

ROTARY CAM SWITCHES

Approvals: **CE EAC**
 IEC 60947-3, EN 60947-3
 Permissible ambient temperature °C: -25 to +55



TYPE		BS 16	BS 25	BS 32	BS 40	BS 63	BS 80	BS 100	BS 125	BS 200	BS 400 BS 630		
Rated insulation voltage	U _i V	690	690	690	690	690	690	690	690	690	690		Degree of protection:
Rated thermal current (θ ≤ 35°C)	I _{th} A	20	25	32	40	63	80	100	125	200	400/630		IP 65
Rated operational current I _e AC1/AC21	A	20	25	32	40	63	70	75	120	200	400/630		PN2BS 63 - IP 55 PN3BS 80 - IP 54 PN3BS 100 - IP 54
Rated operational current I _e AC15	220/230 V A	8	20	25	30	40	-	-	-	-	-		
Motor switch in utilisation category AC3/AC23 380/400 V	kW	5/7.5	7.5/11	11/15	15/18.5	18.5/22	22/32	32/37	41/41	60/60	60/60		
Mechanical endurance	switching cycles	10 ⁶	3	3	3	2	1	1	0.3	0.1	0.05		
Terminal screw		M3.5	M3.5	M4	M5	M5	2xM5	2xM5	M8	M10	M12/M16		
Cable cross-section	rigid	mm ²	2x(1-4) 1-6**	2x(1-4) 1-6**	2x(2,5-6) 1-10**	2x(2.5-10)	2x(4-16)	10-25	10-25	16-35	70-95 ²	△	△
	flexible	mm ²	2x(1-4)	2x(1-4)	2x(2,5-6) 1-10**	2x(2.5-10)	2x(4-16)	6-25 2x(6-16)	6-25 2x(6-16)	16-35	70-95 ²	△	△

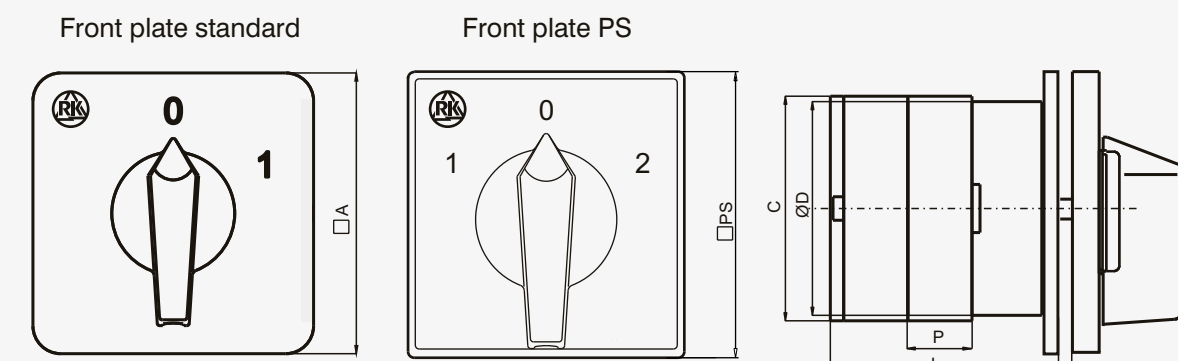
**Only for diagrams without inside links
² Connections valid for lugs with cables having a section; min. 70 mm², max. 95 mm².
 △ Connection valid to connect copper bars.

SURVEY OF THE MOST FREQUENT SWITCHING DIAGRAMS

FUNCTION	Escutch. plate	No. of diagram	DIAGRAM	No. of elem.	FUNCTION	Front plate	No. of diagram	DIAGRAM	No. of elem.
SWITCHES WITH 60° SWITCHING ANGLE									
1 pole		90		1	MOTOR CONTROL SWITCHES (Dahlander)				
2 pole		91		2	Standard version		19		4
3 pole		10		3	VOLTMETER SWITCHES				
4 pole		92		4	3 line voltage and 3 phase voltage		66		3
5 pole		99		5	AMMETER SWITCHES				
6 pole		100		6	2 pole 0-position 3 current (with or without current transformers)		97		6
CHANGEVER SWITCHES WITH "0"- 60° SWITCHING									
1 pole		51		1	Other circuit diagrams (schema) on request.				
2 pole		52		2					
3 pole		53		3					
4 pole		75		4					
5 pole		76		5					
6 pole		77		6					
MOTOR REVERSING SWITCHES									
3 pole		11		3					
STAR - DELTA SWITCHES									
Standard version		12		4					



