

# ACB / MCCB / ELCB / ATS MCB / SPD / MS / MMS





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### MCCB Frame Size Selection Table

| Frame Size | Type     | Rated Breaking Capacity (kA) |      |      |      |      | Pole    | Rated Current In(A)   | Accessory   |                    |  |
|------------|----------|------------------------------|------|------|------|------|---------|---|---|--------------------|--|
|            |          | IEC60947-2                   |      |      |      |      |         |   | Blank   | No Acc.            |  |
|            |          | 220V                         | 380V | 415V | 440V | 500V |         |   |   |                    |  |
| 30         | CN       | 2.5                          | 1.5  | 1.5  | -    | -    | 2, 3    | 3, 5, 10, 15, 20, 30.   | Blank   | No Acc.            |  |
|            | SN       | 5                            | 2.5  | 2.5  | 2.5  | 1.5  | 3       |   | AX  | Auxiliary Switch   |  |
| 50         | CN       | 5                            | 2.5  | 2.5  | 2.5  | 1.5  | 2, 3    | 10, 15, 20, 30, 40, 50.   | AL  | Alarm Switch       |  |
| 60         | HBN      | 50                           | 30   | 25   | 25   | 15   | 3       | 10, 15, 20, 30, 40, 50, 60.                                       | SHT   | Shunt Trip         |  |
| 63         | SN       | 10                           | 7.5  | 7.5  | 7.5  | 5    | 2, 3, 4 | 10, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63                        | UVT   | Under Voltage Trip |  |
|            | HN       | 25                           | 15   | 10   | 10   | 5    | 2, 3, 4 |   |   |                    |  |
| 100        | FTD      | 25                           | 5    | 5    | -    | -    | 1       | 15, 20, 30, 40, 50, 60, 75, 100                                   |   |                    |  |
|            | MN       | 15                           | 10   | 10   | 7.5  | 5    | 2, 3    | 10, 15, 20, 30, 40, 50, 60, 75, 100.                              |   |                    |  |
|            | SN       | 25                           | 15   | 10   | 10   | 7.5  | 2, 3, 4 |   |   |                    |  |
|            | HN       | 50                           | 30   | 25   | 25   | 15   | 2, 3, 4 | 40, 50, 63, 80, 100.  |   |                    |  |
|            | HS       | 125                          | 85   | 85   | 70   | 50   | 3, 4    |   |   |                    |  |
|            | BTD      | 25                           | 15   | 10   | 10   | 5*   | 2, 3, 4 |   |   |                    |  |
|            | STD      | 50                           | 30   | 25   | 25   | 5*   | 2, 3, 4 |   | 15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100 |                    |  |
|            | 125      | LTD                          | 85   | 36   | 36   | 32   | 5*      | 2, 3, 4   | 15, 20, 30, 40, 50, 60, 75, 100, 125.               |                    |  |
| SN         |          | 30                           | 22   | 22   | 15   | 7.5  | 2, 3, 4 |   |   |                    |  |
| HN         |          | 50                           | 30   | 25   | 25   | 15   | 2, 3, 4 | 10, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 70, 75, 80, 100, 125. |   |                    |  |
| LTD        |          | 85                           | 36   | 36   | 32   | 5*   | 2, 3, 4 |   |   |                    |  |
| HTA        |          | 100                          | 50   | 50   | 50   | 10*  | 2, 3, 4 |   |   |                    |  |
| RTA        |          | 100                          | 70   | 70   | 50   | 10*  | 2, 3, 4 |   |   |                    |  |
| 160        | SN       | 50                           | 30   | 25   | 25   | 15   | 2, 3, 4 | 125, 140, 160.  |   |                    |  |
|            | HN       | 85                           | 36   | 36   | 32   | 20   | 3, 4    |   |   |                    |  |
|            | HS       | 125                          | 85   | 85   | 70   | 50   | 3, 4    | 40, 50, 60, 63, 70, 75, 80, 100, 125, 140, 150, 160.              |   |                    |  |
|            | HTA      | 100                          | 50   | 50   | 50   | 10*  | 3, 4    |   |   |                    |  |
| 250        | RTA      | 100                          | 70   | 70   | 50   | 10*  | 3, 4    | 125, 150, 175, 200, 225, 250.                                     |   |                    |  |
|            | CN       | 30                           | 22   | 15   | 15   | 7.5  | 2, 3, 4 |   |   |                    |  |
|            | SN       | 50                           | 30   | 25   | 25   | 15   | 3, 4    | 175, 200, 225, 250.   |   |                    |  |
|            | HN       | 85                           | 36   | 36   | 32   | 20   | 3, 4    |   |   |                    |  |
|            | HTA      | 100                          | 50   | 50   | 50   | 10*  | 3, 4    |   |   |                    |  |
|            | RTA      | 100                          | 70   | 70   | 50   | 10*  | 3, 4    |   |   |                    |  |
|            | 400      | HS                           | 125  | 85   | 85   | 70   | 50      | 3, 4  | 175, 200, 225, 250.                                 |                    |  |
|            |          | CN                           | 35   | 25   | 25   | 22   | 14      | 2, 3, 4   |   |                    |  |
| SN         |          | 50                           | 35   | 35   | 30   | 20   | 3, 4    | 250, 300, 350, 400.   |   |                    |  |
| HN         |          | 85                           | 50   | 50   | 42   | 25   | 3, 4    |   |   |                    |  |
| 630s       | RN       | 100                          | 70   | 70   | 55   | 42   | 3, 4    | 400, 500, 600, 630.   |   |                    |  |
|            | UN       | 125                          | 85   | 85   | 85   | 65   | 3, 4    |   |   |                    |  |
|            | STD(STA) | 36                           | 25   | 25   | 25   | 10*  | 3, 4    |   |   |                    |  |
|            | LTD(LTA) | 65                           | 36   | 36   | 36   | 10*  | 3, 4    |   |   |                    |  |
| 630        | HTD(HTA) | 85                           | 50   | 50   | 50   | 10*  | 3, 4    | 500, 630.   |   |                    |  |
|            | RTD(RTA) | 100                          | 70   | 70   | 70   | 15*  | 3, 4    |   |   |                    |  |
|            | CN       | 35                           | 25   | 25   | 22   | 14   | 2, 3, 4 |   |   |                    |  |
|            | SN       | 50                           | 35   | 35   | 30   | 20   | 3, 4    |   |   |                    |  |
|            | HN       | 85                           | 50   | 50   | 50   | 25   | 3, 4    |   |   |                    |  |
| 800        | RN       | 100                          | 70   | 70   | 70   | 42   | 3, 4    | 700, 800.   |   |                    |  |
|            | UN       | 125                          | 100  | 85   | 85   | 65   | 3, 4    |   |   |                    |  |
|            | CN       | 50                           | 35   | 35   | 30   | 20   | 3, 4    |   |   |                    |  |
|            | SN       | 85                           | 50   | 50   | 50   | 25   | 3, 4    |   |   |                    |  |
| 1000       | HS       | 130                          | 100  | 85   | 85   | 65   | 3       | 1000  |   |                    |  |
| 1200       | HS       | 130                          | 100  | 85   | 85   | 65   | 3       | 1200  |   |                    |  |
| 1600       | HS       | 130                          | 100  | 85   | 85   | 65   | 3       | 1400, 1600.   |   |                    |  |

Note 1. There is no SHT for 100HS, 30A and below.  
 2. There is no UVT for 100HS, 160HS, 250HS.  
 3. Mark \* kA rating is 690V.

**ELCB Frame Size Selection Table**

| Frame Size | Rated Breaking Capacity (kA) |            |      |      | Pole | Rated Current In(A)              | Accessory |                    |
|------------|------------------------------|------------|------|------|------|----------------------------------|-----------|--------------------|
|            | Type                         | IEC60947-2 |      |      |      |                                  |           |                    |
|            |                              | 220V       | 380V | 440V |      |                                  |           |                    |
| 50         | SN                           | 10         | 7.5  | 7.5  | 3, 4 | 15, 20, 30, 40, 50.              | Blank     | No Acc.            |
| 100        | SN                           | 25         | 15   | 10   | 3, 4 | 15, 20, 30, 40, 50, 60, 75, 100. | AX        | Auxiliary Switch   |
|            | HN                           | 50         | 30   | 25   | 3, 4 |                                  | AL        | Alarm Switch       |
| 160        | SN                           | 50         | 30   | 25   | 3, 4 | 125, 140, 160.                   | SHT       | Shunt Trip         |
| 250        | SN                           | 50         | 30   | 25   | 3, 4 | 175, 200, 225, 250.              | UVT       | Under Voltage Trip |
| 400        | SN                           | 50         | 35   | 30   | 3, 4 | 250, 300, 350, 400.              |           |                    |
|            | HN                           | 85         | 50   | 42   | 3, 4 |                                  |           |                    |
|            | RN                           | 100        | 70   | 55   | 3, 4 |                                  |           |                    |
|            | UN                           | 125        | 85   | 85   | 3, 4 |                                  |           |                    |
| 630        | HN                           | 85         | 50   | 50   | 3, 4 | 500, 630.                        |           |                    |
|            | RN                           | 100        | 70   | 70   | 3, 4 |                                  |           |                    |
| 800        | UN                           | 125        | 100  | 85   | 3, 4 | 700, 800.                        |           |                    |
|            | SN                           | 85         | 50   | 50   | 3, 4 |                                  |           |                    |
|            | HN                           | 100        | 70   | 70   | 3, 4 |                                  |           |                    |
|            | RN                           | 125        | 100  | 85   | 3, 4 |                                  |           |                    |

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### BMA Series Frame Size Selection Table

| Frame Size | Type | Rated Breaking Capacity (kA) |            |      | Pole | I <sub>r</sub> Adjustable           | Rated Current I <sub>n</sub> (A)                         | Accessory |                    |
|------------|------|------------------------------|------------|------|------|-------------------------------------|--|-----------|--------------------|
|            |      | IEC60947-2                   |            |      |      |                                     |  | Blank     | No Acc.            |
|            |      | 220V(240V)                   | 380V(415V) | 690V |      |                                     |  |           |                    |
| 125        | STA  | 85                           | 25         | 8    | 3, 4 | 0.8-0.9-1.0                         | 15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100, 125 | Blank     | No Acc.            |
|            | LTA  | 85                           | 36         | 8    |      |                                     |  | AX        | Auxiliary Switch   |
|            | HTA  | 100                          | 50         | 10   |      |                                     |  | AL        | Alarm Switch       |
| 160        | STA  | 85                           | 25         | 8    | 3, 4 | 0.8-0.9-1.0                         | 40, 50, 60, 63, 70, 75, 80, 100, 125, 140, 150, 160      | SHT       | Shunt Trip         |
|            | LTA  | 85                           | 36         | 8    |      |                                     |  | UVT       | Under Voltage Trip |
|            | HTA  | 100                          | 50         | 10   |      |                                     |  |           |                    |
| 250        | STA  | 85                           | 25         | 8    | 3, 4 | 0.8-0.9-1.0                         | 175, 200, 225, 250                                       |           |                    |
|            | LTA  | 85                           | 36         | 8    |      |                                     |  |           |                    |
|            | HTA  | 100                          | 50         | 10   |      |                                     |  |           |                    |
| 400        | LTA  | 70                           | 36         | 8    | 3, 4 | 0.8-0.9-1.0                         | 250, 300, 350, 400                                       |           |                    |
|            | HTA  | 85                           | 50         | 10   |      |                                     |  |           |                    |
|            | RTA  | 100                          | 70         | 15   |      |                                     |  |           |                    |
| 630s       | STD  | 36                           | 25         | 10   | 3, 4 | N/A                                 | 400, 500, 600, 630                                       |           |                    |
|            | LTD  | 65                           | 36         | 10   |      |                                     |  |           |                    |
|            | HTD  | 85                           | 50         | 10   |      |                                     |  |           |                    |
|            | RTD  | 100                          | 70         | 15   |      |                                     |  |           |                    |
| 630        | HTD  | 85                           | 50         | 10   | 3, 4 | 0.8-0.9-1.0                         | 500, 600, 630  |           |                    |
|            | RTD  | 100                          | 70         | 15   |      |                                     |  |           |                    |
|            | HTA  | 85                           | 50         | 10   |      |                                     |  |           |                    |
| 630        | HTD  | 85                           | 50         | 10   | 3, 4 | 0.4-0.48-0.56-0.64-0.72-0.8-0.9-1.0 | 630  |           |                    |
|            | RTD  | 100                          | 70         | 15   |      |                                     |  |           |                    |
|            | HTA  | 85                           | 50         | 10   |      |                                     |  |           |                    |
| 800        | HTD  | 85                           | 50         | 10   | 3, 4 | 0.8-0.9-1.0                         | 700, 800   |           |                    |
|            | RTD  | 100                          | 70         | 15   |      |                                     |  |           |                    |
|            | HTA  | 85                           | 50         | 10   |      |                                     |  |           |                    |
| 800        | HTD  | 85                           | 50         | 10   | 3, 4 | 0.4-0.48-0.56-0.64-0.72-0.8-0.9-1.0 | 800  |           |                    |
|            | RTD  | 100                          | 70         | 15   |      |                                     |  |           |                    |
|            | HTA  | 85                           | 50         | 10   |      |                                     |  |           |                    |
| 1250       | HED  | -                            | 50         | 35   | 3, 4 | 0.4-0.45-0.5-0.6-0.63-0.7-0.8-0.9-1 | 1250   |           |                    |
|            | RED  | -                            | 70         | 45   |      |                                     |  |           |                    |
| 1600       | HED  | -                            | 50         | 35   | 3, 4 | 0.4-0.45-0.5-0.6-0.63-0.7-0.8-0.9-1 | 1600   |           |                    |
|            | RED  | -                            | 70         | 45   |      |                                     |  |           |                    |

