

## ROTARY CAM SWITCHES

IEC 60947-3  
EN 60947-3  
Approvals:

Permissible ambient temperature °C: -25 to + 55

| TYPE  | BS 16                | BS 25           | BS 32     | BS 40     | BS 63     | BS 80      | BS 100   | BS 120 | BS 160 | BS 125 | BS 200 | BS 400<br>BS 630 | PNBS 16<br>PNBS 25 | PNGBS 25<br>PNGBS 32<br>PNGBS 40 | PNGBS 25 LK<br>PNGBS 32 LK<br>PNGBS 40 LK |  |
|---|----------------------|-----------------|-----------|-----------|-----------|------------|----------|--------|--------|--------|--------|------------------|--------------------|----------------------------------|---|--|
| Rated insulation voltage U <sub>i</sub>                     | V                    | 690             | 690       | 690       | 690       | 690        | 690      | 690    | 690    | 690    | 690    | 690              |                    |                                  |   |  |
| Rated thermal current I <sub>th</sub> (Δt ≤ 40 °C)          | A                    | 20              | 25        | 32        | 40        | 63         | 80       | 100    | 125    | 150    | 125    | 200              | 400/630            |                                  |   |  |
| Rated operational current I <sub>e</sub> AC1/AC21           | A                    | 20              | 25        | 32        | 40        | 63         | 75       | 85     | 100    | 120    | 200    | 400/630          |                    |                                  |   |  |
| Rated operational current I <sub>e</sub> AC15               | A                    | 8               | 20        | 25        | 30        | 40         | -        | -      | -      | -      | -      | -                |                    |                                  |   |  |
| Rated operational current I <sub>e</sub> AC3/AC23 380/400 V | kW                   | 5/7.5           | 7.5/11    | 11/15     | 15/18.5   | 18.5/22    | 22/32    | 32/37  | 32/37  | 32/37  | 41/41  | 60/60            | 60/60              |                                  |   |  |
| Mechanical endurance switching cycles                       | 10 <sup>6</sup>      | 3               | 3         | 3         | 3         | 2          | 1        | 1      | 1      | 1      | 0.3    | 0.1              | 0.05               |                                  |   |  |
| Terminal screw  |                      | M3.5            | M3.5      | M4        | M5        | M5         | 2xM5     | 2xM5   | M8     | M8     | M8     | M10              | M12/M16            |                                  |   |  |
| Cable cross-section   | rigid acc. to IEC    | mm <sup>2</sup> | 2x(1-4)   | 2x(1-4)   | 2x(2.5-6) | 2x(2.5-10) | 2x(4-16) | 10-25  | 10-25  |        |        |                  | Copper bars        | Copper bars                      |   |  |
|   | flexible acc. to IEC | mm <sup>2</sup> | 2x(1-2.5) | 2x(1-2.5) | 2x(2.5-6) | 2x(2.5-6)  | 2x(4-10) | 6-25   | 6-25   | 16/50  | 16/50  | 16/35            | 70-95              | 70-240                           |   |  |

BS 160 and BS 400 - 2 contacts per pole; BS 630 - 3 contacts per pole

## SURVEY OF THE MOST FREQUENT SWITCHING DIAGRAMS

| FUNCTION | Escutch. plate | No. of diagram | DIAGRAM | No. of elem. |
|----------|----------------|----------------|---------|--------------|
| 1 pole   |                | 90             |         | 1            |
| 2 pole   |                | 91             |         | 2            |
| 3 pole   |                | 10             |         | 2            |
| 4 pole   |                | 92             |         | 2            |
| 5 pole   |                | 99             |         | 3            |
| 6 pole   |                | 100            |         | 3            |

## CHANGEOVER SWITCHES WITH "0"- 60° SWITCHING

| FUNCTION | Escutch. plate | No. of diagram | DIAGRAM | No. of elem. |
|----------|----------------|----------------|---------|--------------|
| 1 pole   |                | 51             |         | 1            |
| 2 pole   |                | 52             |         | 2            |
| 3 pole   |                | 53             |         | 3            |
| 4 pole   |                | 75             |         | 4            |
| 5 pole   |                | 76             |         | 5            |
| 6 pole   |                | 77             |         | 6            |

