



Sample image

Datasheet

Article number: 70005751
Designation: CA20.A401.EF
Description: Schalter
Contact development: A401
Face plate engraving: F071
Type of mounting: EF

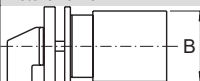
Type Size: S0
Classification Contact: Rigid contact bridge
Classification Contact Mat: Silver
Classification Terminal: Screw terminal

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	
Rated uninterrupted current Iu/Ith						
Current (A)		Ambient temperature (°C)	Peak temperature (°C) additional requirements			
25		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
25	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		8	
AC-15			380 - 440		5	
AC-20A			690		25	
AC-21A			20 - 690		25	
AC-22A			220 - 500		25	
AC-22A			660 - 690		25	
Rated operational power						
Utilization category		Voltage (V)	No. of phases	No. of poles	Power (kW)	
AC-2		220 - 240	3	3	5,50	
AC-2		380 - 440	3	3	11	
AC-2		500 - 500	3	3	15	
AC-2		660 - 690	3	3	13	
AC-3		220 - 240	3	3	4	
AC-3		380 - 440	3	3	7,50	
AC-3		500 - 500	3	3	7,50	
AC-3		660 - 690	3	3	7,50	
AC-3		110 - 120	1	2	1,50	
AC-3		220 - 240	1	2	3	
AC-3		380 - 440	1	2	3,70	
AC-4		220 - 240	3	3	1,50	
AC-4		380 - 440	3	3	3	
AC-4		500 - 500	3	3	3	
AC-4		660 - 690	3	3	3	
AC-4		110 - 120	1	2	0,45	
AC-4		220 - 240	1	2	1,10	
AC-4		380 - 440	1	2	2,20	
AC-23A		220 - 240	3	3	5,50	
AC-23A		380 - 440	3	3	11	
AC-23A		500 - 500	3	3	11	
AC-23A		660 - 690	3	3	11	
AC-23A		110 - 120	1	2	1,50	
AC-23A		220 - 240	1	2	3	
AC-23A		380 - 440	1	2	5,50	
Max Fuse Rating IEC						
Fuse characteristic			No. of Fuses		Current (A)	
gG			1		35	

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	4
DC-13	1	ON - OFF	48	DC	2,40
DC-13	1	ON - OFF	60	DC	1,80
DC-13	1	ON - OFF	110	DC	1
DC-13	1	ON - OFF	220	DC	0,35
DC-13	2	ON - OFF	48	DC	4
DC-13	2	ON - OFF	96	DC	2,40
DC-13	2	ON - OFF	120	DC	1,80
DC-13	2	ON - OFF	220	DC	1
DC-13	2	ON - OFF	440	DC	0,35
DC-21A	1	ON - OFF	24	DC	25
DC-21A	1	ON - OFF	48	DC	25
DC-21A	1	ON - OFF	60	DC	25
DC-21A	1	ON - OFF	110	DC	6
DC-21A	1	ON - OFF	220	DC	1
DC-21A	2	ON - OFF	48	DC	21
DC-21A	2	ON - OFF	96	DC	18
DC-21A	2	ON - OFF	120	DC	17
DC-21A	2	ON - OFF	220	DC	6
DC-21A	2	ON - OFF	440	DC	1
DC-21A	3	ON - OFF	72	DC	21
DC-21A	3	ON - OFF	144	DC	18
DC-21A	3	ON - OFF	180	DC	17
DC-21A	3	ON - OFF	330	DC	6
DC-21A	3	ON - OFF	660	DC	1
DC-21A	4	ON - OFF	96	DC	21
DC-21A	4	ON - OFF	192	DC	18
DC-21A	4	ON - OFF	240	DC	17
DC-21A	4	ON - OFF	440	DC	6
DC-21A	5	ON - OFF	120	DC	21
DC-21A	5	ON - OFF	240	DC	18
DC-21A	5	ON - OFF	300	DC	17
DC-21A	5	ON - OFF	550	DC	6
DC-21A	6	ON - OFF	144	DC	21
DC-21A	6	ON - OFF	288	DC	18
DC-21A	6	ON - OFF	360	DC	17
DC-21A	6	ON - OFF	660	DC	6
DC-21A	8	ON - OFF	192	DC	21
DC-21A	8	ON - OFF	384	DC	18
DC-21A	8	ON - OFF	480	DC	17
DC-22A	1	ON - OFF	24	DC	25
DC-22A	1	ON - OFF	48	DC	25
DC-22A	1	ON - OFF	60	DC	16
DC-22A	1	ON - OFF	110	DC	2
DC-22A	1	ON - OFF	220	DC	0,30
DC-22A	2	ON - OFF	48	DC	18
DC-22A	2	ON - OFF	96	DC	17
DC-22A	2	ON - OFF	120	DC	16
DC-22A	2	ON - OFF	220	DC	2
DC-22A	2	ON - OFF	440	DC	0,30
DC-22A	3	ON - OFF	72	DC	18
DC-22A	3	ON - OFF	144	DC	17
DC-22A	3	ON - OFF	180	DC	16
DC-22A	3	ON - OFF	330	DC	2
DC-22A	3	ON - OFF	660	DC	0,30
DC-22A	4	ON - OFF	96	DC	18
DC-22A	4	ON - OFF	192	DC	17
DC-22A	4	ON - OFF	240	DC	16
DC-22A	4	ON - OFF	440	DC	2
DC-22A	5	ON - OFF	120	DC	18
DC-22A	5	ON - OFF	240	DC	17
DC-22A	5	ON - OFF	300	DC	16
DC-22A	5	ON - OFF	550	DC	2
DC-22A	6	ON - OFF	144	DC	18
DC-22A	6	ON - OFF	288	DC	17
DC-22A	6	ON - OFF	360	DC	16
DC-22A	6	ON - OFF	660	DC	2
DC-22A	8	ON - OFF	192	DC	18
DC-22A	8	ON - OFF	384	DC	17
DC-22A	8	ON - OFF	480	DC	16
DC-23A	1	ON - OFF	24	DC	25
DC-23A	1	ON - OFF	48	DC	25
DC-23A	1	ON - OFF	60	DC	14
DC-23A	1	ON - OFF	110	DC	1,70
DC-23A	1	ON - OFF	220	DC	0,20
DC-23A	2	ON - OFF	48	DC	16