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## MCCB/ELCB Breaking Capacity Selection Table

| Series | Rated Breaking Capacity (kA) | Frame Size/ Rated Current In (A) |                |                   |         |         |         |        |                    |        |         |         |         |
|--------|------------------------------|----------------------------------|----------------|-------------------|---------|---------|---------|--------|--------------------|--------|---------|---------|---------|
|        | IEC60947-2                   | 30                               | 50/60          | 100               | 125     | 160     | 250     | 400    | 630                | 800    | 1000    | 1200    | 1600    |
|        | AC380V                       |                                  |                |                   |         |         |         |        |                    |        |         |         |         |
| BM     | 100kA                        |                                  |                |                   |         |         |         |        | 630-UN             | 800-RN | 1000-HS | 1200-HS | 1600-HS |
|        | 85kA                         |                                  |                | 100-HS            |         | 160-HS  | 250-HS  | 400-UN |                    |        |         |         |         |
|        | 70kA                         |                                  |                |                   | 125-RTA | 160-RTA | 250-RTA | 400-RN | 630-RN<br>630s-RTD | 800-HN |         |         |         |
|        | 50kA                         |                                  |                |                   | 125-HTA | 160-HTA | 250-HTA | 400-HN | 630-HN<br>630s-HTD | 800-SN |         |         |         |
|        | 35/36kA                      |                                  |                | 100-LTD           | 125-LTD | 160-HN  | 250-HN  | 400-SN | 630-SN<br>630s-LTD | 800-CN |         |         |         |
|        | 30kA                         |                                  | 60-HBN         | 100-HN<br>100-STD |         | 160-SN  | 250-SN  |        |                    |        |         |         |         |
|        | 25kA                         |                                  |                |                   | 125-HN  |         |         |        | 630s-STD           |        |         |         |         |
|        | 15kA                         |                                  | 60-HN<br>63-HN | 100-SN<br>100-BTD | 125-SN  |         |         |        |                    |        |         |         |         |
|        | 10kA                         |                                  |                | 100-MN            |         |         |         |        |                    |        |         |         |         |
|        | 7.5kA                        |                                  | 60-SN<br>63-SN |                   |         |         |         |        |                    |        |         |         |         |
| BL     | 2.5kA                        | 30-SN                            | 50-CN          |                   |         |         |         |        |                    |        |         |         |         |
|        | 1.5kA                        | 30-CN                            |                |                   |         |         |         |        |                    |        |         |         |         |
|        | 100kA                        |                                  |                |                   |         |         |         |        | 630-UN             | 800-RN |         |         |         |
|        | 85kA                         |                                  |                |                   |         |         |         | 400-RN |                    |        |         |         |         |
|        | 70kA                         |                                  |                |                   |         |         |         | 400-RN | 630-RN             | 800-HN |         |         |         |
|        | 50kA                         |                                  |                |                   |         |         |         | 400-HN | 630-HN             | 800-SN |         |         |         |
|        | 35kA                         |                                  |                |                   |         |         |         | 400-SN |                    |        |         |         |         |
|        | 30kA                         |                                  |                | 100-HN            |         | 160-SN  | 250-SN  |        |                    |        |         |         |         |
|        | 15kA                         |                                  |                | 100-SN            |         |         |         |        |                    |        |         |         |         |
|        | 7.5kA                        |                                  | 50-SN          |                   |         |         |         |        |                    |        |         |         |         |

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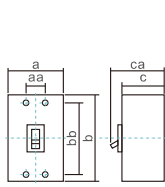
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MMS

## Molded Case Circuit Breaker

| Frame size (AF) (Inm)  |  | 30  |      | 50  |      | 60   |      |   |    |
|--|--|---|------|---|------|--|------|---|----|
| Type   |  | BM30-CN   |      | BM30-SN   |      | BM50-CN  |      | BM60-HBN  |    |
| Appearance   |  |  |      |  |      |  |      |  |    |
| Rated current In (A) at ambient temp. 40°C   |  | 3, 5, 10, 15, 20, 30.   |      | 3, 5, 10, 15, 20, 30.   |      | 10, 15, 20, 30, 40, 50.  |      | 10, 15, 20, 30, 40, 50, 60.   |    |
| Number of poles (P)  |  | 2   | 3    | 2   | 3    | 2  | 3    | 3   |    |
| Rated insulation voltage Ui (V)  | AC                                     | 690   |      | 800   |      | 800  |      | 800   |    |
|  | DC                                     | —   |      | —   |      | —  |      | —   |    |
| Rated operational voltage Ue (V AC)  |  | 500   |      | 500   |      | 500  |      | 500   |    |
| Uimp(kV)   |  | 6   |      | 6   |      | 6  |      | 8   |    |
| Dimensions<br> | a                                      | 45  | 67.5 | 50  | 75   | 50   | 75   | 90  |    |
|  | b                                      | 96  |      | 130   |      | 130  |      | 155   |    |
|  | c                                      | 52  |      | 68  |      | 68   |      | 68  |    |
|  | ca                                     | 67  |      | 90  |      | 90   |      | 90  |    |
|  | bb                                     | 84  |      | 111   |      | 111  |      | 132   |    |
|  | aa                                     | 23.5  |      | 25  |      | 25   |      | 30  |    |
| Weight (kg)  |  | 0.3   | 0.4  | 0.45  | 0.65 | 0.45   | 0.65 | 1.3   |    |
| Rated breaking capacity (kA)   | IEC 60947-2<br>EN 60947-2<br>Icu<br>AC | 500V(690V)  | —    |   | 1.5  |  | 1.5  |   | 15 |
|  |  | 440V  | —    |   | 2.5  |  | 2.5  |   | 25 |
|  |  | 415V  | 1.5  | 2.5   |      | 2.5  |      | 25  |    |
|  |  | 380V  | 1.5  | 2.5   |      | 2.5  |      | 30  |    |
|  |  | 220V(240V)  | 2.5  | 5   |      | 5  |      | 50  |    |
|  | DC                                     | 250V  | —    |   | —    |  | —    |   | —  |
|  |  | 125V  | —    |   | —    |  | —    |   | —  |
| Connection   |  | Clamp terminal  |      | Clamp terminal  |      | Clamp terminal   |      | Clamp terminal  |    |
| Optional accessories   | Alarm switch (AL)                      | —   |      | ○   |      | ○  |      | ○   |    |
|  | Auxiliary switch (AX)                  | —   |      | ○   |      | ○  |      | ○   |    |
|  | Shunt trip (SHT)                       | —   |      | ○   |      | ○  |      | ○   |    |
|  | Under-voltage trip (UVT)               | —   |      | ○   |      | ○  |      | ○   |    |
|  | Rotary handle (EH)                     | —   |      | ●   |      | ●  |      | ●   |    |
|  | Terminal cover (TC)                    | ●   |      | ●   |      | ●  |      | ●   |    |
|  | Box lug (TL)                           | ●   |      | ●   |      | ●  |      | ●   |    |
| Trip Unit  |  | Hydraulic magnetic  |      | Hydraulic magnetic  |      | Hydraulic magnetic   |      | Hydraulic magnetic  |    |
| Tripping button  |  | —   |      | Equipped  |      | Equipped   |      | Equipped  |    |

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.  
 Above accessories table is for 3P breaker.  
 2. Ics= 50% Icu  
 3. Adjustable thermal: 80%~100% In.



| 63  |      |      | 100   |      |      |   |      |      |   |      |      |   |     |     |   |   |  |
|---|------|------|---|------|------|---|------|------|---|------|------|---|-----|-----|---|---|--|
| BM63-SN   |      |      | BM63-HN   |      |      | BM100-FTD   |      |      | BM100-MN  |      |      | BM100-SN  |     |     | BM100-HN  |   |  |
|  |      |      |  |      |      |  |      |      |  |      |      |  |     |     |  |   |  |
| 10, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63  |      |      | 10, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63  |      |      | 15, 20, 30, 40, 50, 60, 75, 100.  |      |      | 10, 15, 20, 30, 40, 50, 60, 75, 100.  |      |      | 10, 15, 20, 30, 40, 50, 60, 75, 100.  |     |     | 10, 15, 20, 30, 40, 50, 60, 75, 100.  |   |  |
| 2   | 3    | 4    | 2   | 3    | 4    | 1   | 2    | 3    | 2   | 3    | 2    | 3   | 4   | 2   | 3   | 4 |  |
| 800   |      |      | 800   |      |      | 690   |      |      | 800   |      |      | 800   |     |     | 800   |   |  |
| —   |      |      | —   |      |      | —   |      |      | —   |      |      | 250*  |     |     | —   |   |  |
| 500   |      |      | 500   |      |      | 415   |      |      | 500   |      |      | 500   |     |     | 500   |   |  |
| 8   |      |      | 8   |      |      | 6   |      |      | 6   |      |      | 6   |     |     | 8   |   |  |
| 50  | 75   | 100  | 50  | 75   | 100  | 25.4  | 50   | 75   | 50  | 75   | 50   | 75  | 60  | 90  | 120   |   |  |
| 130   |      |      | 130   |      |      | 130   |      |      | 130   |      |      | 130   |     |     | 155   |   |  |
| 68  |      |      | 68  |      |      | 60  |      |      | 68  |      |      | 68  |     |     | 68  |   |  |
| 90  |      |      | 90  |      |      | 91  |      |      | 90  |      |      | 90  |     |     | 90  |   |  |
| 111   |      |      | 111   |      |      | 111   |      |      | 111   |      |      | 111   |     |     | 132   |   |  |
| 25  |      |      | 25  |      |      | —   |      |      | 25  |      |      | 25  |     |     | 30  |   |  |
| 0.45  | 0.65 | 0.85 | 0.45  | 0.65 | 0.85 | 0.29  | 0.45 | 0.65 | 0.45  | 0.65 | 0.45 | 0.65  | 0.9 | 1.3 | 1.6   |   |  |
| 5   |      |      | 5   |      |      | —   |      |      | 5   |      |      | 7.5   |     |     | 15  |   |  |
| 7.5   |      |      | 10  |      |      | —   |      |      | 7.5   |      |      | 10  |     |     | 25  |   |  |
| 7.5   |      |      | 10  |      |      | 5   |      |      | 10  |      |      | 10  |     |     | 25  |   |  |
| 7.5   |      |      | 15  |      |      | 5   |      |      | 10  |      |      | 15  |     |     | 30  |   |  |
| 10  |      |      | 25  |      |      | 25  |      |      | 15  |      |      | 25  |     |     | 50  |   |  |
| —   |      |      | —   |      |      | —   |      |      | —   |      |      | 10*   |     |     | —   |   |  |
| —   |      |      | —   |      |      | —   |      |      | —   |      |      | 15*   |     |     | —   |   |  |
| Clamp terminal  |      |      | Clamp terminal  |      |      | Clamp terminal  |      |      | Clamp terminal  |      |      | Clamp terminal  |     |     | Clamp terminal  |   |  |
| ○   |      |      | ○   |      |      | —   |      |      | ○   |      |      | ○   |     |     | ○   |   |  |
| ○   |      |      | ○   |      |      | —   |      |      | ○   |      |      | ○   |     |     | ○   |   |  |
| ○   |      |      | ○   |      |      | —   |      |      | ○   |      |      | ○   |     |     | ○   |   |  |
| ○   |      |      | ○   |      |      | —   |      |      | ○   |      |      | ○   |     |     | ○   |   |  |
| ●   |      |      | ●   |      |      | —   |      |      | ●   |      |      | ●   |     |     | ●   |   |  |
| ●   |      |      | ●   |      |      | —   |      |      | ●   |      |      | ●   |     |     | ●   |   |  |
| ●   |      |      | ●   |      |      | ●   |      |      | ●   |      |      | ●   |     |     | ●   |   |  |
| Hydraulic magnetic  |      |      | Hydraulic magnetic  |      |      | Thermal magnetic  |      |      | Hydraulic magnetic  |      |      | Hydraulic magnetic  |     |     | Hydraulic magnetic  |   |  |
| Equipped  |      |      | Equipped  |      |      | Equipped  |      |      | Equipped  |      |      | Equipped  |     |     | Equipped  |   |  |

Note 1. Breaking Capacity of BM100-FTD is 5kA at 380V/415V/440V  
 2.\* DC application MCCB trip characteristic is different from AC type, please specify when place the order.

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MCCB  
ELCB

ATS

ACB





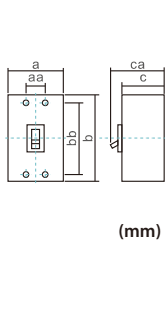
MCB

SPD

MS

MMS

## Molded Case Circuit Breaker

| Frame size (AF) (Inm)  |  | 100   |            |   |     |                  |   |     |                  |   |     |                  |     |
|--|--|---|------------|---|-----|------------------|---|-----|------------------|---|-----|------------------|-----|
| Model  |  | BM100-HS  |            | BM100-BTD   |     |                  | BM100-STD   |     |                  | BM100-LTD   |     |                  |     |
| Appearance   |  |  |            |  |     |                  |  |     |                  |  |     |                  |     |
| Rated current In (A) at ambient temp. 40°C   |  | 40, 50, 63, 80, 100.  |            | 15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100                               |     |                  | 15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100                                 |     |                  | 10,15,16,20,25,30,32,40, 50,60,63,70,75,80,100                                      |     |                  |     |
| Number of poles (P)  |  | 3   | 4          | 2   | 3   | 4                | 2   | 3   | 4                | 2   | 3   | 4                |     |
| Rated insulation voltage Ui (V)  |  | AC 800  |            | 800   |     |                  | 800   |     |                  | 800   |     |                  |     |
|  |  | DC —  |            | —   |     |                  | —   |     |                  | —   |     |                  |     |
| Rated operational voltage Ue (V AC)  |  | 500   |            | 690   |     |                  | 690   |     |                  | 690   |     |                  |     |
| Uimp(kV)   |  | 8   |            | 8   |     |                  | 8   |     |                  | 8   |     |                  |     |
| <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 5px;">Dimensions</div>  </div> |  | a   | 105        | 140   | 50  | 75               | 100   | 50  | 75               | 100   | 50  | 75               | 100 |
|  |  | b   | 165        |   | 130 |                  |   | 130 |                  |   | 130 |                  |     |
|  |  | c   | 86         |   | 68  |                  |   | 68  |                  |   | 68  |                  |     |
|  |  | ca  | 112        |   | 90  |                  |   | 90  |                  |   | 90  |                  |     |
|  |  | bb  | 126        |   | 111 |                  |   | 111 |                  |   | 111 |                  |     |
|  |  | aa  | 35         |   | 25  |                  |   | 25  |                  |   | —   | 25               |     |
| Weight (kg)  |  | 2.1   | 2.6        | 0.5   | 0.7 | 0.9              | 0.5   | 0.7 | 0.9              | 0.5   | 0.7 | 0.9              |     |
| Rated breaking capacity (kA)   |  | IEC 60947-2<br>EN 60947-2<br>Icu  | 500V(690V) | 50  |     | (5)              |   |     | (5)              |   |     | 20(5)            |     |
|  |  |   | 440V       | 70  |     | 10               |   |     | 25               |   |     | 32               |     |
|  |  |   | 415V       | 85  |     | 10               |   |     | 25               |   |     | 36               |     |
|  |  |   | 380V       | 85  |     | 15               |   |     | 30               |   |     | 36               |     |
|  |  |   | 220V(240V) | 125   |     | 25               |   |     | 50               |   |     | 85               |     |
|  |  | DC  | 250V       | —   |     | —                |   |     | —                |   |     | —                |     |
|  |  |   | 125V       | —   |     | —                |   |     | —                |   |     | —                |     |
| Connection   |  | Clamp terminal  |            | Clamp terminal  |     |                  | Clamp terminal  |     |                  | Clamp terminal  |     |                  |     |
| Optional accessories   |  | Alarm switch (AL)   | ○          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Auxiliary switch (AX)   | ○          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Shunt trip (SHT)  | ○          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Under-voltage trip (UVT)  | —          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Rotary handle (EH)  | ●          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Terminal cover (TC)   | ●          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Box lug (TL)  | ●          |   | ●   |                  | ●   |     | ●                |   | ●   |                  |     |
|  |  | Trip Unit   |            | Thermal magnetic  |     | Thermal magnetic |   |     | Thermal magnetic |   |     | Thermal magnetic |     |
| Tripping button  |  | Equipped  |            | Equipped  |     |                  | Equipped  |     |                  | Equipped  |     |                  |     |

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.  
 Above accessories table is for 3P breaker.  
 2. Ics= 50% Icu  
 3. Adjustable thermal: 80%~100% In.