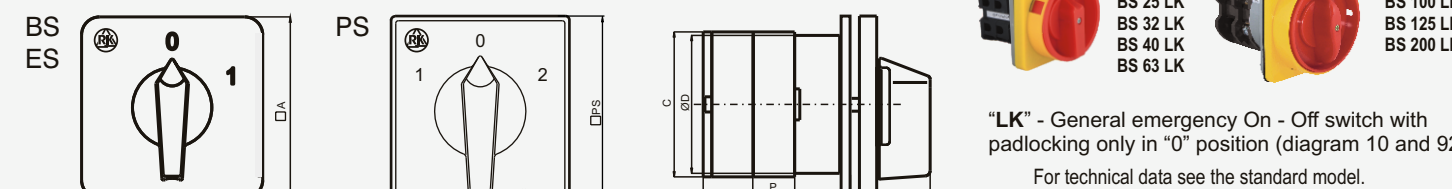
## MOTOR REVERSING SWITCHES

| FUNCTION | Escutch. plate | No. of diagram | DIAGRAM | No. of elem. |
|----------|----------------|----------------|---------|--------------|
| 3 pole   |                | 11             |         | 3            |

## STAR - DELTA SWITCHES

| FUNCTION         | Escutch. plate | No. of diagram | DIAGRAM | No. of elem. |
|------------------|----------------|----------------|---------|--------------|
| Standard version |                | 12             |         | 4            |

## FRONT PLATES MODEL EXAMPLES



"LK" - General emergency On - Off switch with padlocking only in "0" position (diagram 10 and 92)

For technical data see the standard model.  
Example: for BS 16 LK see BS 16  
Example: for PNBS 16 see BS 16

## MOTOR CONTROL SWITCHES (Dahlander)

| FUNCTION         | Front plate | No. of diagram | DIAGRAM | No. of elem. |
|------------------|-------------|----------------|---------|--------------|
| Standard version |             | 19             |         | 4            |

## VOLTMETER SWITCHES

| FUNCTION                           | Front plate | No. of diagram | DIAGRAM | No. of elem. |
|------------------------------------|-------------|----------------|---------|--------------|
| 3 line voltage and 3 phase voltage |             | 66             |         | 3            |

## AMMETER SWITCHES

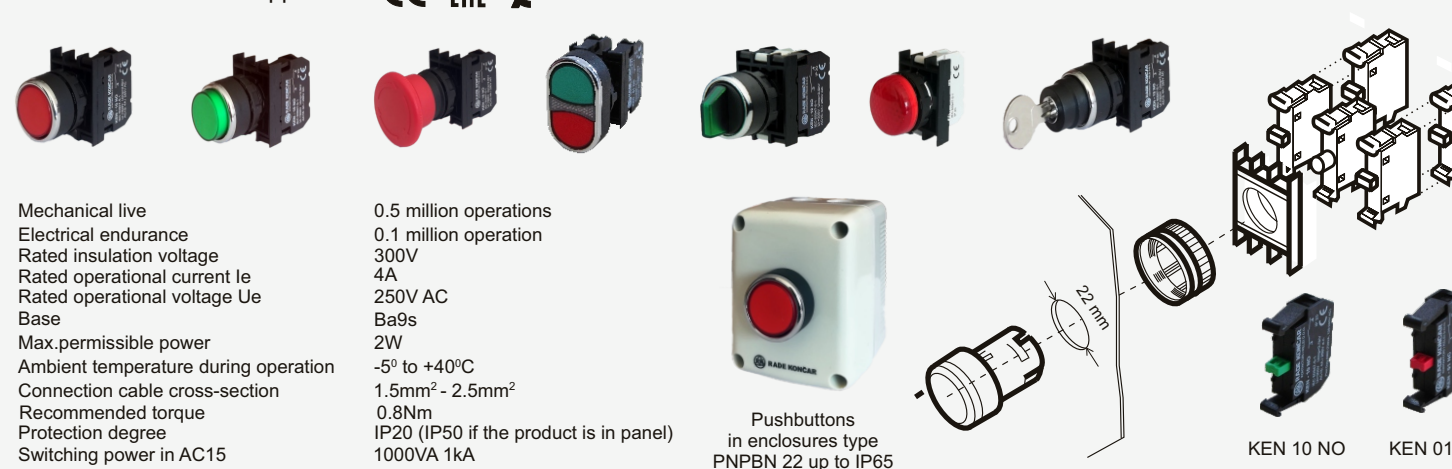
| FUNCTION   | Front plate | No. of diagram | DIAGRAM | No. of elem. |
|--|-------------|----------------|---------|--------------|
| 2 pole 0-position 3 current (with or without current transformers) |             | 97             |         | 6            |