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	2	ON - OFF	96	DC	15
DC-23A	2	ON - OFF	120	DC	14
DC-23A	2	ON - OFF	220	DC	1,70
DC-23A	2	ON - OFF	440	DC	0,20
DC-23A	3	ON - OFF	72	DC	16
DC-23A	3	ON - OFF	144	DC	15
DC-23A	3	ON - OFF	180	DC	14
DC-23A	3	ON - OFF	330	DC	1,70
DC-23A	3	ON - OFF	660	DC	0,20
DC-23A	4	ON - OFF	96	DC	16
DC-23A	4	ON - OFF	192	DC	15
DC-23A	4	ON - OFF	240	DC	14
DC-23A	4	ON - OFF	440	DC	1,70
DC-23A	5	ON - OFF	120	DC	16
DC-23A	5	ON - OFF	240	DC	15
DC-23A	5	ON - OFF	300	DC	14
DC-23A	5	ON - OFF	550	DC	1,70
DC-23A	6	ON - OFF	144	DC	16
DC-23A	6	ON - OFF	288	DC	15
DC-23A	6	ON - OFF	360	DC	14
DC-23A	6	ON - OFF	660	DC	1,70
DC-23A	8	ON - OFF	192	DC	16
DC-23A	8	ON - OFF	384	DC	15
DC-23A	8	ON - OFF	480	DC	14
Rated conditional short-circuit current					
Current (kA)		Text	cut-off current I _c (kA)		Durchlassenergie I²t (kA²s)
1		--	1,34		7,66
Rated breaking capacity					
Voltage (V)		Current (A)		Utilization category / UL (DOL)	
220 - 240		200		--	
380 - 440		200		--	
660 - 690		125		--	
Rated short-circuit making capacity I _{cm}					
					Current (A)
					700
UL60947-4-1 , UL508					
Nominal Voltage					
			Voltage (V) AC / DC		
			600 AC		
Rated insulation voltage U _i					
			Voltage (V) AC / DC		
			600 AC		
Rated thermal current					
Current (A)		Ambient temperature (°C)		Additional Text	
30		0 - 40		--	
Horsepower rating					
Across-the-Line Motor Starting			Voltage (V)	No. of phases	No. of poles Power (HP)
Reversing			110 - 120	1	2 0,33
Reversing			220 - 240	1	2 0,75
Reversing			277 - 277	1	2 1
Reversing			415 - 415	1	2 1,50
Reversing			440 - 480	1	2 2
Reversing			550 - 600	1	2 2
Reversing			110 - 120	3	3 1
Reversing			220 - 240	3	3 2
Reversing			415 - 415	3	3 3
Reversing			440 - 480	3	3 5
Reversing			550 - 600	3	3 5
DOL			110 - 120	1	2 1,50
DOL			220 - 240	1	2 3
DOL			277 - 277	1	2 3
DOL			415 - 415	1	2 3
DOL			440 - 480	1	2 5
DOL			550 - 600	1	2 5
DOL			110 - 120	3	3 3
DOL			220 - 240	3	3 7,50
DOL			415 - 415	3	3 7,50
DOL			440 - 480	3	3 10
DOL			550 - 600	3	3 10
Pilot duty rating code					
Duty Code					
A600					
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		
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	600	30	1	2	1
AC	600	30	3	3	1
Suitable as Motor disconnect					
Yes/No					
Y					
CSA					
Nominal Voltage					
			Voltage (V) AC / DC		
			600 AC		
Rated insulation voltage UI					
			Voltage (V) AC / DC		
			600 AC		
Rated thermal current					
		Current (A)	Ambient temperature (°C)		Additional Text
		30	0 - 40		--
Horsepower rating					
Across-the-Line Motor Starting			Voltage (V)	No. of phases	No. of poles Power (HP)
DOL			110 - 120	1	2 1,50
DOL			220 - 240	1	2 3
DOL			277 - 277	1	2 3
DOL			415 - 415	1	2 5
DOL			440 - 480	1	2 5
DOL			550 - 600	1	2 5
DOL			110 - 120	3	3 3
DOL			220 - 240	3	3 7,50
DOL			415 - 415	3	3 10
DOL			440 - 480	3	3 10
DOL			550 - 600	3	3 10
Pilot duty rating code					
Duty Code					
A600					
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	600	30	1	1	1
MASTER DATA					
Max. number of stages					
			number of stages Modul		
			12 FL		
Switch Measures					
Picture name	B	F	H	H1	H2 H3
	45	--	--	--	--
GENERAL TECHNICAL INFORMATION					
Tightening torque of screws					
			tightening torque (Nm)		tightening torque (lb-in)
			1		9
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	25
T≤1ms	1	ON - OFF		48 DC	20
T≤1ms	1	ON - OFF		60 DC	7,50
T≤1ms	1	ON - OFF		110 DC	1,50
T≤1ms	1	ON - OFF		220 DC	0,50
T≤1ms	1	ON - OFF		440 DC	0,30
T≤1ms	2	ON - OFF		48 DC	25
T≤1ms	2	ON - OFF		95 DC	20
T≤1ms	2	ON - OFF		120 DC	7,50
T≤1ms	2	ON - OFF		220 DC	1,50
T≤1ms	2	ON - OFF		440 DC	0,50
T≤1ms	2	ON - OFF		660 DC	0,30
T≤1ms	3	ON - OFF		70 DC	25
T≤1ms	3	ON - OFF		140 DC	20
T≤1ms	3	ON - OFF		180 DC	7,50
T≤1ms	3	ON - OFF		330 DC	1,50