BM125-SN

BM125-HN

BM125-LTD

BM125-HTA

BM125-RTA



10, 15, 20, 30, 40, 50,  
60, 75, 100, 125.

10, 15, 20, 30, 40, 50,  
60, 75, 100, 125.

15, 16, 20, 25, 30, 32, 40,  
50, 60, 63, 75, 80, 100, 125.

10,15,16,20,25,30,32,40,  
50,60,63,70,75,80,100,125.

10,15,16,20,25,30,32,40,  
50,60,63,70,75,80,100,125.

| 2                  |     |     | 3                  |     |     | 4                |     |     | 2                                   |     |     | 3                                   |     |     | 4                                   |     |     |
|--------------------|-----|-----|--------------------|-----|-----|------------------|-----|-----|-------------------------------------|-----|-----|-------------------------------------|-----|-----|-------------------------------------|-----|-----|
| 800                |     |     | 800                |     |     | 800              |     |     | 800                                 |     |     | 800                                 |     |     | 800                                 |     |     |
| —                  |     |     | —                  |     |     | —                |     |     | —                                   |     |     | —                                   |     |     | —                                   |     |     |
| 500                |     |     | 500                |     |     | 690              |     |     | 690                                 |     |     | 690                                 |     |     | 690                                 |     |     |
| 8                  |     |     | 8                  |     |     | 8                |     |     | 8                                   |     |     | 8                                   |     |     | 8                                   |     |     |
| 60                 | 90  | 120 | 60                 | 90  | 120 | 50               | 75  | 100 | 90                                  | 120 | 90  | 120                                 | 90  | 120 | 90                                  | 120 |     |
| 155                |     |     | 155                |     |     | 130              |     |     | 155                                 |     |     | 155                                 |     |     | 155                                 |     |     |
| 68                 |     |     | 68                 |     |     | 68               |     |     | 68                                  |     |     | 68                                  |     |     | 68                                  |     |     |
| 90                 |     |     | 90                 |     |     | 90               |     |     | 90                                  |     |     | 90                                  |     |     | 90                                  |     |     |
| 132                |     |     | 132                |     |     | 111              |     |     | 132                                 |     |     | 132                                 |     |     | 132                                 |     |     |
| 30                 |     |     | 30                 |     |     | 25               |     |     | 30                                  |     |     | 30                                  |     |     | 30                                  |     |     |
| 0.5                | 0.7 | 0.9 | 0.5                | 0.7 | 0.9 | 0.5              | 0.7 | 0.9 | 1                                   | 1.2 | 1.5 | 1                                   | 1.2 | 1.5 | 1                                   | 1.2 | 1.5 |
| 7.5                |     |     | 15                 |     |     | (5)              |     |     | 25(10)                              |     |     | 25(10)                              |     |     | 25(10)                              |     |     |
| 15                 |     |     | 25                 |     |     | 32               |     |     | 50                                  |     |     | 50                                  |     |     | 50                                  |     |     |
| 22                 |     |     | 25                 |     |     | 36               |     |     | 50                                  |     |     | 50                                  |     |     | 70                                  |     |     |
| 22                 |     |     | 30                 |     |     | 36               |     |     | 50                                  |     |     | 50                                  |     |     | 70                                  |     |     |
| 30                 |     |     | 50                 |     |     | 85               |     |     | 100                                 |     |     | 100                                 |     |     | 100                                 |     |     |
| —                  |     |     | —                  |     |     | —                |     |     | —                                   |     |     | —                                   |     |     | —                                   |     |     |
| —                  |     |     | —                  |     |     | —                |     |     | —                                   |     |     | —                                   |     |     | —                                   |     |     |
| Clamp terminal     |     |     | Clamp terminal     |     |     | Clamp terminal   |     |     | Clamp terminal                      |     |     | Clamp terminal                      |     |     | Clamp terminal                      |     |     |
| ○                  |     |     | ○                  |     |     | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| ○                  |     |     | ○                  |     |     | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| ○                  |     |     | ○                  |     |     | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| —                  | ○   | ○   | —                  | ○   | ○   | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| ●                  |     |     | ●                  |     |     | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| ●                  |     |     | ●                  |     |     | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| ●                  |     |     | ●                  |     |     | ●                |     |     | ●                                   |     |     | ●                                   |     |     | ●                                   |     |     |
| Hydraulic magnetic |     |     | Hydraulic magnetic |     |     | Thermal magnetic |     |     | "Adjustable Thermal Fixed magnetic" |     |     | "Adjustable Thermal Fixed magnetic" |     |     | "Adjustable Thermal Fixed magnetic" |     |     |
| Equipped           |     |     | Equipped           |     |     | Equipped         |     |     | Equipped                            |     |     | Equipped                            |     |     | Equipped                            |     |     |

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MCCB  
ELCB

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ACB

MCB






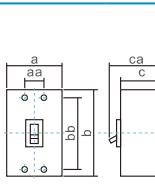
SPD

MS

MMS

## Molded Case Circuit Breaker

80% ~ 100% Adj. (A)

| Frame size (AF) (Inm)  |                                  | 160   |     |     |   |     |   |        |   |        |   |     |     |
|--|----------------------------------|---|-----|-----|---|-----|---|--------|---|--------|---|-----|-----|
| Model  |                                  | BM160-SN  |     |     | BM160-HN  |     | BM160-HTA   |        | BM160-RTA   |        | BM160-HS  |     |     |
| Appearance   |                                  |  |     |     |  |     |  |        |  |        |  |     |     |
| Rated current In (A)<br>at ambient temp. 40°C  |                                  | 125, 140, 160.  |     |     | 125, 140, 160.  |     | 40, 50, 60, 63, 70,<br>75, 80, 100, 125,<br>140, 150, 160                         |        | 40, 50, 60, 63, 70,<br>75, 80, 100, 125,<br>140, 150, 160                           |        | 125, 140, 160.  |     |     |
| Number of poles (P)  |                                  | 2   | 3   | 4   | 3   | 4   | 3   | 4      | 3   | 4      | 3   | 4   |     |
| Rated insulation<br>voltage Ui (V)   |                                  | AC  |     | 800 |   | 800 |   | 800    |   | 800    |   | 690 |     |
|  |                                  | DC  |     | —   |   | —   |   | —      |   | —      |   | —   |     |
| Rated operational<br>voltage Ue (V AC)   |                                  | 500   |     |     | 500   |     | 690   |        | 690   |        | 500   |     |     |
| Uimp(kV)   |                                  | 8   |     |     | 8   |     | 8   |        | 8   |        | 8   |     |     |
| Dimensions<br> | a                                |   | 105 | 105 | 140   | 105 | 140   | 105    | 140   | 105    | 140   | 105 | 140 |
|  | b                                |   | 165 |     |   | 165 |   | 165    |   | 165    |   | 165 |     |
|  | c                                |   | 68  |     |   | 68  |   | 68     |   | 68     |   | 86  |     |
|  | ca                               |   | 92  |     |   | 92  |   | 92     |   | 92     |   | 112 |     |
|  | bb                               |   | 126 |     |   | 126 |   | 126    |   | 126    |   | 126 |     |
|  | aa                               |   | 35  |     |   | 35  |   | 35     |   | 35     |   | 35  |     |
| Weight (kg)  |                                  | 1.3   | 1.5 | 1.9 | 1.5   | 1.9 | 1.5   | 1.9    | 1.5   | 1.9    | 2.1   | 2.6 |     |
| Rated breaking capacity (kA)   | IEC 60947-2<br>EN 60947-2<br>Icu | 500V(690V)  | 15  |     |   | 20  |   | 25(10) |   | 25(10) |   | 50  |     |
|  |                                  | 440V  | 25  |     |   | 32  |   | 50     |   | 50     |   | 70  |     |
|  |                                  | 415V  | 25  |     |   | 36  |   | 50     |   | 70     |   | 85  |     |
|  |                                  | 380V  | 30  |     |   | 36  |   | 50     |   | 70     |   | 85  |     |
|  |                                  | 220V(240V)  | 50  |     |   | 85  |   | 100    |   | 100    |   | 125 |     |
|  | DC                               | 250V  | —   |     |   | —   |   | —      |   | —      |   | —   |     |
|  |                                  | 125V  | —   |     |   | —   |   | —      |   | —      |   | —   |     |
| Connection   |                                  | Clamp terminal  |     |     | Clamp terminal  |     | Clamp terminal  |        | Clamp terminal  |        | Clamp terminal  |     |     |
| Optional accessories   | Alarm switch                     | (AL)  | ●   |     |   | ●   |   | ●      |   | ●      |   | ○   |     |
|  | Auxiliary switch                 | (AX)  | ●   |     |   | ●   |   | ●      |   | ●      |   | ○   |     |
|  | Shunt trip                       | (SHT)   | ●   |     |   | ●   |   | ●      |   | ●      |   | ○   |     |
|  | Under-voltage trip               | (UVT)   | ●   |     |   | ●   |   | ●      |   | ●      |   | —   |     |
|  | Rotary handle                    | (EH)  | ●   |     |   | ●   |   | ●      |   | ●      |   | ●   |     |
|  | Terminal cover                   | (TC)  | ●   |     |   | ●   |   | ●      |   | ●      |   | ●   |     |
|  | Box lug                          | (TL)  | ●   |     |   | ●   |   | —      |   | —      |   | ●   |     |
| Trip Unit  |                                  | Adj. thermal<br>Fixed magnetic  |     |     | Adj. thermal<br>Fixed magnetic  |     | Adj. thermal<br>Fixed magnetic  |        | Adj. thermal<br>Fixed magnetic  |        | Thermal magnetic  |     |     |
| Tripping button  |                                  | Equipped  |     |     | Equipped  |     | Equipped  |        | Equipped  |        | Equipped  |     |     |

Note \* DC application MCCB trip characteristic is different from AC type, please specify when place the order.

80% ~ 100% Adj. (A)

250

BM250-CN

BM250-SN

BM250-HN

BM250-HTA

BM250-RTA

BM250-HS



| 125, 150, 175, 200, 225, 250.  |     |     | 125, 150, 175, 200, 225, 250.  |     |     | 175, 200, 225, 250.            |     |     | 175, 200, 225, 250.            |     |     | 175, 200, 225, 250.            |     |     |                  |  |  |
|--------------------------------|-----|-----|--------------------------------|-----|-----|--------------------------------|-----|-----|--------------------------------|-----|-----|--------------------------------|-----|-----|------------------|--|--|
| 2                              | 3   | 4   | 3                              | 4   | 3   | 4                              | 3   | 4   | 3                              | 4   | 3   | 4                              |     |     |                  |  |  |
| 800                            |     |     | 800                            |     |     | 800                            |     |     | 800                            |     |     | 800                            |     |     |                  |  |  |
| 250*                           | —   | —   | —                              | —   | —   | —                              | —   | —   | —                              | —   | —   | —                              |     |     |                  |  |  |
| 500                            |     |     | 500                            |     |     | 500                            |     |     | 690                            |     |     | 690                            |     |     |                  |  |  |
| 8                              |     |     | 8                              |     |     | 8                              |     |     | 8                              |     |     | 8                              |     |     |                  |  |  |
| 105                            | 105 | 140 | 105                            | 140 | 105 | 140                            | 105 | 140 | 105                            | 140 | 105 | 140                            | 105 | 140 |                  |  |  |
| 165                            |     |     | 165                            |     |     | 165                            |     |     | 165                            |     |     | 165                            |     |     |                  |  |  |
| 68                             |     |     | 68                             |     |     | 68                             |     |     | 68                             |     |     | 86                             |     |     |                  |  |  |
| 92                             |     |     | 92                             |     |     | 92                             |     |     | 92                             |     |     | 92                             |     |     |                  |  |  |
| 126                            |     |     | 126                            |     |     | 126                            |     |     | 126                            |     |     | 126                            |     |     |                  |  |  |
| 35                             |     |     | 35                             |     |     | 35                             |     |     | 35                             |     |     | 35                             |     |     |                  |  |  |
| 1.3                            | 1.5 | 1.9 | 1.5                            | 1.9 | 1.5 | 1.9                            | 1.5 | 1.9 | 1.5                            | 1.9 | 1.5 | 1.9                            | 2.1 | 2.6 |                  |  |  |
| 7.5                            |     |     | 15                             |     |     | 20                             |     |     | 25(10)                         |     |     | 25(10)                         |     |     |                  |  |  |
| 15                             |     |     | 25                             |     |     | 32                             |     |     | 50                             |     |     | 50                             |     |     |                  |  |  |
| 15                             |     |     | 25                             |     |     | 36                             |     |     | 50                             |     |     | 70                             |     |     |                  |  |  |
| 22                             |     |     | 30                             |     |     | 36                             |     |     | 50                             |     |     | 70                             |     |     |                  |  |  |
| 30                             |     |     | 50                             |     |     | 85                             |     |     | 100                            |     |     | 100                            |     |     |                  |  |  |
| 10*                            | —   | —   | —                              | —   | —   | —                              | —   | —   | —                              | —   | —   | —                              | —   | —   |                  |  |  |
| 15*                            | —   | —   | —                              | —   | —   | —                              | —   | —   | —                              | —   | —   | —                              | —   | —   |                  |  |  |
| Clamp terminal                 |     |     | Clamp terminal                 |     |     | Clamp terminal                 |     |     | Clamp terminal                 |     |     | Clamp terminal                 |     |     |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ○   | ○   |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ○   | ○   |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ○   | ○   |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | —   | —   |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   |                  |  |  |
| ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   | ●                              | ●   | ●   |                  |  |  |
| Adj. thermal<br>Fixed magnetic |     |     | Adj. thermal<br>Fixed magnetic |     |     | Adj. thermal<br>Fixed magnetic |     |     | Adj. thermal<br>Fixed magnetic |     |     | Adj. thermal<br>Fixed magnetic |     |     | Thermal magnetic |  |  |
| Equipped                       |     |     | Equipped                       |     |     | Equipped                       |     |     | Equipped                       |     |     | Equipped                       |     |     | Equipped         |  |  |

Note \* DC application MCCB trip characteristic is different from AC type, please specify when place the order.