Other circuit diagrams (schema) on request.

| 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 120 |         |     |      |                           |      |      |      |      |       |       |       |       |       |       |       |       |       |       |
| BS 160 |         |     |      |                           |      |      |      |      |       |       |       |       |       |       |       |       |       |       |
| BS 125 |         |     |      |                           |      |      | 30   | 72   | 101,5 | 131,5 | 161,5 |       |       |       |       |       |       |       |
| BS 200 |         |     |      |                           |      |      | 38,8 | 80,3 | 119,1 | 157,9 | 196,7 |       |       |       |       |       |       |       |
| BS 400 | 130     | 130 | 62   | 110                       | 110  |      | 38,8 | 80,3 | 119,1 | 157,9 | 196,7 | -     | 274,3 |       |       |       |       |       |
| BS 630 |         |     |      |                           |      |      | 38,8 | -    | 119,1 | 157,9 | -     | 235,5 | 274,3 | -     | -     | 390,7 |       |       |

## PUSHBUTTONS type PBN 22 ... and Pilot lights - PBN 22-31

IEC 60947-5-1 Approvals:



## MOULDED CASE CIRCUIT BREAKERS

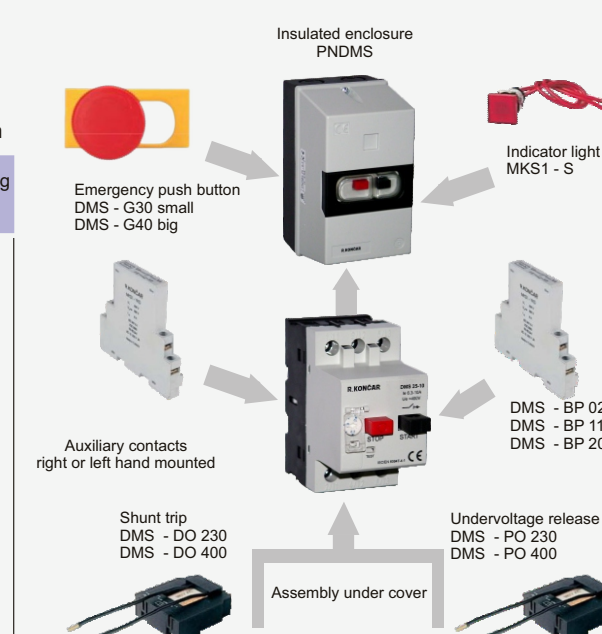
IEC 60947-2 EN 60947-2 Approvals:

| Type designation  | KP 125-F                     | KP 250-F                | KP 400-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 P  | 3/4                          | 3/4                     | 3                       | 3                       | 3/4                        | 3/4                     | 3                       | 3                       |                         |
| Standard current range/ratings I <sub>n</sub>                     | 16, 25, 40, 63, 80, 100, 125 | 160, 200, 250           | 400                     | 300, 400, 500, 630, 800 | 300, 400, 500, 630, 800    | 1000, 1250              | 1600                    | 2000, 2500              |                         |
| Rated operational voltage U <sub>e~</sub>                         | V                            | 415                     | 415                     | 415                     | 415                        | 415                     | 415                     | 415                     |                         |
| Type of circuit breaker   | Thermal circuit breaker      |                         |                         |                         | Electronic circuit breaker |                         |                         |                         |                         |
| Rated insulation voltage U <sub>i~</sub>                          | V                            | 800                     | 800                     | 800                     | 800                        | 800                     | 800                     | 800                     |                         |
| Rated impulse withstand voltage U <sub>imp</sub>                  | kV                           | 8                       | 8                       | 8                       | 8                          | 8                       | 8                       | 8                       |                         |
| Category of use   | A                            | A                       | A                       | A                       | A                          | A                       | A                       | A                       |                         |
| Degree of protection: Appliance with terminal shields             | IP 30                        |                         |                         |                         | IP 00                      |                         |                         |                         |                         |
| Appliance in enclosure with front plate                           | IP 40                        |                         |                         |                         | IP 40                      |                         |                         |                         |                         |
| Pollution degree  | III                          |                         |                         |                         |                            |                         |                         |                         |                         |
| Weight  | kg                           | 1.0                     | 2.3                     | 4.7                     | 5.5                        | 8.0/10.0                | 18.00                   | 27.0                    | 54.0                    |
| Ambient temperature   | °C                           | -5 to +60               |                         |                         |                            | -5 to +40               |                         |                         |                         |
| Ultimate breaking capacity I <sub>cu</sub> *                      | 230/240 V ~ kA               | 35                      | 65                      | 70                      | 70                         | 75                      | 80                      | 80                      | 85                      |
|   | 400/415 V ~ kA               | 25                      | 35                      | 50                      | 50                         | 50                      | 50                      | 50                      | 50                      |
|   | 440 V ~ kA                   | 20                      | 25                      | 40                      | 40                         | 40/35                   | 35                      | 40                      | 35                      |
|   | 480/500 V ~ kA               | 12                      | 18                      | 35                      | 35                         | 30                      | 25                      | 25                      | 30                      |
|   | 690 V ~ kA                   | 8                       | 12                      | 25                      | 25                         | 20                      | 18                      | 20                      | 20                      |
| Standard breaking capacity I <sub>cs</sub> (%I <sub>cu</sub> *)   | kA                           | 15                      | 22                      | 20                      | 22                         | 20/-                    | -                       | -                       | -                       |
| Rated short circuit making capacity (415 V~) I <sub>cs</sub> peak | kA                           | 75                      | 100                     | 100                     | 100                        | 100                     | 50                      | 50                      | 100                     |
| Endurance (o.c. cycle) mechanical                                 |                              | 53                      | 74                      | 74                      | 74                         | 105                     | 105                     | 105                     | 105                     |
| Endurance (o.c. cycle) electrical                                 |                              | ≥15 000                 | ≥15 000                 | ≥15 000                 | ≥15 000                    | ≥15 000                 | ≥15 000                 | ≥15 000                 | ≥15 000                 |
| Type of protection  |                              |                         |                         |                         |                            |                         |                         |                         |                         |
| Rated current adjustment area - I <sub>n</sub>                    | (0,8 - 1)I <sub>n</sub>      | (0,7 - 1)I <sub>n</sub> | (0,7 - 1)I <sub>n</sub> | (0,7 - 1)I <sub>n</sub> | (0,7 - 1)I <sub>n</sub>    | (0,7 - 1)I <sub>n</sub> | (0,4 - 1)I <sub>n</sub> | (0,4 - 1)I <sub>n</sub> | (0,4 - 1)I <sub>n</sub> |
| Instant opening current adjustment - I <sub>n</sub>               | 8I <sub>n</sub> (min 600A)   | (5 - 10)I <sub>n</sub>  | (5 - 10)I <sub>n</sub>  | (5 - 10)I <sub>n</sub>  | (5 - 10)I <sub>n</sub>     | (5 - 10)I <sub>n</sub>  | (2 - 10)I <sub>n</sub>  | (2 - 10)I <sub>n</sub>  | (2 - 10)I <sub>n</sub>  |