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	3	ON - OFF	660 DC	0,50
T≤1ms	4	ON - OFF	95 DC	25
T≤1ms	4	ON - OFF	190 DC	20
T≤1ms	4	ON - OFF	240 DC	7,50
T≤1ms	4	ON - OFF	440 DC	1,50
T≤1ms	5	ON - OFF	120 DC	25
T≤1ms	5	ON - OFF	240 DC	20
T≤1ms	5	ON - OFF	300 DC	7,50
T≤1ms	5	ON - OFF	550 DC	1,50
T≤1ms	6	ON - OFF	145 DC	25
T≤1ms	6	ON - OFF	290 DC	20
T≤1ms	6	ON - OFF	360 DC	7,50
T≤1ms	6	ON - OFF	660 DC	1,50
T≤1ms	8	ON - OFF	190 DC	25
T≤1ms	8	ON - OFF	350 DC	20
T≤1ms	8	ON - OFF	450 DC	7,50
T=50ms	1	ON - OFF	24 DC	20
T=50ms	1	ON - OFF	30 DC	9
T=50ms	1	ON - OFF	48 DC	3
T=50ms	1	ON - OFF	60 DC	1,50
T=50ms	1	ON - OFF	110 DC	0,50
T=50ms	2	ON - OFF	48 DC	20
T=50ms	2	ON - OFF	60 DC	9
T=50ms	2	ON - OFF	95 DC	3
T=50ms	2	ON - OFF	120 DC	1,50
T=50ms	2	ON - OFF	220 DC	0,50
T=50ms	3	ON - OFF	70 DC	20
T=50ms	3	ON - OFF	90 DC	9
T=50ms	3	ON - OFF	140 DC	3
T=50ms	3	ON - OFF	180 DC	1,50
T=50ms	3	ON - OFF	330 DC	0,50
T=50ms	4	ON - OFF	95 DC	20
T=50ms	4	ON - OFF	120 DC	9
T=50ms	4	ON - OFF	190 DC	3
T=50ms	4	ON - OFF	240 DC	1,50
T=50ms	4	ON - OFF	440 DC	0,50
T=50ms	5	ON - OFF	120 DC	20
T=50ms	5	ON - OFF	150 DC	9
T=50ms	5	ON - OFF	240 DC	3
T=50ms	5	ON - OFF	300 DC	1,50
T=50ms	5	ON - OFF	550 DC	0,50
T=50ms	6	ON - OFF	145 DC	20
T=50ms	6	ON - OFF	180 DC	9
T=50ms	6	ON - OFF	290 DC	3
T=50ms	6	ON - OFF	360 DC	1,50
T=50ms	6	ON - OFF	660 DC	0,50
T=50ms	8	ON - OFF	190 DC	20
T=50ms	8	ON - OFF	240 DC	9
T=50ms	8	ON - OFF	350 DC	3
T=50ms	8	ON - OFF	450 DC	1,50