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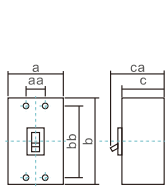
MCB

SPD









MS

MMS

## Molded Case Circuit Breaker

| Frame size (AF) (Inm)  |  | 400   |            |      |   |     |   |     |   |     |   |     |     |  |
|--|--|---|------------|------|---|-----|---|-----|---|-----|---|-----|-----|--|
| Model  |  | BM400-CN  |            |      | BM400-SN  |     | BM400-HN  |     | BM400-RN  |     | BM400-UN  |     |     |  |
| Appearance   |  |  |            |      |  |     |  |     |  |     |  |     |     |  |
| Rated current In (A) at ambient temp. 40°C   |  | 250, 300, 350, 400.   |            |      | 250, 300, 350, 400.   |     | 250, 300, 350, 400.   |     | 250, 300, 350, 400.   |     | 250, 300, 350, 400.   |     |     |  |
| Number of poles (P)  |  | 2   | 3          | 4    | 3   | 4   | 3   | 4   | 3   | 4   | 3   | 4   |     |  |
| Rated insulation voltage Ui (V)  |  | AC  |            | 690  |   | 690 |   | 690 |   | 690 |   | 690 |     |  |
|  |  | DC  |            | 250* | —   | —   | —   | —   | —   | —   | —   | —   | —   |  |
| Rated operational voltage Ue (V AC)  |  | 500   |            |      | 500   |     | 500   |     | 500   |     | 500   |     |     |  |
| Uimp(kV)   |  | 8   |            |      | 8   |     | 8   |     | 8   |     | 8   |     |     |  |
| Dimensions<br><br>(mm) |  | a   | 140        | 140  | 185   | 140 | 185   | 140 | 185   | 140 | 185   | 140 | 185 |  |
|  |  | b   | 257        |      |   | 257 |   | 257 |   | 257 |   | 257 |     |  |
|  |  | c   | 103        |      |   | 103 |   | 103 |   | 103 |   | 103 |     |  |
|  |  | ca  | 155        |      |   | 155 |   | 155 |   | 155 |   | 155 |     |  |
|  |  | bb  | 194        |      |   | 194 |   | 194 |   | 194 |   | 194 |     |  |
|  |  | aa  | 44         |      |   | 44  |   | 44  |   | 44  |   | 44  |     |  |
| Weight (kg)  |  | 5.0   | 5.7        | 7.5  | 5.7   | 7.5 | 5.7   | 7.5 | 5.7   | 7.5 | 5.7   | 7.5 |     |  |
| Rated breaking capacity (kA)   |  | IEC 60947-2<br>EN 60947-2<br>Icu  | 500V(690V) |      | 14  |     | 20  |     | 25  |     | 42  |     | 65  |  |
|  |  |   | 440V       |      | 22  |     | 30  |     | 42  |     | 55  |     | 85  |  |
|  |  |   | 415V       |      | 25  |     | 35  |     | 50  |     | 70  |     | 85  |  |
|  |  |   | 380V       |      | 25  |     | 35  |     | 50  |     | 70  |     | 85  |  |
|  |  |   | 220V(240V) |      | 35  |     | 50  |     | 85  |     | 100   |     | 125 |  |
|  |  | DC  | 250V       |      | 10*   | —   | —   | —   | —   | —   | —   | —   | —   |  |
| 125V   |  |   | 15*        | —    | —   | —   | —   | —   | —   | —   | —   |     |     |  |
| Connection   |  | Busbar/<br>Without busbar   |            |      | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     |     |  |
| Optional accessories   |  | Alarm switch  | (AL)       | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
|  |  | Auxiliary switch  | (AX)       | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
|  |  | Shunt trip  | (SHT)      | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
|  |  | Under-voltage trip  | (UVT)      | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
|  |  | Rotary handle   | (EH)       | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
|  |  | Terminal cover  | (TC)       | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
|  |  | Box lug   | (TL)       | ●    | ●   | ●   | ●   | ●   | ●   | ●   | ●   |     |     |  |
| Trip Unit  |  | Thermal magnetic  |            |      | Thermal magnetic  |     | Thermal magnetic  |     | Thermal magnetic  |     | Thermal magnetic  |     |     |  |
| Tripping button  |  | Equipped  |            |      | Equipped  |     | Equipped  |     | Equipped  |     | Equipped  |     |     |  |

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.  
 Above accessories table is for 3P breaker.  
 2. Ics= 50% Icu  
 3. Adjustable thermal: 80%~100% In.  
 4. \* DC application MCCB trip characteristic is different from AC type, please specify when place the order.

| BM630s-STD  |     | BM630s-LTD  |     | BM630s-HTD  |     | BM630s-RTD  |     | BM630s-STA  |     | BM630s-LTA   |     | BM630s-HTA  |     | BM630s-RTA  |     |     |     |
|---|-----|---|-----|---|-----|---|-----|---|-----|--|-----|---|-----|---|-----|-----|-----|
|  |     |  |     |  |     |  |     |  |     |  |     |  |     |  |     |     |     |
| 400, 500, 600, 630.   |     | 400, 500, 600, 630.   |     | 400, 500, 600, 630.   |     | 400, 500, 600, 630.   |     | 400, 500, 600, 630.   |     | 400, 500, 600, 630.  |     | 400, 500, 600, 630.   |     | 400, 500, 600, 630.   |     |     |     |
| 3   | 4   | 3   | 4   | 3   | 4   | 3   | 4   | 3   | 4   | 3  | 4   | 3   | 4   | 3   | 4   | 3   | 4   |
| 1000  |     | 1000  |     | 1000  |     | 1000  |     | 1000  |     | 1000   |     | 1000  |     | 1000  |     |     |     |
| —   |     | —   |     | —   |     | —   |     | —   |     | —  |     | —   |     | —   |     |     |     |
| 690   |     | 690   |     | 690   |     | 690   |     | 690   |     | 690  |     | 690   |     | 690   |     |     |     |
| 8   |     | 8   |     | 8   |     | 8   |     | 8   |     | 8  |     | 8   |     | 8   |     |     |     |
| 140   | 185 | 140   | 185 | 140   | 185 | 140   | 185 | 140   | 185 | 140  | 185 | 140   | 185 | 140   | 185 | 140 | 185 |
| 257   |     | 257   |     | 257   |     | 257   |     | 257   |     | 257  |     | 257   |     | 257   |     |     |     |
| 103   |     | 103   |     | 103   |     | 103   |     | 103   |     | 103  |     | 103   |     | 103   |     |     |     |
| 155   |     | 155   |     | 155   |     | 155   |     | 155   |     | 155  |     | 155   |     | 155   |     |     |     |
| 194   |     | 194   |     | 194   |     | 194   |     | 194   |     | 194  |     | 194   |     | 194   |     |     |     |
| 44  |     | 44  |     | 44  |     | 44  |     | 44  |     | 44   |     | 44  |     | 44  |     |     |     |
| 5.7   | 7   | 5.7   | 7   | 5.7   | 7   | 5.7   | 7   | 5.7   | 7   | 5.7  | 7   | 5.7   | 7   | 5.7   | 7   | 5.7 | 7   |
| 14(10)  |     | 20(10)  |     | 25(10)  |     | 42(15)  |     | 14(10)  |     | 20(10)   |     | 25(10)  |     | 42(15)  |     |     |     |
| 25  |     | 36  |     | 50  |     | 70  |     | 25  |     | 36   |     | 50  |     | 70  |     |     |     |
| 25  |     | 36  |     | 50  |     | 70  |     | 25  |     | 36   |     | 50  |     | 70  |     |     |     |
| 25  |     | 36  |     | 50  |     | 70  |     | 25  |     | 36   |     | 50  |     | 70  |     |     |     |
| 36  |     | 65  |     | 85  |     | 100   |     | 36  |     | 65   |     | 85  |     | 100   |     |     |     |
| —   |     | —   |     | —   |     | —   |     | —   |     | —  |     | —   |     | —   |     |     |     |
| —   |     | —   |     | —   |     | —   |     | —   |     | —  |     | —   |     | —   |     |     |     |
| Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar  |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| ●   |     | ●   |     | ●   |     | ●   |     | ●   |     | ●  |     | ●   |     | ●   |     |     |     |
| Thermal magnetic  |     | Thermal magnetic  |     | Thermal magnetic  |     | Thermal magnetic  |     | "Adjustable Thermal<br>Fixed magnetic"  |     | "Adjustable Thermal<br>Fixed magnetic"   |     | "Adjustable Thermal<br>Fixed magnetic"  |     | "Adjustable Thermal<br>Fixed magnetic"  |     |     |     |
| Equipped  |     | Equipped  |     | Equipped  |     | Equipped  |     | Equipped  |     | Equipped   |     | Equipped  |     | Equipped  |     |     |     |

Note \* DC application MCCB trip characteristic is different from AC type, please specify when place the order.

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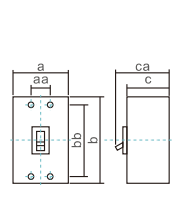
MCB

SPD

MS








MMS

## Molded Case Circuit Breaker

| Frame size (AF) (Inm)  |  | 630   |     |   |     |   |     |   |     |   |     |   |
|--|--|---|-----|---|-----|---|-----|---|-----|---|-----|---|
| Model  |  | BM630-CN  |     | BM630-SN  |     | BM630-HN  |     | BM630-RN  |     | BM630-UN  |     |   |
| Appearance   |  |  |     |  |     |  |     |  |     |  |     |   |
| Rated current In (A) at ambient temp. 40°C   |  | 500, 600, 630.  |     | 500, 600, 630.  |     | 500, 630.   |     | 500, 630.   |     | 500, 630.   |     |   |
| Number of poles (P)  |  | 3   | 4   | 3   | 4   | 3   | 4   | 3   | 4   | 3   | 4   |   |
| Rated insulation voltage Ui (V)  | AC                                     | 1000  |     | 1000  |     | 1000  |     | 1000  |     | 1000  |     |   |
|  | DC                                     | 250*  |     | 250*  |     | 250*  |     | —   |     | —   |     |   |
| Rated operational voltage Ue (V AC)  |  | 500   |     | 500   |     | 500   |     | 500   |     | 500   |     |   |
| Uimp(kV)   |  | 8   |     | 8   |     | 8   |     | 8   |     | 8   |     |   |
| Dimensions<br><br>(mm) | a                                      | 210   | 280 | 210   | 280 | 210   | 280 | 210   | 280 | 210   | 280 |   |
|  | b                                      | 275   |     | 275   |     | 275   |     | 275   |     | 275   |     |   |
|  | c                                      | 103   |     | 103   |     | 103   |     | 103   |     | 103   |     |   |
|  | ca                                     | 155   |     | 155   |     | 155   |     | 155   |     | 155   |     |   |
|  | bb                                     | 243   |     | 243   |     | 243   |     | 243   |     | 243   |     |   |
|  | aa                                     | 70  |     | 70  |     | 70  |     | 70  |     | 70  |     |   |
| Weight (kg)  |  | 10  | 13  | 10  | 13  | 10  | 13  | 10  | 13  | 10  | 13  |   |
| Rated breaking capacity (kA)   | IEC 60947-2<br>EN 60947-2<br>Icu<br>AC | 500V(690V)  | 14  |   | 20  |   | 25  |   | 42  |   | 65  |   |
|  |  | 440V  | 22  |   | 30  |   | 50  |   | 70  |   | 85  |   |
|  |  | 415V  | 25  |   | 35  |   | 50  |   | 70  |   | 85  |   |
|  |  | 380V  | 25  |   | 35  |   | 50  |   | 70  |   | 100 |   |
|  |  | 220V(240V)  | 35  |   | 50  |   | 85  |   | 100 |   | 125 |   |
|  | DC                                     | 250V  | 10* | —   | 20* | —   | 40* | —   | —   | —   | —   | — |
|  |  | 125V  | —   |   | —   |   | —   |   | —   |   | —   |   |
| Connection   |  | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     | Busbar/<br>Without busbar   |     |   |
| Optional accessories   | Alarm switch (AL)                      | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
|  | Auxiliary switch (AX)                  | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
|  | Shunt trip (SHT)                       | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
|  | Under-voltage trip (UVT)               | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
|  | Rotary handle (EH)                     | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
|  | Terminal cover (TC)                    | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
|  | Box lug (TL)                           | ●   |     | ●   |     | ●   |     | ●   |     | ●   |     |   |
| Trip Unit  |  | Fixed thermal<br>Adj. magnetic  |     | Fixed thermal<br>Adj. magnetic  |     | Fixed thermal<br>Adj. magnetic  |     | Fixed thermal<br>Adj. magnetic  |     | Fixed thermal<br>Adj. magnetic  |     |   |
| Tripping button  |  | Equipped  |     | Equipped  |     | Equipped  |     | Equipped  |     | Equipped  |     |   |

Note 1 "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.  
 Above accessories table is for 3P breaker.  
 2. Ics= 50% Icu  
 3. \* DC application MCCB trip characteristic is different from AC type, please specify when place the order.