MODEL OF FRONT PLATE "PS"



TYPE	MARKING		NUMBER OF ELEMENTS (L/mm)															
	□A	□PS	B	C	ØD	P	1	2	3	4	5	6	7	8	9	10	11	12
BS 16	51,2	48	27,2	45,2	38,6	12,8	32,5	45,3	58,1	70,9	83,7	96,5	109,3	122,1	134,9	147,7	160,5	173,3
BS 25																		
BS 32	72	65	33	53	38,6	12,8	37	49,8	62,6	75,4	88,2	101	113,8	126,6	139,4	152,2	165	177,8
BS 40	72	65	33	61	56,4	17,5	50,6	68,1	85,6	103,1	120,6	138,1	155,6	173,1	190,6	208,1	225,6	243,1
BS 63	72	65	33	68,6	56,4	20,5	42,5	63	83,5	104	124,5	145	165,5	186	206,5	227	247,5	268
BS 80																		
BS 100	105	90	41	84	80	25	67,5	92,5	117,5	142,5	167,5	192,5	217,5	242,5	267,5	292,5	317,5	342,5
BS 125							30	91	121	151	181							
BS 200							39	100	139	178	217							
BS 400	130	130	62	110	110		39	100	139	178	217	-	295					
BS 630							39	-	139	178	-	256	295	-	-	412		

ORDERING INSTRUCTION

Type _____

No. of diagram _____

Mounting from:
 Front mounting - U; Rear mounting - O

Front part - Optional:
 PS - (handle black and front plate model PS) - on request
 LK - (red knob and yellow plate for main emergency on - off switch)
 ES - (handle-red and front plate-yellow)

***ES** - General emergency on - off switch
 Sizes : BS 16;; BS 100

MOULDED CASE CIRCUIT BREAKERS

Approvals: **CE EAC**
 IEC 60947-2, EN 60947-2



TYPE	KP 125-F	KP 250-F	KP 800-F	KP 800-F/ KP 800-FE	KP 1250-FE	KP 1600-FE	KP 2500-FE
Standard conformity	IEC 60947-2/EN 60947-2						
No. of poles	3,4P	3,4P	3P	3,4P	3,4P	3P	3P
Standard current range/ratings I _n	A 16, 25, 40, 63, 80, 100, 125	160, 200, 250	300, 400, 500, 630	800/300, 400, 500, 630, 800	1000, 1250	1600	2000, 2500
Rated operational voltage U _{e~}	V 415	415	415	415	415	415	415
Rated insulation voltage U _{i~}	V 800	800	800	800	800	800	800
Rated impulse withstand voltage U _{imp}	kV 8	8	8	8	8	8	8
Category of use	A	A	A	A	A	A	A
Degree of protection: Appliance with terminal shields Appliance in enclosure with front plate	IP 30 IP 40		IP 30 IP 40		IP 00 IP 40		
Polution degree	III						
Ambient temperature °C	-5 to +60		-5 to +60/ -5 to +40		-5 to +40		
Ultimate breaking capacity I _{cu} *	230/240 V ~	kA 35	65	70	75	80	85
	400/415 V ~	kA 25	35	50	50	50	50
	440 V ~	kA 20	25	40	40/35	35	40
	480/500 V ~	kA 12	18	35	30	25	30
	690 V ~	kA 8	12	25	20	18	20
250 V -	kA 15	22	22	20/-	-	-	-
Standard breaking capacity I _{cs} (%I _{cu})*	kA 75	100	50	100	50	50	100
Rated short circuit making capacity (415 V~)	kA _{peak} 53	74	74	105	105	105	105
Endurance (o.c. cycle)	mechanical	≥15 000	≥15 000	≥15 000	≥15 000	≥15 000	≥15 000
	electrical	3 000	3 000	3 000	3 000	3 000	3 000
Type of protection							
Rated current adjustment area - I ₁	(0,8 - 1)I _n	(0,7 - 1)I _n	(0,7 - 1)I _n	(0,7 - 1)I _n / (0,4 - 1)I _n	(0,4 - 1)I _n	(0,4 - 1)I _n	(0,4 - 1)I _n
Instant opening current adjustment - I ₂	8I _n (min 600A)	(5 - 10)I _n	(5 - 10)I _n	(5 - 10)I _n / (2 - 10)I _n	(2 - 10)I _n	(2 - 10)I _n	(2 - 10)I _n

