0,40
T≤1ms	2	ON - OFF	660	DC	0,27
T≤1ms	3	ON - OFF	70	DC	20
T≤1ms	3	ON - OFF	140	DC	12
T≤1ms	3	ON - OFF	180	DC	4,50
T≤1ms	3	ON - OFF	330	DC	1
T≤1ms	3	ON - OFF	660	DC	0,40
T≤1ms	4	ON - OFF	95	DC	20
T≤1ms	4	ON - OFF	190	DC	12
T≤1ms	4	ON - OFF	240	DC	4,50
T≤1ms	4	ON - OFF	440	DC	1
T≤1ms	5	ON - OFF	120	DC	20
T≤1ms	5	ON - OFF	240	DC	12
T≤1ms	5	ON - OFF	300	DC	4,50
T≤1ms	5	ON - OFF	550	DC	1
T≤1ms	6	ON - OFF	145	DC	20
T≤1ms	6	ON - OFF	290	DC	12
T≤1ms	6	ON - OFF	360	DC	4,50
T≤1ms	6	ON - OFF	660	DC	1

Tested AC and DC values

Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V) AC / DC	Current (A)
T≤1ms	8	ON - OFF	190 DC	20
T≤1ms	8	ON - OFF	350 DC	12
T≤1ms	8	ON - OFF	450 DC	4,50
T=50ms	1	ON - OFF	24 DC	12
T=50ms	1	ON - OFF	30 DC	5
T=50ms	1	ON - OFF	48 DC	2
T=50ms	1	ON - OFF	60 DC	1
T=50ms	1	ON - OFF	110 DC	0,40
T=50ms	2	ON - OFF	48 DC	12
T=50ms	2	ON - OFF	60 DC	5
T=50ms	2	ON - OFF	95 DC	2
T=50ms	2	ON - OFF	120 DC	1
T=50ms	2	ON - OFF	220 DC	0,40
T=50ms	3	ON - OFF	70 DC	12
T=50ms	3	ON - OFF	90 DC	5
T=50ms	3	ON - OFF	140 DC	2
T=50ms	3	ON - OFF	180 DC	1
T=50ms	3	ON - OFF	330 DC	0,40
T=50ms	4	ON - OFF	95 DC	12
T=50ms	4	ON - OFF	120 DC	5
T=50ms	4	ON - OFF	190 DC	2
T=50ms	4	ON - OFF	240 DC	1
T=50ms	4	ON - OFF	440 DC	0,40
T=50ms	5	ON - OFF	120 DC	12
T=50ms	5	ON - OFF	150 DC	5
T=50ms	5	ON - OFF	240 DC	2
T=50ms	5	ON - OFF	300 DC	1
T=50ms	5	ON - OFF	550 DC	0,40
T=50ms	6	ON - OFF	145 DC	12
T=50ms	6	ON - OFF	180 DC	5
T=50ms	6	ON - OFF	290 DC	2
T=50ms	6	ON - OFF	360 DC	1
T=50ms	6	ON - OFF	660 DC	0,40
T=50ms	8	ON - OFF	190 DC	12
T=50ms	8	ON - OFF	240 DC	5
T=50ms	8	ON - OFF	350 DC	2
T=50ms	8	ON - OFF	450 DC	1

Stripping length

Length (mm) –

8 STRIPPINGLENGTH

Minimal ratings (voltage/current)

Voltage (V)	Current (mA)	Environment conditions	Environment conditions 2	Environment conditions 3
20	5	Ambient air must be free of particular contamination with sulfur and/or sulfurous components such as H ₂ S etc.	In case extraordinary contamination with dust is expected an adequate dust protection is required.	--

Rated short-time withstand current I_{cs}

Time (s)	Current (A)
1	140

Size of conductor

composition of conductor	Min. / Max. value	No. of conductor per terminal	Cross section (mm ²) or (AWG/kcmil)	Material of the wire
solid wire	Min.	1	0.5mm ²	Copper
solid wire	Min.	2	0.5mm ²	Copper
flexible wire	Min.	1	0.75mm ²	Copper
flexible wire	Min.	2	0.75mm ²	Copper
flexible wire	Max.	2	2.5mm ²	Copper
flexible wire	Max.	2	AWG 14	Copper
Single-core or stranded wire	Max.	2	AWG 12	Copper
Single-core or stranded wire	Max.	2	2.5mm ²	Copper
flexible wire with ferrule according to DIN 46228	Max.	2	2.5mm ²	Copper
flexible wire with ferrule according to DIN 46228	Min.	1	0.5mm ²	Copper
flexible wire with ferrule according to DIN 46228	Min.	2	0.5mm ²	Copper