## MOTORT PROTECTION CIRCUIT BREAKERS - DMS 25

IEC 60947-4-1 EN 60947-4-1 Approvals:

| Type          | Rated continuous current (A) | Switching capacity I <sub>cu</sub> /400V (kA) | Responded current of short-circuit release (A) | Weight [g] | Packing [pcs] |
|---------------|------------------------------|---|--|------------|---------------|
| DMS 25 - 0.16 | 0.1 - 0.16                   | 100   | 1.92   | 220        | 1             |
| DMS 25 - 0.25 | 0.16 - 0.25                  | 100   | 3  | 220        |               |
| DMS 25 - 0.4  | 0.25 - 0.4                   | 100   | 4.8  | 220        |               |
| DMS 25 - 0.63 | 0.4 - 0.63                   | 100   | 7.6  | 220        |               |
| DMS 25 - 1    | 0.63 - 1                     | 100   | 12   | 220        |               |
| DMS 25 - 1.6  | 1 - 1.6                      | 6   | 19.2   | 220        |               |
| DMS 25 - 2.5  | 1.6 - 2.5                    | 6   | 30   | 220        |               |
| DMS 25 - 4    | 2.5 - 4                      | 6   | 48   | 220        |               |
| DMS 25 - 6.3  | 4 - 6.3                      | 6   | 75.6   | 220        |               |
| DMS 25 - 10   | 6.3 - 10                     | 6   | 120  | 220        |               |
| DMS 25 - 16   | 10 - 16                      | 6   | 192  | 220        |               |
| DMS 25 - 20   | 16 - 20                      | 6   | 240  | 220        |               |
| DMS 25 - 25   | 20 - 25                      | 6   | 300  | 220        |               |