* The LINE side is the upper side. LOAD is to be connected on the down side.
 (*) On request for KP 250-F magnetic can be fixed or adjustable.

ORDERING INSTRUCTION FOR MOLDED CASE CIRCUIT BREAKERS

Type _____

Rated current _____

No. of poles (3 or 4) _____

Part No. of additional elements _____

Example: Moulded case circuit breaker type KP 125-F for rated current 100A, 3 poles, with shunt trip release

KP 125-F 100A 3P KP DF1

For additional elements see General Catalogue.



LOW VOLTAGE SWITCHGEAR

CONTACTORS ROTARY CAM SWITCHES
 THERMAL OVERLOAD RELAYS MOULDED CASE CIRCUIT BREAKERS

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CONTACTORS



Permissible ambient temperature °C: -25 to +55

le (Ith)	AC 1 (θ ≤ 35°C)	A	10 (16)	10 (16)	20	25	25	30/30	40 / 40	50	50	85	85 / 90(125)	95(135)	105(135)	115(135)	115	160	200	250	300	390	400
le	AC 3 (Ue = 400V)	A	-	-	9/12	9	12	18/22	25 / 30	32	38	50	60 / 65	80	90	100	110	140	170	200	250	315	400
le	AC 15 (Ue = 230V)	A	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		mm²	2,5	2,5	1 - 2,5	1,5 - 6	1,5 - 6	1,5 - 6	2,5 - 10	2,5 - 10	2,5 - 10	6 - 35	6 - 35	6 - 35	25 - 50	25 - 50	25 - 50	50 - 120	50 - 120	50 - 120	70 - 240	70 - 240	70 - 240
		AWG	12	12	18 - 12	16 - 10	16 - 10	16 - 10	14 - 8	14 - 8	14 - 8	8 - 2	8 - 2	8 - 2	4 - 0	4 - 0	4 - 0	0 - 250 MCM	0 - 250 MCM	0 - 250 MCM	00 - 500 MCM	00 - 500 MCM	00 - 500 MCM
	AC 3 3 ~ 50 Hz	230 V kW 400 V kW 690 V kW	- - -	- - -	3 / 3.2 4 / 5.5 4 / 5.5	3.2 4.5 5.5	3.5 5.7 7.5	4/5.5 7.5/11 10/11	5,5 / 7,5 11 / 15 15 / 15	7.5 15 18.5	11 18.5 22	15 22 33	18,5 / 18,5 30 / 33 37 / 37	22 37 55	26 45 67	30 55 67	37 55 90	45 75 100	55 90 132	60 110 155	75 132 160	90 160 200	115 200 355
	AC 3 3 ~ 60 Hz	230 V Hp 460 - 480 V Hp 575 V Hp	- - -	- - -	3 5 / 7.5 7.5 / 10	3 5 7.5	3 5 7.5	5,5 10 15	7,5 15 20	11 20 25	15 30 40	20 30 40	25 50 60	30 60 75	30 70 100	40 70 100	50 100 125	60 125 150	75 150 200	75 150 200	100 180 220	100 220 250	155 270 355