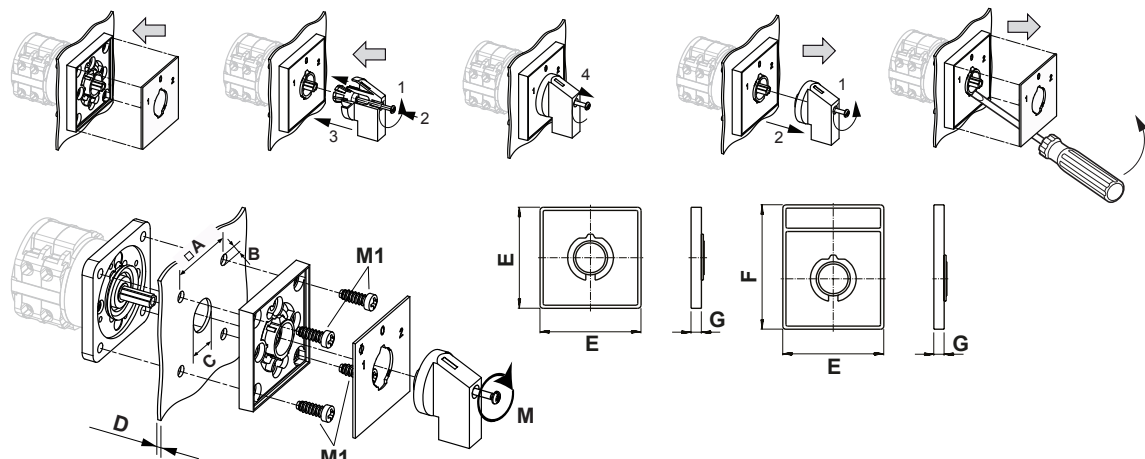
Approbations

Specification	Marking
EAC	
CE marking	
UK Directives	
Lloyd's Register EMEA	
IEC 60947-3; EN 60947-3; VDE 0660 Teil107	
IEC 60947-3 EN 60947-3	

Approbations										Marking
Specification										
UL 60947-4-1; CSA C22.2 No. 60947-4-1										
CSA C.22.2 No.14										
GB/T14048.3										
Russian Maritime Register of Shipping										
Power loss per pole										
										Power (W)
										0,90
Mechanical life										
No. of operations		Ambient temperature (°C)			Number of stages		Limitations			
1000000		-5 - 55					Valid for manual operation. Valid for switches without optional extras. The value refers to the mechanics of the device, for lifetime of the electrical contacts please refer to "electrical life values".			
150000		-25 - 55					Valid for manual operation. Valid for switches without optional extras. The value refers to the mechanics of the device, for lifetime of the electrical contacts please refer to "electrical life values".			
Electrical life (B10-Value)										
Utilization category	cos(φ)	Time constant (ms)	Voltage (V)	Current (A)	No. of operations	number of series contacts	AC/DC	No. of phases	No. of poles	
--	0,56	--	119	15	100000	1	AC	1	1	
--	0,59	--	122	10	150000	1	AC	1	1	
--	0,59	--	220	5	900000	1	AC	1	1	
--	0,59	--	220	10	100000	1	AC	1	1	
--	0,95	--	220	10	125000	1	AC	1	1	
--	0,59	--	220	15	35000	1	AC	1	1	
--	0,64	--	220	20	25000	1	AC	1	1	
--	0,65	--	380	5	300000	1	AC	1	1	
--	0,64	--	380	10	90000	1	AC	1	1	
--	0,64	--	380	15	40000	1	AC	1	1	
AC-3	--	--	440	11,50	100000	1	AC	3	3	
AC-23	--	--	440	15,50	30000	1	AC	3	3	
AC-3	--	--	690	6,80	100000	1	AC	3	3	
AC-23	--	--	690	9	80000	1	AC	3	3	
AC-22	--	--	690	20	40000	1	AC	3	3	
--	--	1	24	20	80000	1	DC	1	1	
--	--	1	48	12	75000	1	DC	1	1	
--	--	1	60	4,50	200000	1	DC	1	1	
--	--	1	110	2	100000	1	DC	1	1	
--	--	1	220	0,50	100000	1	DC	1	1	
--	--	1,20	440	0,28	200000	1	DC	1	1	
--	--	50	24	0,50	200000	1	DC	1	1	
--	--	50	24	1	100000	1	DC	1	1	
--	--	50	24	12	8000	1	DC	1	1	
--	--	50	30	5	20000	1	DC	1	1	
--	--	50	48	1	75000	1	DC	1	1	
--	--	50	48	3	50000	1	DC	1	1	
--	--	50	60	2	30000	1	DC	1	1	
--	--	50	110	0,40	80000	1	DC	1	1	
--	--	50	110	0,50	80000	1	DC	1	1	
--	--	51	60	1	50000	1	DC	1	1	
--	--	52	110	0,10	200000	1	DC	1	1	
--	--	55	110	1	50000	1	DC	1	1	
--	--	55	110	1,50	25000	1	DC	1	1	
--	--	55	220	0,50	40000	1	DC	1	1	
--	--	100	110	0,50	50000	1	DC	1	1	
--	--	100	110	1	25000	1	DC	1	1	
Recommended screw driver										
Type of screw driver					Value					
Cross Screwdriver					PH1					
Flat blade					0,8x4					
Degree of protection										
IP - Code switch terminal										
IP20										
Conditions during transport and storing										
Minimum temperature (°C)					Maximum temperature (°C) additional requirements					
-40					85 In case of temperatures below -5°C no shock load permissible					
Shock / Vibration										
Type of oscillation					Values					
Resistance to vibration					Min. 4g, 2-100Hz, 1,6mm					