| 800   |      |   |      | 1000  | 1200  | 1600   |   |   |
|---|------|---|------|---|---|--|---|---|
| BM800-CN  |      | BM800-SN  |      | BM800-HN  | BM800-RN  | BM1000-HS  | BM1200-HS   | BM1600-HS   |
|  |      |  |      |  |  |  |  |  |
| 700, 800.   |      | 700, 800.   |      | 700, 800.   | 700, 800.   | 1000   | 1200  | 1400, 1600.   |
| 3   | 4    | 3   | 4    | 3   | 4   | 3  | 3   | 3   |
| 690   |      | 690   |      | 1000  | 1000  | 1000   | 1000  | 1000  |
| 250*  | —    | 250*  | —    | —   | —   | —  | —   | —   |
| 500   |      | 500   |      | 500   | 500   | 500  | 500   | 500   |
| 8   |      | 8   |      | 8   | 8   | 8  | 8   | 8   |
| 210   | 280  | 210   | 280  | 210   | 280   | 210  | 210   | 210   |
| 275   |      | 275   |      | 275   | 275   | 406  | 406   | 406   |
| 103   |      | 103   |      | 103   | 103   | 140  | 140   | 140   |
| 155   |      | 155   |      | 155   | 155   | 190  | 190   | 190   |
| 243   |      | 243   |      | 243   | 243   | 375  | 375   | 375   |
| 70  |      | 70  |      | 70  | 70  | 70   | 70  | 70  |
| 10.5  | 13.5 | 10.5  | 13.5 | 10.5  | 13.5  | 10.5   | 13.5  | 23  |
| 20  |      | 25  |      | 42  | 65  | 65   | 65  | 65  |
| 30  |      | 50  |      | 70  | 85  | 85   | 85  | 85  |
| 35  |      | 50  |      | 70  | 85  | 85   | 85  | 85  |
| 35  |      | 50  |      | 70  | 100   | 100  | 100   | 100   |
| 50  |      | 85  |      | 100   | 125   | 130  | 130   | 130   |
| 20*   | —    | 40*   | —    | —   | —   | —  | —   | —   |
| —   |      | —   |      | —   | —   | —  | —   | —   |
| Busbar/<br>Without busbar   |      | Busbar/<br>Without busbar   |      | Busbar/<br>Without busbar   | Busbar/<br>Without busbar   | Busbar   | Busbar  | Busbar  |
| ●   |      | ●   |      | ●   | ●   | ○  | ○   | ○   |
| ●   |      | ●   |      | ●   | ●   | ○  | ○   | ○   |
| ●   |      | ●   |      | ●   | ●   | ○  | ○   | ○   |
| ●   |      | ●   |      | ●   | ●   | ○  | ○   | ○   |
| ●   |      | ●   |      | ●   | ●   | —  | —   | —   |
| ●   |      | ●   |      | ●   | ●   | —  | —   | —   |
| ●   |      | ●   |      | ●   | ●   | ●  | ●   | ●   |
| Fixed thermal<br>Adj. magnetic  |      | Fixed thermal<br>Adj. magnetic  |      | Fixed thermal<br>Adj. magnetic  | Fixed thermal<br>Adj. magnetic  | Fixed thermal<br>Adj. magnetic   | Fixed thermal<br>Adj. magnetic  | Fixed thermal<br>Adj. magnetic  |
| Equipped  |      | Equipped  |      | Equipped  | Equipped  | Equipped   | Equipped  | Equipped  |

Note \* DC application MCCB trip characteristic is different from AC type, please specify when place the order.

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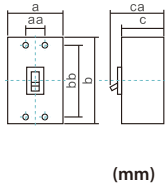
MCB

SPD

MS









MMS

## Molded Case Circuit Breaker (BMA Series)

| Frame size (AF) (Inm)                      |  | 125   |                |                | 160   |                |                | 250  |                |                | 400   |             |             |        |
|--|--|---|----------------|----------------|---|----------------|----------------|--|----------------|----------------|---|-------------|-------------|--------|
| Model                                      |  | BMA 125-STA   | BMA 125-LTA    | BMA 125-HTA    | BMA 160-STA   | BMA 160-LTA    | BMA 160-HTA    | BMA 250-STA  | BMA 250-LTA    | BMA 250-HTA    | BMA 400-LTA   | BMA 400-HTA | BMA 400-RTA |        |
| Appearance                                 |  |  |                |                |  |                |                |  |                |                |  |             |             |        |
| Rated current In (A) at ambient temp. 40°C |  | 15,16,20,25,30,32,40,50,60,63,75,80,100,125A                                      |                |                | 40,50,60,63,70,75,80,100,125,140,150,160A   |                |                | 175,200,225,250A   |                |                | 250, 300, 350, 400A   |             |             |        |
| Number of poles (P)                        |  | 3   |                | 4              |   | 3              |                | 4  |                | 3              |   | 4           |             |        |
| Rated insulation voltage Ui (V)            |  | AC  |                | 800            |   | 800            |                | 800  |                | 800            |   | 800         |             |        |
| Rated operational voltage Ue(V AC)         |  | 690   |                | 690            |   | 690            |                | 690  |                | 690            |   | 690         |             |        |
| Uimp(kV)                                   |  | 8   |                | 8              |   | 8              |                | 8  |                | 8              |   | 8           |             |        |
| Dimensions                                 |  | a   | 90             | 120            | 105   | 140            | 105            | 140  | 140            | 185            |   |             |             |        |
|  |  | b   | 155            | 155            | 165   | 165            | 165            | 165  | 257            | 257            |   |             |             |        |
|  |  | c   | 68             | 68             | 68  | 68             | 68             | 68   | 103            | 103            |   |             |             |        |
|  |  | ca  | 92             | 92             | 92  | 92             | 92             | 92   | 155            | 155            |   |             |             |        |
|  |  | bb  | 132            | 132            | 126   | 126            | 126            | 126  | 194            | 194            |   |             |             |        |
|  |  | aa  | 30             | 30             | 35  | 35             | 35             | 35   | 44             | 44             |   |             |             |        |
|  |  | Weight (kg)   | 0.7            | 0.9            | 1.5   | 1.9            | 1.5            | 1.9  | 5.7            | 7.5            |   |             |             |        |
| Rated breaking capacity (kA)               | IEC 60947-2<br>EN 60947-2<br>Icu<br>AC   | 690V  | 8 kA           | 8 kA           | 10 kA   | 8 kA           | 8 kA           | 10 kA  | 8 kA           | 8 kA           | 10 kA   | 8 kA        | 10 kA       | 15 kA  |
|  |  | 415V  | 25 kA          | 36 kA          | 50 kA   | 25 kA          | 36 kA          | 50 kA  | 25 kA          | 36 kA          | 50 kA   | 36 kA       | 50 kA       | 70 kA  |
|  |  | 380V  | 25 kA          | 36 kA          | 50 kA   | 25 kA          | 36 kA          | 50 kA  | 25 kA          | 36 kA          | 50 kA   | 36 kA       | 50 kA       | 70 kA  |
|  |  | 220V(240V)  | 85 kA          | 85 kA          | 100 kA  | 85 kA          | 85 kA          | 100 kA   | 85 kA          | 85 kA          | 100 kA  | 70 kA       | 85 kA       | 100 kA |
| Connection                                 |  | Clamp terminal  | Clamp terminal | Clamp terminal | Clamp terminal  | Clamp terminal | Clamp terminal | Clamp terminal   | Clamp terminal | Clamp terminal | Busbar  | Busbar      | Busbar      |        |
| Optional accessories                       | Alarm switch (AL)  | ●   | ●              | ●              | ●   | ●              | ●              | ●  | ●              | ●              | ●   | ●           | ●           |        |
|  | Auxiliary switch (AX)  | ●   | ●              | ●              | ●   | ●              | ●              | ●  | ●              | ●              | ●   | ●           | ●           |        |
|  | Shunt trip (SHT)   | ●   | ●              | ●              | ●   | ●              | ●              | ●  | ●              | ●              | ●   | ●           | ●           |        |
|  | Under-voltage trip (UVT)   | ●   | ●              | ●              | ●   | ●              | ●              | ●  | ●              | ●              | ●   | ●           | ●           |        |
|  | Rotary handle (EH)   | ●   | ●              | ●              | ●   | ●              | ●              | ●  | ●              | ●              | ●   | ●           | ●           |        |
|  | Terminal cover (TC)  | ●   | ●              | ●              | ●   | ●              | ●              | ●  | ●              | ●              | ●   | ●           | ●           |        |
| Trip Unit                                  |  | Adjustable Thermal Fixed Magnetic   |                |                | Adjustable Thermal Fixed Magnetic   |                |                | Adjustable Thermal Fixed Magnetic  |                |                | Adjustable Thermal Fixed Magnetic   |             |             |        |
| Tripping button                            |  | Equipped  | Equipped       | Equipped       | Equipped  | Equipped       | Equipped       | Equipped   | Equipped       | Equipped       | Equipped  | Equipped    | Equipped    |        |

Note 1. Ics=100%Icu

630

| BMA630s-STD   |                  | BMA630s-LTD   |                  | BMA630s-HTD   |                                   | BMA630s-RTD   |                                   | BMA630s-STA   |                                   | BMA630s-LTA  |                                   | BMA630s-HTA   |                                   | BMA630s-RTA   |     |
|---|------------------|---|------------------|---|-----------------------------------|---|-----------------------------------|---|-----------------------------------|--|-----------------------------------|---|-----------------------------------|---|-----|
|  |                  |  |                  |  |                                   |  |                                   |  |                                   |  |                                   |  |                                   |  |     |
| 400, 500, 600, 630A   |                  | 400, 500, 600, 630A   |                  | 400, 500, 600, 630A   |                                   | 400, 500, 600, 630A   |                                   | 400, 500, 600, 630A   |                                   | 400, 500, 600, 630A  |                                   | 400, 500, 600, 630A   |                                   | 400, 500, 600, 630A   |     |
| 3   | 4                | 3   | 4                | 3   | 4                                 | 3   | 4                                 | 3   | 4                                 | 3  | 4                                 | 3   | 4                                 | 3   | 4   |
| 1000  |                  | 1000  |                  | 1000  |                                   | 1000  |                                   | 1000  |                                   | 1000   |                                   | 1000  |                                   | 1000  |     |
| 690   |                  | 690   |                  | 690   |                                   | 690   |                                   | 690   |                                   | 690  |                                   | 690   |                                   | 690   |     |
| 8   |                  | 8   |                  | 8   |                                   | 8   |                                   | 8   |                                   | 8  |                                   | 8   |                                   | 8   |     |
| 140   | 185              | 140   | 185              | 140   | 185                               | 140   | 185                               | 140   | 185                               | 140  | 185                               | 140   | 185                               | 140   | 185 |
| 257   |                  | 257   |                  | 257   |                                   | 257   |                                   | 257   |                                   | 257  |                                   | 257   |                                   | 257   |     |
| 103   |                  | 103   |                  | 103   |                                   | 103   |                                   | 103   |                                   | 103  |                                   | 103   |                                   | 103   |     |
| 155   |                  | 155   |                  | 155   |                                   | 155   |                                   | 155   |                                   | 155  |                                   | 155   |                                   | 155   |     |
| 194   |                  | 194   |                  | 194   |                                   | 194   |                                   | 194   |                                   | 194  |                                   | 194   |                                   | 194   |     |
| 44  |                  | 44  |                  | 44  |                                   | 44  |                                   | 44  |                                   | 44   |                                   | 44  |                                   | 44  |     |
| 5.7   | 7                | 5.7   | 7                | 5.7   | 7                                 | 5.7   | 7                                 | 5.7   | 7                                 | 5.7  | 7                                 | 5.7   | 7                                 | 5.7   | 7   |
| 10 kA   |                  | 10 kA   |                  | 10 kA   |                                   | 15 kA   |                                   | 10 kA   |                                   | 10 kA  |                                   | 10 kA   |                                   | 15 kA   |     |
| 25 kA   |                  | 36 kA   |                  | 50 kA   |                                   | 70 kA   |                                   | 25 kA   |                                   | 36 kA  |                                   | 50 kA   |                                   | 70 kA   |     |
| 25 kA   |                  | 36 kA   |                  | 50 kA   |                                   | 70 kA   |                                   | 25 kA   |                                   | 36 kA  |                                   | 50 kA   |                                   | 70 kA   |     |
| 36 kA   |                  | 65 kA   |                  | 85 kA   |                                   | 100 kA  |                                   | 36 kA   |                                   | 65 kA  |                                   | 85 kA   |                                   | 100 kA  |     |
| Clamp terminal  |                  | Clamp terminal  |                  | Clamp terminal  |                                   | Clamp terminal  |                                   | Clamp terminal  |                                   | Clamp terminal   |                                   | Clamp terminal  |                                   | Clamp terminal  |     |
| ●   | ●                | ●   | ●                | ●   | ●                                 | ●   | ●                                 | ●   | ●                                 | ●  | ●                                 | ●   | ●                                 | ●   | ●   |
| ●   | ●                | ●   | ●                | ●   | ●                                 | ●   | ●                                 | ●   | ●                                 | ●  | ●                                 | ●   | ●                                 | ●   | ●   |
| ●   | ●                | ●   | ●                | ●   | ●                                 | ●   | ●                                 | ●   | ●                                 | ●  | ●                                 | ●   | ●                                 | ●   | ●   |
| ●   | ●                | ●   | ●                | ●   | ●                                 | ●   | ●                                 | ●   | ●                                 | ●  | ●                                 | ●   | ●                                 | ●   | ●   |
| ●   | ●                | ●   | ●                | ●   | ●                                 | ●   | ●                                 | ●   | ●                                 | ●  | ●                                 | ●   | ●                                 | ●   | ●   |
| ●   | ●                | ●   | ●                | ●   | ●                                 | ●   | ●                                 | ●   | ●                                 | ●  | ●                                 | ●   | ●                                 | ●   | ●   |
| Thermal magnetic  | Thermal magnetic | Thermal magnetic  | Thermal magnetic | Thermal magnetic  | Adjustable Thermal Fixed magnetic | Adjustable Thermal Fixed magnetic   | Adjustable Thermal Fixed magnetic | Adjustable Thermal Fixed magnetic   | Adjustable Thermal Fixed magnetic | Adjustable Thermal Fixed magnetic  | Adjustable Thermal Fixed magnetic | Adjustable Thermal Fixed magnetic   | Adjustable Thermal Fixed magnetic | Adjustable Thermal Fixed magnetic   |     |
| Equipped  | Equipped         | Equipped  | Equipped         | Equipped  | Equipped                          | Equipped  | Equipped                          | Equipped  | Equipped                          | Equipped   | Equipped                          | Equipped  | Equipped                          | Equipped  |     |