CONTACTORS FOR CONTROL WITH

CP0	CNNP	CM1 / CM1N	CNN 9	CNN 12	CNN 18/22	CNN 25 / 30	CNN 32	CNN 40	CNN 50	CNN 60 / 70	CNN 80	CNN 90	CNN 100	CNM 110	CNM 140	CNM 170	CNM 200	CNM 250	CNM 315	CNM 400
4 0 3 1 2 2 1 3 0 4	3 1 2 2 1 3 0 4	1 0 0 1	1 0 0 1	1 0 0 1	1 0 0 1									2 2 4 4	2 2 4 4	2 2 4 4	2 2 4 4	2 2 4 4	2 2 4 4	2 2 4 4

Auxiliary contacts: (NO), (NC)

Coil voltage: 24V, 48V, 110V, 220/230V, 380/400V, 575V, 60Hz or DC

Electromagnet (coil) consumption: open / closed VA

Dimensions (a x b x c): CMM, CMM

Weights: CMM, CMM

Reversing contactors with electrical and mechanical interlock: Type

Auxiliary block for CP0 and CM1: BP0 (4-pole, front mounted), BP1 (1-pole, Side mounted), MB1 (Mechanical interlock for CP0, CM1)

Mechanical interlock for CNN 9 - CNN 40: MB2 (2-pole, front mounted)

Auxiliary block for CNN 9 - CNN 70 and CNNP: BP2, BP2N, BP4, BP4N (4-pole, front mounted)

Auxiliary block for CNN 9 - CNN 70 and CNNP: BP3 (2-pole, Side mounted)

Auxiliary block for CNN 50 - CNN 100: BP5 (2-pole, Side mounted)

Auxiliary block only for CNM 110: 733892S, 733891S (Right/Left, 1 1)

Auxiliary block for CNM 140 - CNM 400: 155089S, 155087S (Left/Right, 1 1)

THERMAL OVERLOAD RELAYS

IEC 60947-4-1, EN 60947-4-1

Approvals: CE, ENEC

- Ambient temperature compensated
- Differential tripping
- Selective manual or auto reset
- Trip indication
- Auxiliary contacts (1NO + 1NC)
- Permissible ambient temperature -5 to +50 C

CURRENT RANGES (A) (from - to)

TM 40	TRM 75-N60	TRM 75 N90	TRM 75-110	TRM 400D*	TRM 400
0.1 - 0.16, 0.16 - 0.25, 0.25 - 0.4, 0.45 - 0.63, 0.55 - 0.8, 0.75 - 1, 0.9 - 1.3	1.1 - 1.6, 1.4 - 2.0, 1.8 - 2.5, 2.3 - 3.2, 2.9 - 4.0, 3.5 - 4.8, 4.5 - 6.3	5.5 - 7.5, 7.2 - 10, 9 - 12.5, 11.3 - 16, 15 - 20	21 - 25*, 24.5 - 30*, 29 - 36*, 33 - 38*	16 - 25, 20 - 32, 25 - 40, 32 - 50, 40 - 57, 50 - 63, 57 - 70, 63 - 80	70 - 100, 90 - 130, 110 - 160, 140 - 200, 160 - 250

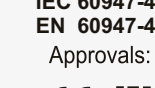
Release time classification: class 10A, class 10

Weights: kg

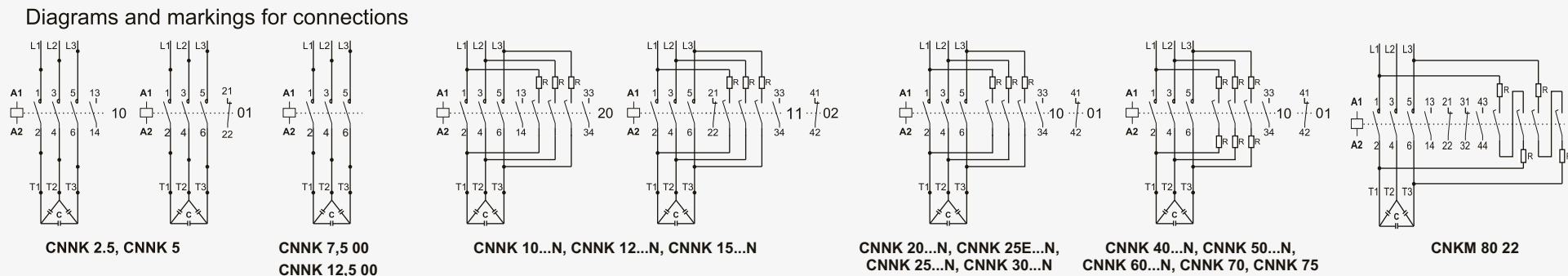
For mounting on contactor: CNN 9; CNN 12; CNN 18; CNN 22; CNN 25; CNN 30; CNN 32; CNN 40; CNN 50; CNN60; CNN 70; CNN 80; CNN 90; CNN 100; CNM 110