Stripping length

Length (mm) --

9 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_{cw}

Time (s)

1

Current (A)

280

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	0.75mm ²	Copper
solid wire	Min.	2	0.75mm ²	Copper
flexible wire	Max.	2	AWG 12	Copper
flexible wire	Max.	2	4mm ²	Copper
flexible wire	Min.	1	1.5mm ²	Copper
flexible wire	Min.	2	1.5mm ²	Copper
Single-core or stranded wire	Max.	2	AWG 10	Copper
Single-core or stranded wire	Max.	2	4mm 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	1mm ²	Copper
flexible wire with ferrule according to DIN 46228	Min.	2	1mm ²	Copper

Approbations

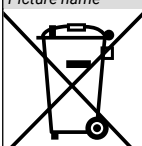
Specification

Marking

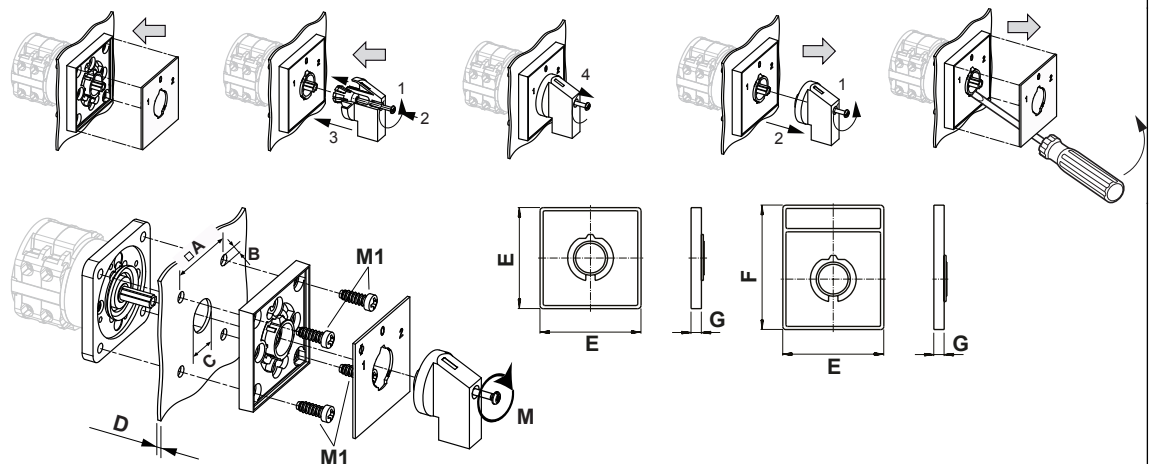
EAC



Approbations										Marking
Specification										
CE marking										
UK Directives										IEC 60947-3 EN 60947-3
IEC 60947-3; EN 60947-3; VDE 0660 Teil107										
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".
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	
--	0,59	--	220	10	1000000	1	AC	1	1	
--	0,59	--	220	15	500000	1	AC	1	1	
--	0,64	--	220	20	200000	1	AC	1	1	
--	0,65	--	380	5	500000	1	AC	1	1	
--	0,64	--	380	10	500000	1	AC	1	1	
--	0,64	--	380	15	300000	1	AC	1	1	
--	0,65	--	380	20	200000	1	AC	1	1	
AC-3	--	--	440	15,50	200000	1	AC	3	3	
AC-23	--	--	440	22	200000	1	AC	3	3	
AC-3	--	--	690	9	200000	1	AC	3	3	
AC-23	--	--	690	13	200000	1	AC	3	3	
AC-22	--	--	690	25	100000	1	AC	3	3	
--	--	1	24	25	200000	1	DC	1	1	
--	--	1	48	20	200000	1	DC	1	1	
--	--	1	60	10	90000	1	DC	1	1	
--	--	1	110	1,50	140000	1	DC	1	1	
--	--	1	220	0,50	200000	1	DC	1	1	
--	--	1	440	0,30	200000	1	DC	1	1	
--	--	50	24	1	400000	1	DC	1	1	
--	--	50	24	20	8000	1	DC	1	1	
--	--	50	30	9	50000	1	DC	1	1	
--	--	50	48	1	80000	1	DC	1	1	