Index

MCCB  
ELCB

ATS

ACB

MCB

SPD

MS

MMS

## Molded Case Circuit Breaker (BMA Series)

| Frame size (AF) (Inm)                      |                                     | 630                               |          |                                   |          | 630            |          |                                   |          | 630                               |          |             |          | 800         |      |             |      | 800         |      |             |      | 800         |      |             |      |        |      |     |      |     |
|--|-------------------------------------|-----------------------------------|----------|-----------------------------------|----------|----------------|----------|-----------------------------------|----------|-----------------------------------|----------|-------------|----------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|------|--------|------|-----|------|-----|
| Model                                      |                                     | BMA 630-HTD                       |          | BMA 630-RTD                       |          | BMA 630-HTA    |          | BMA 630-RTA                       |          | BMA 630-HED                       |          | BMA 630-RED |          | BMA 800-HTD |      | BMA 800-RTD |      | BMA 800-HTA |      | BMA 800-RTA |      | BMA 800-HED |      | BMA 800-RED |      |        |      |     |      |     |
| Appearance                                 |                                     |                                   |          |                                   |          |                |          |                                   |          |                                   |          |             |          |             |      |             |      |             |      |             |      |             |      |             |      |        |      |     |      |     |
| Rated current In (A) at ambient temp. 40°C |                                     | 500, 600, 630A                    |          |                                   |          | 500, 600, 630A |          |                                   |          | 630A                              |          |             |          | 700, 800A   |      |             |      | 700, 800A   |      |             |      | 800A        |      |             |      |        |      |     |      |     |
| Number of poles (P)                        |                                     | 3                                 | 4        | 3                                 | 4        | 3              | 4        | 3                                 | 4        | 3                                 | 4        | 3           | 4        | 3           | 4    | 3           | 4    | 3           | 4    | 3           | 4    | 3           | 4    | 3           | 4    | 3      | 4    | 3   | 4    |     |
| Rated insulation voltage Ui (V)            |                                     | AC 1000                           |          |                                   |          | 1000           |          |                                   |          | 1000                              |          |             |          | 1000        |      |             |      | 1000        |      |             |      | 1000        |      |             |      |        |      |     |      |     |
| Rated operational voltage Ue(V AC)         |                                     | 690                               |          |                                   |          | 690            |          |                                   |          | 690                               |          |             |          | 690         |      |             |      | 690         |      |             |      | 690         |      |             |      |        |      |     |      |     |
| Uimp(kV)                                   |                                     | 8                                 |          |                                   |          | 8              |          |                                   |          | 8                                 |          |             |          | 8           |      |             |      | 8           |      |             |      | 8           |      |             |      |        |      |     |      |     |
| Dimensions                                 |                                     | a                                 | 210      | 280                               | 210      | 280            | 210      | 280                               | 210      | 280                               | 210      | 280         | 210      | 280         | 210  | 280         | 210  | 280         | 210  | 280         | 210  | 280         | 210  | 280         | 210  | 280    | 210  | 280 | 210  | 280 |
|  |                                     | b                                 | 275      |                                   |          |                | 275      |                                   |          |                                   | 275      |             |          |             | 275  |             |      |             | 275  |             |      |             | 275  |             |      |        |      |     |      |     |
|  |                                     | c                                 | 103      |                                   |          |                | 103      |                                   |          |                                   | 103      |             |          |             | 103  |             |      |             | 103  |             |      |             | 103  |             |      |        |      |     |      |     |
|  |                                     | ca                                | 155      |                                   |          |                | 155      |                                   |          |                                   | 155      |             |          |             | 155  |             |      |             | 155  |             |      |             | 155  |             |      |        |      |     |      |     |
|  |                                     | bb                                | 243      |                                   |          |                | 243      |                                   |          |                                   | 243      |             |          |             | 243  |             |      |             | 243  |             |      |             | 243  |             |      |        |      |     |      |     |
|  |                                     | aa                                | 70       |                                   |          |                | 70       |                                   |          |                                   | 70       |             |          |             | 70   |             |      |             | 70   |             |      |             | 70   |             |      |        |      |     |      |     |
|  |                                     | (mm)                              |          |                                   |          |                |          |                                   |          |                                   |          |             |          |             |      |             |      |             |      |             |      |             |      |             |      |        |      |     |      |     |
| Weight (kg)                                |                                     | 10                                | 13       | 10                                | 13       | 10             | 13       | 10                                | 13       | 11.5                              | 15.3     | 11.5        | 15.3     | 10          | 13   | 10          | 13   | 10          | 13   | 10          | 13   | 10          | 13   | 10          | 13   | 12     | 15.8 | 12  | 15.8 |     |
| Rated breaking capacity (kA)               | IEC 60947-2<br>EN 60947-2<br>AC lcu | 690V                              | 10kA     | 15kA                              | 10kA     | 15kA           | 10kA     | 15kA                              | 10kA     | 15kA                              | 10kA     | 15kA        | 10kA     | 15kA        | 10kA | 15kA        | 10kA | 15kA        | 10kA | 15kA        | 10kA | 15kA        | 10kA | 15kA        | 10kA | 15kA   |      |     |      |     |
|  |                                     | 415V                              | 50kA     | 70kA                              | 50kA     | 70kA           | 50kA     | 70kA                              | 50kA     | 70kA                              | 50kA     | 70kA        | 50kA     | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA   |      |     |      |     |
|  |                                     | 380V                              | 50kA     | 70kA                              | 50kA     | 70kA           | 50kA     | 70kA                              | 50kA     | 70kA                              | 50kA     | 70kA        | 50kA     | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA        | 50kA | 70kA   |      |     |      |     |
|  |                                     | 220V/240V                         | 85kA     | 100kA                             | 85kA     | 100kA          | 85kA     | 100kA                             | 85kA     | 100kA                             | 85kA     | 100kA       | 85kA     | 100kA       | 85kA | 100kA       | 85kA | 100kA       | 85kA | 100kA       | 85kA | 100kA       | 85kA | 100kA       | 85kA | 100kA  |      |     |      |     |
| Connection                                 |                                     | Busbar                            |          | Busbar                            |          | Busbar         |          | Busbar                            |          | Busbar                            |          | Busbar      |          | Busbar      |      | Busbar      |      | Busbar      |      | Busbar      |      | Busbar      |      | Busbar      |      | Busbar |      |     |      |     |
| Optional accessories                       | Alarm switch (AL)                   | ●                                 | ●        | ●                                 | ●        | ●              | ●        | ●                                 | ●        | ●                                 | ●        | ●           | ●        | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●      | ●    |     |      |     |
|  | Auxiliary switch (AX)               | ●                                 | ●        | ●                                 | ●        | ●              | ●        | ●                                 | ●        | ●                                 | ●        | ●           | ●        | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●      | ●    |     |      |     |
|  | Shunt trip (SHT)                    | ●                                 | ●        | ●                                 | ●        | ●              | ●        | ●                                 | ●        | ●                                 | ●        | ●           | ●        | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●      | ●    |     |      |     |
|  | Under-voltage trip (UVT)            | ●                                 | ●        | ●                                 | ●        | ●              | ●        | ●                                 | ●        | ●                                 | ●        | ●           | ●        | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●      | ●    |     |      |     |
|  | Rotary handle (EH)                  | ●                                 | ●        | ●                                 | ●        | ●              | ●        | ●                                 | ●        | ●                                 | ●        | ●           | ●        | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●      | ●    |     |      |     |
|  | Terminal cover (TC)                 | ●                                 | ●        | ●                                 | ●        | ●              | ●        | ●                                 | ●        | ●                                 | ●        | ●           | ●        | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●           | ●    | ●      | ●    |     |      |     |
| Trip Unit                                  |                                     | Fixed Thermal Adjustable Magnetic |          | Adjustable Thermal Fixed magnetic |          | Electronic     |          | Fixed Thermal Adjustable Magnetic |          | Adjustable Thermal Fixed magnetic |          | Electronic  |          |             |      |             |      |             |      |             |      |             |      |             |      |        |      |     |      |     |
| Tripping button                            |                                     | Equipped                          | Equipped | Equipped                          | Equipped | Equipped       | Equipped | Equipped                          | Equipped | Equipped                          | Equipped | Equipped    | Equipped |             |      |             |      |             |      |             |      |             |      |             |      |        |      |     |      |     |

Note 1. lcs=100%lcu

| Frame size (AF) (Inm) | 1000            |                 | 1250            |                 | 1600            |                 |
|-----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Model                 | BMA<br>1000-RED | BMA<br>1000-RED | BMA<br>1250-RED | BMA<br>1250-RED | BMA<br>1600-RED | BMA<br>1600-RED |

Appearance



| Rated current In (A)<br>at ambient temp. 40°C | 1000A   |   | 1250A |   | 1600A |   |
|---|---------|---|-------|---|-------|---|
| Number of poles (P)                           | 3       | 4 | 3     | 4 | 3     | 4 |
| Rated insulation<br>voltage Ui (V)            | AC 1000 |   | 1000  |   | 1000  |   |
| Rated operationa<br>voltage Ue(V AC)          | 690     |   | 690   |   | 690   |   |
| Uimp(kV)                                      | 8       |   | 8     |   | 8     |   |

| Dimensions  | Diagram | a       |      | b       |      | c       |      | ca   |      | bb   |      | aa      |      |
|-------------|---------|---------|------|---------|------|---------|------|------|------|------|------|---------|------|
|             |         | 210     | 280  | 210     | 280  | 210     | 280  | 210  | 280  | 210  | 280  | 199     | 339  |
|             |         | 327     |      | 327     |      | 327     |      | 205  |      | 200  |      | 199 339 |      |
|             |         | 141     |      | 141     |      | 141     |      | 205  |      | 200  |      | 199 339 |      |
|             |         | 205     |      | 205     |      | 205     |      | 205  |      | 200  |      | 199 339 |      |
|             |         | 200     |      | 200     |      | 200     |      | 205  |      | 200  |      | 199 339 |      |
|             |         | 199 339 |      | 199 339 |      | 199 339 |      | 205  |      | 200  |      | 199 339 |      |
| Weight (kg) |         | 13.3    | 17.2 | 13.3    | 17.2 | 13.3    | 17.2 | 13.3 | 17.2 | 13.3 | 17.2 | 13.3    | 17.2 |

| Rated breaking capacity (kA) | IEC 60947-2<br>EN 60947-2<br>AC | 690V                        |      | 415V                        |      | 380V                        |      | 220V(240V)                  |      |
|------------------------------|---------------------------------|-----------------------------|------|-----------------------------|------|-----------------------------|------|-----------------------------|------|
|                              |                                 | 35                          | 45   | 50                          | 70   | 50                          | 70   | —                           | —    |
|                              |                                 | 13.3                        | 17.2 | 13.3                        | 17.2 | 13.3                        | 17.2 | 13.3                        | 17.2 |
| Accessory                    |                                 | AL/AX/SHT/<br>Rotary handle |      | AL/AX/SHT/<br>Rotary handle |      | AL/AX/SHT/<br>Rotary handle |      | AL/AX/SHT/<br>Rotary handle |      |

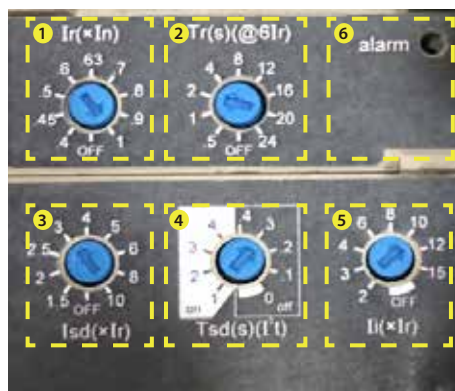
### Condition:

1. Operation Temp.: -25°C ~ +70 °C
2. Storage Temp.: -40 °C ~ 85 °C
3. Altitude: ≤2000m
4. Pollution class: 3
5. Category: B
6. Relative humidity: ≤ 90%

### Neutral Protection:



4P4D: 100% In 3D+N/2: 50% In 4P3D: No protection



1. Overload Setting Knob  
(Ir=0.4/0.45/0.5/0.6/0.63/0.7/0.8/0.9/1/OFF)
2. Overload Tripping Time Setting Knob  
(Tr=0.5/1/2/4/8/12/16/20/24/OFF)
3. (Isd=1.5/2/2.5/3/4/5/6/8/10/OFF)
4. (I2t on: Tsd=0.1/0.2/0.3/0.4; I2t off: Tsd=0/0.1/0.2/0.3/0.4)
5. Instantaneous Setting Knob  
(Ii=2/3/4/6/8/10/12/15/OFF)
6. Alarm indicator: Overload (red light)

## Protection

| Long-time                                      |  |                |                           |           |      |      |      |     |      |      |      |     |     |
|--|--|----------------|---------------------------|-----------|------|------|------|-----|------|------|------|-----|-----|
| Current setting(A)                             |  | Ir=Inx         | 0.4                       | 0.45      | 0.5  | 0.6  | 0.63 | 0.7 | 0.8  | 0.9  | 1    | OFF |     |
| Time Delay (s)                                 |  | Tr (s)         | 0.5                       | 1         | 2    | 4    | 8    | 12  | 16   | 20   | 24   | OFF |     |
| Accuracy: ±20%                                 |  | 1.5xIr         | 8                         | 16        | 32   | 64   | 128  | 192 | 256  | 320  | 384  |     |     |
|  |  | 6xIr           | 0.5                       | 1         | 2    | 4    | 8    | 12  | 16   | 20   | 24   |     |     |
|  |  | 7.2xIr         | 0.35                      | 0.7       | 1.39 | 2.78 | 5.56 | 8.3 | 11.1 | 13.9 | 16.7 |     |     |
| Short-time                                     |  |                |                           |           |      |      |      |     |      |      |      |     |     |
| Current setting(A)                             |  | Accuracy: ±10% | Isd=Irx                   | 1.5       | 2    | 2.5  | 3    | 4   | 5    | 6    | 8    | 10  | OFF |
| Time Delay Tsd(s)                              |  |                | I²t off                   | 0         | 0.1  | 0.2  | 0.3  | 0.4 |      |      |      |     |     |
|  |  |                | I²t on                    |           | 0.1  | 0.2  | 0.3  | 0.4 |      |      |      |     |     |
| Time Delay (ms)<br>at 10xIr<br>(I2t off or on) |  |                | Tsd(Max. resettable time) | 20        | 80   | 140  | 230  | 350 |      |      |      |     |     |
|  |  |                | Tsd(Max. trip time)       | 80        | 140  | 200  | 320  | 500 |      |      |      |     |     |
| Instantaneous                                  |  |                |                           |           |      |      |      |     |      |      |      |     |     |
| Current setting(A)                             |  | Accuracy: ±10% | Ii=Irx                    | 2         | 3    | 4    | 6    | 8   | 10   | 12   | 15   | OFF |     |
| Tripping time                                  |  |                |                           | 60 ±20 ms |      |      |      |     |      |      |      |     |     |