Adapter for individual mounting support: ASM 40, ASM 75

CAPACITOR CONTACTORS



Type designation	CNNK 2.5 10(01) CNNK 5 10(01) CNNK 7.5 00 CNNK 12.5 00	CNNK 10 20N CNNK 10 11N CNNK 10 02N	CNNK 12 20N CNNK 12 11N CNNK 12 02N	CNNK 15 20N CNNK 15 11N CNNK 15 02N	CNNK 20 10N CNNK 20 01N	CNNK 25E 10N** CNNK 25 10N** CNNK 25 01N*	CNNK 30 10N CNNK 30 01N	CNNK 40 10N CNNK 40 01N CNNK 50 10N CNNK 50 01N	CNNK 60 10N CNNK 60 01N	CNNK 70 10 CNNK 70 01 CNNK 75 10 CNNK 75 01	CNNK 80 22
Capacitor rating at 230V kVar	1.4/2.8/4/6.7	5	6.7	8.5	11	14	20	25/29	32	35/38	45
400V kVar	2.5/5/7.5/12.5	10	12.5	15	20	25	30	40/50	60	70/75	80
690V kVar	3.7/7.5/11/18	15	18	22	30	35	40	58/70	80	90/105	115
Rated current	A 3.6/7.2/11/18	14	18	22	29	36	44	58/72	87	101/108	116
Weights	kg 0.25/0.26/0.27/0.4	0.32	0.32	0.325	0.333	0.45/0.52	0.52	0.94	0.97	1.4/1.5	2.45



*Contactor type CNNK 25...N - equipped with additional terminal blocks for connecting bare cables from 6 - 25 mm²
 **Contactor type CNNK 25E...N - for connecting bare cables from 4 - 10 mm²

THERMAL CONTACTORS for SWITCHING RESISTIVE LOADS from TKN 65, TKN 115, TK 130 and TK 175

le (Ith)	AC 1 (θ ≤ 55°C)	A	65	115	130	175
Switching resistive load	AC1 Ue = 220/230V	kW	25	44	50	67
p.f. ≈ 1	Ue = 38	kW	43	76	85	115
Multi - wire conductor		mm ²	6 - 16	16 - 35	50	70
Multi - wire conductor with cable shoe		mm ²			50/8	70/8
Cable shoe					50/8	70/8
CONTACTORS FOR CONTROL WITH	AC		TKN 65	TKN 115	TK 130	TK 175
Auxiliary contacts	(NO), (NC)				2 2	2 2
Coil voltages	24V, 48V, 110V, 220/230V, 380/400V, 50Hz, 60Hz					
Electromagnet (coil) consumption	open / closed VA		62/7	150/12	300/26	300/26
Motor operation AC2 and AC3		(A)	32	65	90	110
Rated operational current Ie at 380/400V		kW	15	33	45	55
Motor power at 380/400V						
Dimensions (a x b x c)	mm		45 x 115 x 85	55 x 122 x 109	100 x 158 x 140	100 x 158 x 140
Weights	kg		0,45	0,90	2,42	2,42

Additional terminal blocks

Part number: 601478

Set of 2 additional terminal blocks for connecting multi-wired conductor from 6 up to 25 mm² for Contactors CNN 32 - CNN 40