Safe and reliable

# LOW VOLTAGE SWITCHGEAR

CONTACTORS  
THERMAL OVERLOAD RELAYS  
PUSHBUTTONS

ROTARY CAM SWITCHES  
MOULDED CASE CIRCUIT BREAKERS  
MOTOR PROTECTION BREAKERS

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# CONTACTORS

IEC 60947-1  
IEC 60947-4-1  
IEC 60947-5-1  
CSA - C22.2  
Approvals:  
CE ENE

| le(lth)   | AC 1 ( $\Delta t \leq 40^\circ\text{C}$ )     | A               | 10 (16)   | 10 (16) | 20             | 25         | 25         | 30            | 40 / 40        | 50        | 50          | 85        | 85 / 90(125)   | 95(135)   | 105(135)  | 115(135)  | 130              | 150              | 160              | 200         | 250         | 350              | 390/400        | 800/1100 |
|-----------|---|-----------------|-----------|---------|----------------|------------|------------|---------------|----------------|-----------|-------------|-----------|----------------|-----------|-----------|-----------|------------------|------------------|------------------|-------------|-------------|------------------|----------------|----------|
| <b>le</b> | <b>AC 3 (<math>U_e = 400\text{V}</math>)</b>  | A               | -         | -       | 9/12           | 9          | 12         | 18 / 22       | 25 / 30        | 32        | 38          | 50        | 60 / 65        | 80        | 90        | 100       | 115              | 130              | 150              | 170         | 200         | 250              | 315/400        | 550/860  |
| <b>le</b> | <b>AC 15 (<math>U_e = 230\text{V}</math>)</b> | A               | 6         | 6       | -              | -          | -          | -             | -              | -         | -           | -         | -              | -         | -         | -         | -                | -                | -                | -           | -           | -                | -              | -        |
|           |   | mm <sup>2</sup> | 2,5       | 2,5     | 1 - 2,5        | 1 - 6      | 1 - 6      | 1 - 6         | 2,5 - 10       | 2,5 - 10  | 2,5 - 10    | 6 - 35    | 6 - 35         | 6 - 35    | 25 - 50   | 25 - 50   | 16-95; 2x(16-70) | 16-95; 2x(16-70) | 16-95; 2x(16-70) | 50 - 120    | 50 - 120    | 70 - 240         | 70 - 240       | 2x(50x5) |
|           |   | 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     | 6-000; 2x(6-00)  | 6-000; 2x(6-00)  | 6-000; 2x(6-00)  | 0 - 250 MCM | 0 - 250 MCM | 00 - 500 MCM     | 00 - 500 MCM   | 2x(60x6) |
|           | AC 3  | 230 V           | kW        | -       | 3 / 3.2        | 3.2        | 3.5        | 4/5.5         | 5.5 / 7.5      | 7.5       | 10          | 15        | 18.5 / 18.5    | 22        | 26        | 30        | 37               | 40               | 45               | 55          | 60          | 75               | 90 / 115       | 175/280  |
|           | 3 ~ 50 Hz                                     | <b>400 V</b>    | <b>kW</b> | -       | <b>4 / 5.5</b> | <b>4.5</b> | <b>5.7</b> | <b>7.5/11</b> | <b>11 / 15</b> | <b>15</b> | <b>18.5</b> | <b>22</b> | <b>30 / 33</b> | <b>37</b> | <b>45</b> | <b>55</b> | <b>65</b>        | <b>75</b>        | <b>90</b>        | <b>105</b>  | <b>132</b>  | <b>160 / 200</b> | <b>315/500</b> |          |
|           |   | 690 V           | kW        | -       | 4 / 5.5        | 5.5        | 7.5        | 10/11         | 15 / 15        | 18.5      | 22          | 33        | 37 / 37        | 55        | 67        | 75        | 80               | 90               | 100              | 132         | 155         | 200              | 200/355        | 500/710  |
|           | AC 3  | 230 V           | Hp        | -       | 3              | 3          | 3          | 5.5/7.5       | 7.5/10         | 11        | 15          | 20        | 25             | 30        | 30        | 40        | 40               | 50               | 60               | 75          | 100         | 100 / 155        | -              |          |
|           | 3 ~ 60 Hz                                     | 460 - 480 V     | Hp        | -       | 5 / 7.5        | 5          | 7.5        | 10/15         | 15             | 20        | 30          | 30        | 50             | 60        | 70        | 70        | 80               | 90               | 100              | 125         | 150         | 180              | 220 / 270      |          |
|           |   | 575 V           | Hp        | -       | 7.5 / 10       | 7.5        | 10         | 15            | 20             | 25        | 30          | 40        | 50             | 60        | 75        | 100       | 110              | 150              | 150              | 200         | 200         | 220              | 230 / 250      | -        |

**Auxiliary block for CP0 and CM1**

Type **BP0** 4 0, 3 1, 2 2, 1 3, 0 4

Type **BP1** 1 0, 0 1

**Mechanical interlock for CP0, CM1**

**MB1**, **MB2**

**Auxiliary block for C9N 9 - C9N 70 and C9NP**

Type **BP2** 1 1, **BP2N** 1 1, **BP4** 2 2, **BP4N** 2 2, **BP3** 1 1, **BP5** 1 1

**Auxiliary block for C9N 9 - C9N 70 and C9NP**

Type **BP3** 1 1, **BP5** 1 1

**Additional terminal blocks**

Set of 2 additional terminal blocks for connection multi-wired conductor from 6-25 mm for contactors C9N 32 / 40.

**Auxiliary block for C9N 50 - C9N 150**

Type **BP5** 1 1

**Auxiliary block for C9N 170 - C9N 400**

Left **155089S**, Right **155087S**

**Star-delta timer** 22.5 mm

Type **EVKR 40** 22.5 mm

Time interval connection (s) 1

Electrical connection (s) 1

PCB Connectors 90 1

Star-delta timer diagram showing U, I(A), and I(A-Δ) curves.