## Molded Case Circuit Breaker ( Electronic trip Unit)

| Frame size (AF) (Inm)                       |                               | 100                                  |           |          | 160                                      |           |          | 250  |           |          |  |
|---|-------------------------------|--------------------------------------|-----------|----------|--|-----------|----------|--|-----------|----------|--|
| Type  |                               | BM100-HE                             | BM100-RE  | BM100-UE | BM160-HE                                 | BM160-RE  | BM160-UE | BM250-HE                                     | BM250-RE  | BM250-UE |  |
| Rated current In (A) at ambient temp. 40 °C |                               | 100                                  |           |          | 160                                      |           |          | 250  |           |          |  |
| Electronically adjustable current Ir (A)    |                               | 40, 45, 50, 60, 70, 80, 90, 95, 100. |           |          | 64, 72, 80, 96, 112, 128, 144, 152, 160. |           |          | 100, 113, 125, 150, 175, 200, 225, 238, 250. |           |          |  |
| Rated operational voltage Ue (V AC)         |                               | 500                                  |           |          | 500                                      |           |          | 500  |           |          |  |
| Rated insulation voltage Ui (V)             |                               | 690                                  |           |          | 690                                      |           |          | 690  |           |          |  |
| Rated impulse withstand voltage Uimp (kV)   |                               | 8                                    |           |          | 8  |           |          | 8  |           |          |  |
| Number of poles (P)                         |                               | 3P / 4P                              |           |          | 3P / 4P                                  |           |          | 3P / 4P                                      |           |          |  |
| Model                                       |                               | HE                                   | RE        | UE       | HE                                       | RE        | UE       | HE   | RE        | UE       |  |
| Rated breaking capacity Icu (kA)            |                               | 50                                   | 70        | 85       | 50                                       | 70        | 85       | 50   | 70        | 85       |  |
| Dimensions (mm)                             | <p>(mm)</p>                   | a                                    | 105 / 140 |          |  | 105 / 140 |          |  | 105 / 140 |          |  |
|   |                               | b                                    | 165       |          |  | 165       |          |  | 165       |          |  |
|   |                               | c                                    | 86        |          |  | 86        |          |  | 86        |          |  |
|   |                               | ca                                   | 112       |          |  | 112       |          |  | 112       |          |  |
|   |                               | bb                                   | 126       |          |  | 126       |          |  | 126       |          |  |
|   |                               | aa                                   | 35        |          |  | 35        |          |  | 35        |          |  |
| Weight (kg)                                 |                               | 2.5 / 3.0                            |           |          | 2.5 / 3.0                                |           |          | 2.5 / 3.0                                    |           |          |  |
| Endurance                                   | Electrical life (10 thousand) | 1,000                                |           |          | 1,000                                    |           |          | 1,000  |           |          |  |
|   | Mechanical life (10 thousand) | 8,500                                |           |          | 7,000                                    |           |          | 7,000  |           |          |  |
| Connection                                  |                               | Clamp terminal                       |           |          | Clamp terminal                           |           |          | Clamp terminal                               |           |          |  |
| Trip unit                                   |                               | Electronic                           |           |          | Electronic                               |           |          | Electronic                                   |           |          |  |
| Trip button                                 |                               | Equipped                             |           |          | Equipped                                 |           |          | Equipped                                     |           |          |  |
| Optional accessories                        | Alarm switch (AL)             | ○                                    |           |          | ○  |           |          | ○  |           |          |  |
|   | Auxiliary switch (AX)         | ○                                    |           |          | ○  |           |          | ○  |           |          |  |
|   | Shunt trip (SHT)              | ○                                    |           |          | ○  |           |          | ○  |           |          |  |
|   | Under-voltage trip (UVT)      | —                                    |           |          | —  |           |          | —  |           |          |  |
|   | Lead wiring terminal (LT)     | ○                                    |           |          | ○  |           |          | ○  |           |          |  |
|   | Motor operation device        | ○                                    |           |          | ○  |           |          | ○  |           |          |  |
|   | Communication (COM)           | ○                                    |           |          | ○  |           |          | ○  |           |          |  |
|   | Communication (HUB)           | ○                                    |           |          | ○  |           |          | ○  |           |          |  |

Note 1. Ics= 50% Icu

| 400  |          |          | 630  |          |          | 800  |          |          | 1000  |           | 1250   |           |
|--|----------|----------|--|----------|----------|--|----------|----------|---|-----------|--|-----------|
| BM400-HE                                     | BM400-RE | BM400-UE | BM630-HE                                     | BM630-RE | BM630-UE | BM800-SE                                     | BM800-HE | BM800-RE | BM1000-SE                                     | BM1000-HE | BM1250-SE  | BM1250-HE |
| 400  |          |          | 630  |          |          | 800  |          |          | 1000  |           | 1250   |           |
| 160, 180, 200, 240, 280, 320, 360, 380, 400. |          |          | 252, 284, 315, 378, 441, 504, 567, 600, 630. |          |          | 320, 360, 400, 480, 560, 640, 720, 760, 800. |          |          | 400, 450, 500, 600, 700, 800, 900, 950, 1000. |           | 500, 563, 625, 750, 875, 1000, 1125, 1188, 1250. |           |
| 500  |          |          | 500  |          |          | 500  |          |          | 500   |           | 500  |           |
| 690  |          |          | 690  |          |          | 690  |          |          | 690   |           | 690  |           |
| 8  |          |          | 8  |          |          | 8  |          |          | 8   |           | 8  |           |
| 3P / 4P                                      |          |          | 3P / 4P                                      |          |          | 3P / 4P                                      |          |          | 3P  |           | 3P   |           |
| HE   | RE       | UE       | HE   | RE       | UE       | SE   | HE       | RE       | SE  | HE        | SE   | HE        |
| 50   | 70       | 85       | 50   | 70       | 85       | 50   | 70       | 85       | 70  | 85        | 70   | 85        |
| 140 / 185                                    |          |          | 210 / 280                                    |          |          | 210 / 280                                    |          |          | 210   |           | 210  |           |
| 257  |          |          | 275  |          |          | 275  |          |          | 406   |           | 406  |           |
| 103  |          |          | 103  |          |          | 103  |          |          | 140   |           | 140  |           |
| 144  |          |          | 155  |          |          | 155  |          |          | 190   |           | 190  |           |
| 194  |          |          | 243  |          |          | 243  |          |          | 375   |           | 375  |           |
| 44   |          |          | 70   |          |          | 70   |          |          | 70  |           | 70   |           |
| 7 / 8  |          |          | 11.5 / 14.5                                  |          |          | 11.5 / 14.5                                  |          |          | 26  |           | 26   |           |
| 1,000  |          |          | 1,000  |          |          | 500  |          |          | 500   |           | 500  |           |
| 4,000  |          |          | 4,000  |          |          | 2,500  |          |          | 2,500   |           | 2,500  |           |
| Busbar                                       |          |          | Busbar                                       |          |          | Busbar                                       |          |          | Busbar  |           | Busbar   |           |
| Electronic                                   |          |          | Electronic                                   |          |          | Electronic                                   |          |          | Electronic                                    |           | Electronic                                       |           |
| Equipped                                     |          |          | Equipped                                     |          |          | Equipped                                     |          |          | Equipped                                      |           | Equipped   |           |
| ○  |          |          | ○  |          |          | ○  |          |          | ○   |           | ○  |           |
| ○  |          |          | ○  |          |          | ○  |          |          | ○   |           | ○  |           |
| ○  |          |          | ○  |          |          | ○  |          |          | —   |           | —  |           |
| ○  |          |          | ○  |          |          | ○  |          |          | —   |           | —  |           |
| —  |          |          | —  |          |          | —  |          |          | —   |           | —  |           |
| ○  |          |          | ○  |          |          | ○  |          |          | —   |           | —  |           |
| ○  |          |          | ○  |          |          | ○  |          |          | —   |           | —  |           |
| ○  |          |          | ○  |          |          | ○  |          |          | —   |           | —  |           |

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ACB




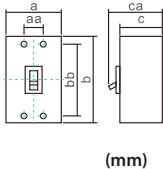
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## Earth Leakage Circuit Breaker

| Frame size (AF) (Inm)                      |   | 50  |      | 100  |      |   |      |     |
|--|---|---|------|--|------|---|------|-----|
| Model                                      |   | BL50-SN   |      | BL100-SN   |      | BL100-HN  |      |     |
| Appearance                                 |   |  |      |  |      |  |      |     |
| Rated current In (A) at ambient temp. 40°C |   | 15, 20, 30, 40, 50.   |      | 15, 20, 30, 40, 50, 60, 75, 100.   |      | 15, 20, 30, 40, 50, 60, 75, 100.  |      |     |
| Phase & wire (P)                           |   | 1ø2W, 3ø3W.   | 3ø4W | 1ø2W, 3ø3W.  | 3ø4W | 1ø2W, 3ø3W.   | 3ø4W |     |
| Number of poles (P)                        |   | 3   | 4    | 3  | 4    | 3   | 4    |     |
| Rated voltage (VAC)                        |   | 230, 400.   |      | 230, 400.  |      | 230, 400.   |      |     |
| High speed                                 | Rated current sensitivity IΔn AC type (mA)  | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                |      | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                 |      | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                  |      |     |
|  | Rated current sensitivity IΔn A type (mA)   | 30-100-300-500mA(adj)   |      | 30-100-300-500mA(adj)  |      | 30-100-300-500mA(adj)   |      |     |
|  | 2IΔn operating time (S)   | 0.1   |      | 0.1  |      | 0.1   |      |     |
|  | 5IΔn operating time (S)   | 0.04  |      | 0.04   |      | 0.04  |      |     |
| Delay                                      | Rated current sensitivity IΔn AC type (mA)  | 100-300-500mA(adj)  |      | 100-300-500mA(adj)   |      | 100-300-500mA(adj)  |      |     |
|  | Rated current sensitivity IΔn A type (mA)   | 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)  |      | 100-300-500-1000mA(adj)   |      |     |
|  | 2IΔn operating time (S)   | 0.1- 0.4- 0.8- 2.0 adjustable   |      | 0.1- 0.4- 0.8- 2.0 adjustable  |      | 0.1- 0.4- 0.8- 2.0 adjustable   |      |     |
|  | 2IΔn max. non-operating time (S)  | 0, 0.2, 0.4, 1.0  |      | 0, 0.2, 0.4, 1.0   |      | 0, 0.2, 0.4, 1.0  |      |     |
| Leakage detection mode                     |   | Mechanical push-button  |      | Mechanical push-button   |      | Mechanical push-button  |      |     |
| Dimensions                                 |  | a   | 75   | 100  | 90   | 120   | 90   | 120 |
|  |   | b   | 130  |  | 155  |   | 155  |     |
|  |   | c   | 68   |  | 68   |   | 68   |     |
|  |   | ca  | 90   |  | 90   |   | 90   |     |
|  |   | bb  | 111  |  | 132  |   | 132  |     |
|  |   | aa  | 25   |  | 30   |   | 30   |     |
|  |   | Weight (kg)   |      | 0.7  | 0.9  | 1.5   | 1.8  | 1.5 |
| Rated breaking capacity (kA)               | IEC 60947-2<br>EN 60947-2<br>CNS 14816-2  | 440V  | 7.5  |  | 10   |   | 25   |     |
|  |   | 380V  | 7.5  |  | 15   |   | 30   |     |
|  |   | 220V  | 10   |  | 25   |   | 50   |     |
| Connection                                 |   | Clamp terminal  |      | Clamp terminal   |      | Clamp terminal  |      |     |
| Optional accessories                       | Alarm switch  | (AL)  | ○    |  | ○    |   | ○    |     |
|  | Auxiliary switch  | (AX)  | ○    |  | ○    |   | ○    |     |
|  | Shunt trip  | (SHT)   | ○    |  | ○    |   | ○    |     |
|  | Under-voltage trip  | (UVT)   | —    |  | ○    |   | ○    |     |
|  | Rptary handle   | (EH)  | ●    |  | ●    |   | ●    |     |
|  | Terminal cover  | (TC)  | ●    |  | ●    |   | ●    |     |
|  | Leakage alarm module  | (AM)  | —    |  | ○    |   | ○    |     |
|  | Box lug   | (TL)  | ●    |  | ●    |   | ●    |     |
| Trip Unit                                  |   | Hydraulic magnetic  |      | Hydraulic magnetic   |      | Hydraulic magnetic  |      |     |
| Tripping button                            |   | Equipped  |      | Equipped   |      | Equipped  |      |     |

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.  
 2. Specify default rated current sensitivity when place the order.  
 3. Ics= 50% Icu  
 4. Adjustable thermal: 80%~100% In.  
 5. Specify, when order delay type rated current sensitivity 30-100-500mA.