Shock / Vibration	
Type of oscillation	Values
Resistance to shock	Min. 5g, 6ms
Resistance to vibration	IEC 61373 (1999) Category 1, Class B
Resistance to shock	min. 5g, 30ms
General Information	
Text	
- DC switching capacity applies to ON/OFF switches. - Do not lubricate or treat contacts. - Switches may only be mounted, connected and set into operation by qualified persons according to the accepted rules of technology. - Use copper wire only. Do not coat the wire end with tin. - Terminals with factory fitted jumper links are tightened during production. Take care during installation to ensure factory fitted links are not lost by undoing both sides of linked terminals. After wiring, all terminal screws must be tightened to recommended torque specifications. - After installation of the switches the spacings between the terminals must be sufficient to fulfill the requirement of the applicable standards.	
Creepage distance	
	Distance (mm)
	9,50
Clearance	
	Distance (mm)
	6,35
Distance of stages	
	Distance (mm)
	9,50
Operating temperature	
	Min. Temperature [°C]
	-25
	Max. Temperature [°C]
	60
Waste Electrical & Electronic Equipment (WEEE)	
Picture name	Description
	
Do not throw in the trash as care must be taken to ensure environmentally sound disposal and recycling. Please either use an environmentally friendly waste disposal company; return to the supplier for disposal; or return direct to the manufacturer, Kraus & Naimer. You can find local Kraus & Naimer offices at www.krausnaimer.com	
Proposition 65	
Picture name	Description
	
WARNING: This product can expose you to chemicals including nickel and lead, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.	

Mounting-EF

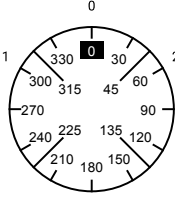
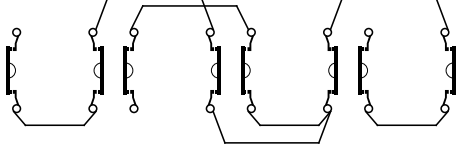


IP - Code front side	IP66, IP67, IP69k
Stages	1,00 - 12,00
A	□ 36,00 mm
B	∅ 5,00 mm
C	∅ 15,00 - 19,00 mm
D	H <= 4,00 mm
E	H 48,00 mm

F	H	59,00 mm
G	H	6,70 mm
M	M̄	0,50 Nm
M1	M̄	0,90 Nm

Wiring diagram

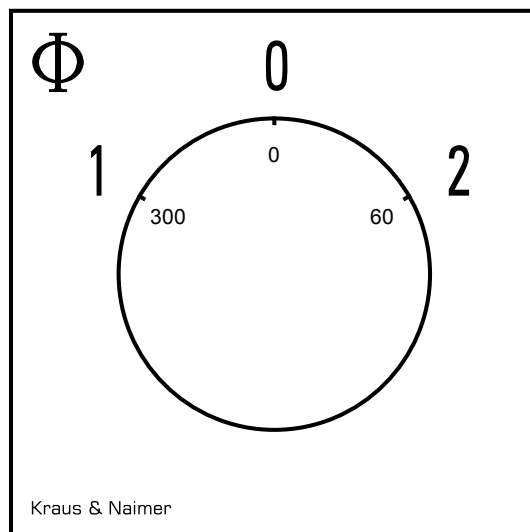
CA10.A441.EF

 Kraus & Naimer		CA10		A441		Page 1 of 1							
Face Plate 													
Switching Angle 60 Total switching Angle 120		2	4	6	8	10	12	14	16	18	20	22	24
1 0 2	300		■			■			■				
	315												
	330												
	345												
	0												
	15												
	30												
	45												
	60	■		■	■		■	■					
	75												
	90												
	105												
	120												
	135												
	150												
	165												
	180												
195													
210													
225													
240													
255													
270													
285													

Version: 42

Face plate

S0.F071/A1B.PEL



HANDLES

Designation: S0C.G251

Handle colour: "1" black