# THERMAL OVERLOAD RELAYS

IEC 60947-4-1  
EN 60947-4-1  
CSA - C22.2  
VDE 0660  
Approvals:  
CE ENE

TEST

1 3 5

2 4 6

AUTO MANUAL  
RESETING

**CURRENT RANGES (A) (from - to)**

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, 12.5 - 20, 16 - 25, 22 - 30, 28 - 38, 16 - 25, 20 - 32, 25 - 40, 32 - 50, 40 - 57, 50 - 63, 57 - 70, 70 - 100, 90 - 130, 110 - 160, 140 - 200, 180 - 250, 70 - 100, 80 - 125, 100 - 160, 125 - 200, 160 - 250, 200 - 320, 250 - 400

Release time classification: class 10A, class 10, class 10, class 10, class 10

Weight: 0.115, 0.15, 0.39, 0.4, 1.58, 2.2

For mounting on contactor: C9N 9; C9N 12; C9N 18; C9N 22; C9N 25; C9N 30; C9N 32; C9N 40, C9N 50; C9N60; C9N 70, C9N 80; C9N 90; C9N 100, C9N 90 ... C9N 400 individual mounting

Adapter for individual mounting support

**ASM 40**, **ASM 75**

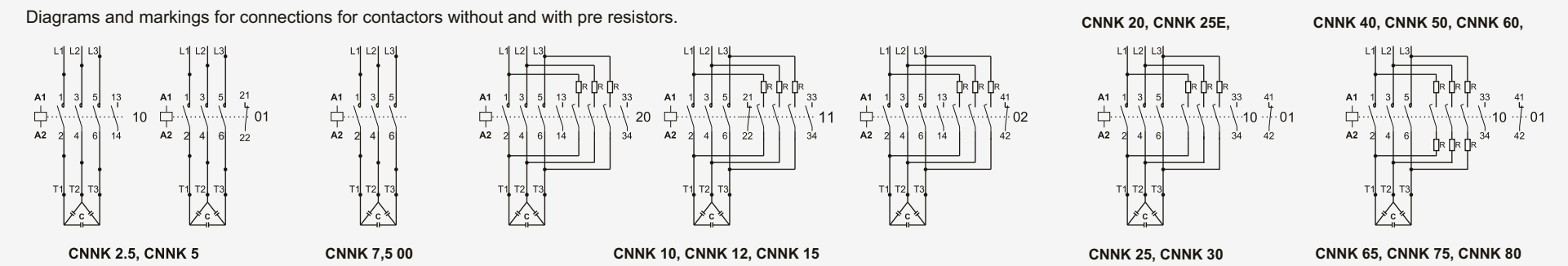
\*For Push button control

Contactors Size A0, A1, 1, 2, 3, 4, and 5 are designed for quick installation on vertical standards support having the width of 35 mm and size 4 and 5 on vertical standards support having the width of 75 mm according to DIN EN 50022.

# CAPACITOR CONTACTORS

IEC 60947-1  
IEC 60947-4-1  
Approvals:  
CE ENE

| Type designation                                      | C9NK 2.5<br>C9NK 5 | C9NK 7.5       | C9NK 10<br>C9NK 12<br>C9NK 15 | C9NK 20         | C9NK 25E  | C9NK 25<br>C9NK 30 | C9NK 40<br>C9NK 50<br>C9NK 60 | C9NK 65<br>C9NK 75 | C9NK 80        |
|---|--------------------|----------------|-------------------------------|-----------------|-----------|--------------------|-------------------------------|--------------------|----------------|
| <b>AC 6b utilization category</b>                     | 230V kVar          | 4              | 5/6.7/8.5                     | 11              | 14        | 14/20              | 25/29/32                      | 32/38              | 45             |
| <b>for switching three phase capacitors</b>           | 400 - 440V kVar    | 2.5/5          | 7.5                           | 10/12.5/15      | 20        | 25                 | 25/30                         | 40/50/60           | 66/75          |
| Capacitor rating                                      | 500 - 550V kVar    | 3/5.5          | 9                             | 12.5/15/18      | 24        | 30                 | 30/35                         | 50/60/70           | 75/80          |
| Capacitor rating at operating voltage 50/60Hz         | 650 - 690V kVar    | 3.7/7.5        | 11                            | 15/18/22        | 30        | 35                 | 35/40                         | 58/70/80           | 85/105         |
| Rated operation current <b>I<sub>e</sub></b> at 400V  | <b>A</b>           | <b>3.6/7.2</b> | <b>11</b>                     | <b>14/18/22</b> | <b>29</b> | <b>36</b>          | <b>36/44</b>                  | <b>58/72/87</b>    | <b>94/108</b>  |
| Rated operation current <b>I<sub>th</sub></b> at 400V | <b>A</b>           | <b>20/20</b>   | <b>25</b>                     | <b>25/25/30</b> | <b>40</b> | <b>50</b>          | <b>60/60</b>                  | <b>85/100/125</b>  | <b>130/150</b> |
| Weight  | kg                 | 0.25/0.26      | 0.28                          | 0.32/0.32/0.33  | 0.34      | 0.45               | 0.53                          | 0.94/0.95/0.97     | 1.3/1.4        |