--	--	50	48	4	100000	1	DC	1	1	
--	--	50	50	4	100000	1	DC	1	1	
--	--	50	60	2	90000	1	DC	1	1	
--	--	50	110	0,50	200000	1	DC	1	1	
--	--	55	110	1	200000	1	DC	1	1	
--	--	55	110	1,50	100000	1	DC	1	1	
--	--	55	220	0,50	100000	1	DC	1	1	
--	--	100	110	0,50	100000	1	DC	1	1	
--	--	100	110	1	48000	1	DC	1	1	
Recommended screw driver										
Type of screw driver				Value						
Cross Screwdriver				PH1						
Flat blade				0,8x5,5						
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						
Resistance to shock				Min. 5g, 6ms						
Resistance to shock				min. 5g, 30ms						

Shock / Vibration	
Type of oscillation	Values
Resistance to vibration	IEC 61373 (1999) Category 1, Class B
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) 12,70
Clearance	Distance (mm) 9,50
Distance of stages	Distance (mm) 12,70
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

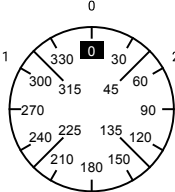
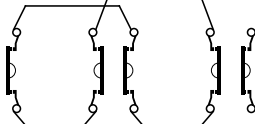
Wiring diagram

CA20.A401.EF



Kraus & Naimer

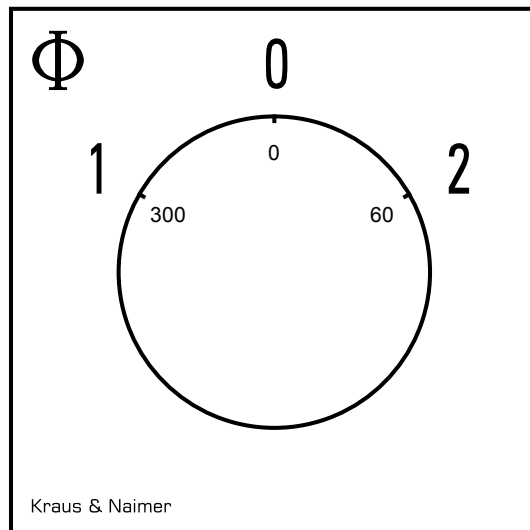
CA20
A401
Page 1 of 1

Face Plate													
													
		1	3	5	7	9	11	13	15	17	19	21	23
Switching Angle 60 Total switching Angle 120		2	4	6	8	10	12	14	16	18	20	22	24
1	300												
	315												
0	330												
	345												
2	0												
	15												
2	30												
	45												
2	60												
	75												
2	90												
	105												
2	120												
	135												
2	150												
	165												
2	180												
	195												
2	210												
	225												
2	240												
	255												
2	270												
	285												

Version: 60

Face plate

S0.F071/A1B.PEL



HANDLES

Designation: S0C.G251

Handle colour: "1" black