# Contactors in enclosures and D.O.L Starters

| Type | Enclosure            | Usage          | Degree of protection | Weight [kg] | Packing [pcs] |
|------|----------------------|----------------|----------------------|-------------|---------------|
| PNNT | without push buttons | P9N 9 - P9N 40 | IP 65                | 325         | 1             |
| PNNT | with push buttons    | P9N 9 - P9N 40 | IP 54                | 325         | 1             |

PNNT 9/12/18/22 (0NO - 0NC)  
PNNT 25/30/32/40 (1NO - 2NC)

PNNRT 9/12/18/22 (0NO - 0NC)  
PNNRT 25/30/32/40 (1NO - 2NC)

PNNT - with contactor C9N 9/40  
PNNRT - with contactor C9N9/40 and thermal overload relay TM 40

# Star-delta starters in enclosures

Degree of protection - IP 54



| Type       | Ac3 I <sub>n</sub> (400V) A | Max. motor output (60Hz) | Dimensions (axbxc) mm |
|------------|-----------------------------|--------------------------|-----------------------|
| PNSDS 7.5  | 16                          | 4 kW                     | 210x260x185           |
| PNSDS 11   | 22                          | 5.5 kW                   | 210x260x185           |
| PNSDS 15   | 29                          | 7.5 kW                   | 210x260x185           |
| PNSDS 18.5 | 37                          | 11 kW                    | 210x260x185           |
| PNSDS 22   | 44                          | 15 kW                    | 240x320x205           |
| PNSDS 25   | 50                          | 18.5 kW                  | 240x320x205           |
| PNSDS 30   | 60                          | 25 kW                    | 240x320x205           |
| PNSDS 37   | 72                          | 33 kW                    | 400x500x207           |
| PNSDS 45   | 85                          | 45 kW                    | 400x500x207           |
| PNSDS 55   | 105                         | 55 kW                    | 400x600x217           |

# THERMAL CONTACTORS FOR SWITCHING RESISTIVE LOADS

Approvals:  
CE ENE IEC 60947-1 IEC 60947-4-1

| le (lth)                 | AC 1                          | A               | 65        | 115       | 130                                 |
|--------------------------|-------------------------------|-----------------|-----------|-----------|-------------------------------------|
| Switching resistive load | AC1 U <sub>e</sub> = 220/230V | kW              | 25        | 44        | 50                                  |
| p.f. ≈ 1                 |                               | <b>kW</b>       | <b>43</b> | <b>76</b> | <b>85</b>                           |
| Multi - wire conductor   |                               | mm <sup>2</sup> | 6 - 16    | 16 - 35   | 16-95; 2x(16-70)<br>6-000; 2x(6-00) |

| Type designation                 | TKN 65                             | TKN 115       | TKN 130        |
|----------------------------------|------------------------------------|---------------|----------------|
| Auxiliary contacts               | (NO) (NC)                          |               |                |
| Coil voltages                    | 24V, 48V, 110V, 220/230V, 380/400V |               |                |
| Electromagnet (coil) consumption | open / closed VA                   | 62/7          | 150/12         |
| Dimensions (a x b x c)           | mm                                 | 45 x 115 x 85 | 55 x 122 x 109 |
| Weights                          | kg                                 | 0.45          | 0.90           |

Reversing contactors with electrical and mechanical interlock

Type MBCM1 ..., MBCNN ... and MBCNM ...