80% ~ 100% Adj. (A)

| 160   |      | 250   |      | 400   |      |  |      |   |      |
|---|------|---|------|---|------|--|------|---|------|
| BL160-SN  |      | BL250-SN  |      | BL400-SN  |      | BL400-HN   |      | BL400-RN  |      |
|  |      |  |      |  |      |  |      |  |      |
| 125, 140, 160.  |      | 175, 200, 225, 250.   |      | 250, 300, 350, 400.   |      | 250, 300, 350, 400.  |      | 250, 300, 350, 400.   |      |
| 1ø2W,<br>3ø3W.  | 3ø4W | 1ø2W,<br>3ø3W.  | 3ø4W | 1ø2W,<br>3ø3W.  | 3ø4W | 1ø2W,<br>3ø3W.   | 3ø4W | 1ø2W,<br>3ø3W.  | 3ø4W |
| 3   | 4    | 3   | 4    | 3   | 4    | 3  | 4    | 3   | 4    |
| 230, 400.   |      | 230, 400.   |      | 230, 400.   |      | 230, 400.  |      | 230, 400.   |      |
| 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                |      | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                |      | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                |      | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                 |      | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                  |      |
| 30-100-300-500mA(adj)   |      | 30-100-300-500mA(adj)   |      | 30-100-300-500mA(adj)   |      | 30-100-300-500mA(adj)  |      | 30-100-300-500mA(adj)   |      |
| 0.1   |      | 0.1   |      | 0.1   |      | 0.1  |      | 0.1   |      |
| 0.04  |      | 0.04  |      | 0.04  |      | 0.04   |      | 0.04  |      |
| 100-300-500mA(adj)  |      | 100-300-500mA(adj)  |      | 100-300-500mA(adj)  |      | 100-300-500mA(adj)   |      | 100-300-500mA(adj)  |      |
| 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)  |      | 100-300-500-1000mA(adj)   |      |
| 0.1- 0.4- 0.8- 2.0<br>adjustable  |      | 0.1- 0.4- 0.8- 2.0<br>adjustable  |      | 0.1- 0.4- 0.8- 2.0<br>adjustable  |      | 0.1- 0.4- 0.8- 2.0<br>adjustable   |      | 0.45- 1.0- 2.0<br>adjustable  |      |
| 0, 0.2, 0.4, 1.0  |      | 0, 0.2, 0.4, 1.0  |      | 0, 0.2, 0.4, 1.0  |      | 0, 0.2, 0.4, 1.0   |      | 0.1, 0.5, 1.0   |      |
| Mechanical push-button  |      | Mechanical push-button  |      | Mechanical push-button  |      | Mechanical push-button   |      | Mechanical push-button  |      |
| 105   | 140  | 105   | 140  | 140   | 185  | 140  | 185  | 140   | 185  |
| 165   |      | 165   |      | 257   |      | 257  |      | 257   |      |
| 68  |      | 68  |      | 103   |      | 103  |      | 103   |      |
| 92  |      | 92  |      | 155   |      | 155  |      | 155   |      |
| 126   |      | 126   |      | 194   |      | 194  |      | 194   |      |
| 35  |      | 35  |      | 44  |      | 44   |      | 44  |      |
| 1.7   | 2.3  | 1.7   | 2.3  | 6.6   | 8.4  | 6.6  | 8.4  | 5.7   | 7.5  |
| 25  |      | 25  |      | 30  |      | 42   |      | 55  |      |
| 30  |      | 30  |      | 35  |      | 50   |      | 70  |      |
| 50  |      | 50  |      | 50  |      | 85   |      | 100   |      |
| Clamp terminal  |      | Clamp terminal  |      | Busbar  |      | Busbar   |      | Busbar  |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| ○   |      | ○   |      | ○   |      | ○  |      | ○   |      |
| ●   |      | ●   |      | ●   |      | ●  |      | ●   |      |
| Adj. thermal Fixed magnetic   |      | Adj. thermal Fixed magnetic   |      | Thermal magnetic  |      | Thermal magnetic   |      | Thermal magnetic  |      |
| Equipped  |      | Equipped  |      | Equipped  |      | Equipped   |      | Equipped  |      |

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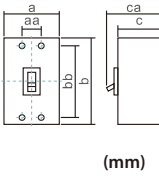
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SPD





MS

MMS

## Earth Leakage Circuit Breaker

| Frame size (AF) (Inm)                      |   | 400   |      | 630  |      |   |      |     |
|--|---|---|------|--|------|---|------|-----|
| Model                                      |   | BL400-UN  |      | BL630-HN   |      | BL630-RN  |      |     |
| Appearance                                 |   |  |      |  |      |  |      |     |
| Rated current In (A) at ambient temp. 40°C |   | 250, 300, 350, 400.   |      | 500, 630.  |      | 500, 630.   |      |     |
| Phase & wire (P)                           |   | 1φ2W,<br>3φ3W.  | 3φ4W | 1φ2W,<br>3φ3W.   | 3φ4W | 1φ2W,<br>3φ3W.  | 3φ4W |     |
| Number of poles (P)                        |   | 3   | 4    | 3  | 4    | 3   | 4    |     |
| Rated voltage (VAC)                        |   | 230, 400.   |      | 230, 400.  |      | 230, 400.   |      |     |
| High speed                                 | Rated current sensitivity IΔn AC type (mA)  | 30-100-500mA (adj)<br>*15mA, *30mA, *100mA<br>*100-300-500mA (adj)                |      | 100-300-500mA (adj)  |      | 100-300-500mA (adj)   |      |     |
|  | Rated current sensitivity IΔn A type (mA)   | 30-100-300-500mA(adj)   |      | 100-300-500-1000mA( adj)   |      | 100-300-500-1000mA( adj)  |      |     |
|  | 2IΔn operating time (S)   | 0.1   |      | 0.1  |      | 0.1   |      |     |
|  | 5IΔn operating time (S)   | 0.04  |      | 0.04   |      | 0.04  |      |     |
| Delay                                      | Rated current sensitivity IΔn AC type (mA)  | 100-300-500mA(adj)  |      | 100-300-500mA(adj)   |      | 100-300-500mA(adj)  |      |     |
|  | Rated current sensitivity IΔn A type (mA)   | 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)  |      | 100-300-500-1000mA(adj)   |      |     |
|  | 2IΔn operating time (S)   | 0.45- 1.0- 2.0 adjustable   |      | 0.45- 1.0- 2.0 adjustable  |      | 0.45- 1.0- 2.0 adjustable   |      |     |
|  | 2IΔn max. non-operating time (S)  | 0.1, 0.5, 1.0   |      | 0.1, 0.5, 1.0  |      | 0.1, 0.5, 1.0   |      |     |
| Leakage detection mode                     |   | Mechanical push-button  |      | Mechanical push-button   |      | Mechanical push-button  |      |     |
| Dimensions                                 |  | a   | 140  | 185  | 210  | 280   | 210  | 280 |
|  |   | b   | 257  |  | 257  |   | 257  |     |
|  |   | c   | 103  |  | 103  |   | 103  |     |
|  |   | ca  | 155  |  | 155  |   | 155  |     |
|  |   | bb  | 194  |  | 243  |   | 243  |     |
|  |   | aa  | 44   |  | 70   |   | 70   |     |
| Weight (kg)                                |   | 5.7   | 7.5  | 10.0   | 13.0 | 10.0  | 13.0 |     |
| Rated breaking capacity (kA)               | IEC 60947-2<br>EN 60947-2<br>CNS 14816-2  | 440V  | 85   |  | 50   |   | 70   |     |
|  |   | 380V  | 85   |  | 50   |   | 70   |     |
|  |   | 220V  | 125  |  | 85   |   | 100  |     |
| Connection                                 |   | Busbar  |      | Busbar   |      | Busbar  |      |     |
| Optional accessories                       | Alarm switch  | (AL)  | ●    |  | ●    |   | ●    |     |
|  | Auxiliary switch  | (AX)  | ●    |  | ●    |   | ●    |     |
|  | Shunt trip  | (SHT)   | ●    |  | ●    |   | ●    |     |
|  | Under-voltage trip  | (UVT)   | ●    |  | ●    |   | ●    |     |
|  | Rotary handle   | (EH)  | ●    |  | ●    |   | ●    |     |
|  | Terminal cover  | (TC)  | ●    |  | ●    |   | ●    |     |
|  | Leakage alarm module  | (AM)  | ○    |  | ○    |   | ○    |     |
|  | Box lug   | (TL)  | ●    |  | ●    |   | ●    |     |
| Trip Unit                                  |   | Thermal magnetic  |      | Fixed thermal Adj. magnetic  |      | Fixed thermal Adj. magnetic   |      |     |
| Tripping button                            |   | Equipped  |      | Equipped   |      | Equipped  |      |     |

- Note
1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
  2. Specify default rated current sensitivity when place the order.
  3. Ics= 50% Icu
  4. Adjustable thermal: 80%~100% In.
  5. Specify, when order delay type rated current sensitivity 30-100-500mA.

| 630   |      | 800   |      | 800  |      | 800   |      |
|---|------|---|------|--|------|---|------|
| BL630-UN  |      | BL800-SN  |      | BL800-HN   |      | BL800-RN  |      |
|  |      |  |      |  |      |  |      |
| 500, 630.   |      | 700, 800.   |      | 700, 800.  |      | 700, 800.   |      |
| 1ø2W,<br>3ø3W.  | 3ø4W | 1ø2W,<br>3ø3W.  | 3ø4W | 1ø2W,<br>3ø3W.   | 3ø4W | 1ø2W,<br>3ø3W.  | 3ø4W |
| 3   | 4    | 3   | 4    | 3  | 4    | 3   | 4    |
| 230, 400.   |      | 230, 400.   |      | 230, 400.  |      | 230, 400.   |      |
| 100-300-500mA (adj)   |      | 100-300-500mA (adj)   |      | 100-300-500mA (adj)  |      | 100-300-500mA (adj)   |      |
| 100-300-500-1000mA (adj)  |      | 100-300-500-1000mA (adj)  |      | 100-300-500-1000mA (adj)   |      | 100-300-500-1000mA (adj)  |      |
| 0.1   |      | 0.1   |      | 0.1  |      | 0.1   |      |
| 0.04  |      | 0.04  |      | 0.04   |      | 0.04  |      |
| 100-300-500mA(adj)  |      | 100-300-500mA(adj)  |      | 100-300-500mA(adj)   |      | 100-300-500mA(adj)  |      |
| 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)   |      | 100-300-500-1000mA(adj)  |      | 100-300-500-1000mA(adj)   |      |
| 0.45- 1.0- 2.0<br>adjustable  |      | 0.45- 1.0- 2.0<br>adjustable  |      | 0.45- 1.0- 2.0<br>adjustable   |      | 0.45- 1.0- 2.0<br>adjustable  |      |
| 0.1, 0.5, 1.0   |      | 0.1, 0.5, 1.0   |      | 0.1, 0.5, 1.0  |      | 0.1, 0.5, 1.0   |      |
| Mechanical push-button  |      | Mechanical push-button  |      | Mechanical push-button   |      | Mechanical push-button  |      |
| 210   | 280  | 210   | 280  | 210  | 280  | 210   | 280  |
| 257   |      | 257   |      | 257  |      | 257   |      |
| 103   |      | 103   |      | 103  |      | 103   |      |
| 155   |      | 155   |      | 155  |      | 155   |      |
| 243   |      | 243   |      | 243  |      | 243   |      |
| 70  |      | 70  |      | 70   |      | 70  |      |
| 10.0  | 13.0 | 10.5  | 13.5 | 10.5   | 13.5 | 10.5  | 13.5 |
| 85  |      | 50  |      | 70   |      | 85  |      |
| 100   |      | 50  |      | 70   |      | 100   |      |
| 125   |      | 85  |      | 100  |      | 125   |      |
| Busbar  |      | Busbar  |      | Busbar   |      | Busbar  |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| ○   |      | ○   |      | ○  |      | ○   |      |
| ●   |      | ●   |      | ●  |      | ●   |      |
| Fixed thermal Adj. magnetic   |      | Fixed thermal Adj. magnetic   |      | Fixed thermal Adj. magnetic  |      | Fixed thermal Adj. magnetic   |      |
| Equipped  |      | Equipped  |      | Equipped   |      | Equipped  |      |

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# Molded Case Circuit Breaker

## Bolt on type

| Frame (AF)   |              | 100                                      |      |      | 50                        | 100  |     |                                     | 50   | 100      |                                     |         | 50   | 100 |  |  |
|--|--------------|--|------|------|---------------------------|------|-----|-------------------------------------|------|----------|-------------------------------------|---------|------|-----|--|--|
| Type   |              | BP                                       |      |      | BPH                       |      |     | BKH                                 |      |          | BKS                                 |         |      |     |  |  |
| Appearance   |              |  |      |      |                           |      |     |                                     |      |          |                                     |         |      |     |  |  |
| Rated Voltage (A.C) #1   |              | 110                                      | 220* | 220  | 110                       | 220* | 220 | 110/220*                            | 380  | 110/220* | 220                                 |         |      |     |  |  |
| Rated Current In (A)<br>At Ambient Temp. 40°C                  |              | 10*, 15, 20, 30, 40,<br>50, 60, 75, 100. |      |      | 15, 20,<br>30, 40,<br>50. |      |     | 15, 20, 30, 40,<br>50, 60, 75, 100. |      |          | 15, 20, 30, 40,<br>50, 60, 75, 100. |         |      |     |  |  |
| Number of poles (P)  |              | 1  | 2    | 3    | 1                         | 2    | 3   | 1                                   | 2    | 3        | 1                                   | 2       | 3    |     |  |  |
| Dimensions<br>   | a            | 25                                       | 50   | 75   | 25                        | 50   | 75  | 25                                  | 50   | 75       | 25                                  | 50      | 75   |     |  |  |
|  | b            | 95                                       |      |      | 95                        |      |     | 95                                  |      |          | 95                                  |         |      |     |  |  |
|  | c            | 58.5                                     |      |      | 58.5                      |      |     | 58.5                                |      |          | 58.5                                |         |      |     |  |  |
|  | ca           | 77.5                                     |      |      | 77.5                      |      |     | 77.5                                |      |          | 77.5                                |         |      |     |  |  |
|  | bb           | 100                                      |      |      | 100                       |      |     | 100                                 |      |          | 100                                 |         |      |     |  |  |
|  | aa           | 0  | 25   | 50   | 0                         | 25   | 50  | 0                                   | 25   | 50       | 0                                   | 25      | 50   |     |  |  |
| Weight (kg)  |              | 0.15                                     | 0.31 | 0.46 | 0.2                       | 0.4  | 0.6 | 0.22                                | 0.44 | 0.66     | 0.22                                | 0.44    | 0.66 |     |  |  |
| Rated Breaking Capacity (kA)<br>CNS 14816-2<br>Icu AC<br>#2 #3 | 110V / 120V* | 5  | —    | —    | 10                        | —    | —   | 15                                  | —    | —        | 25/22**                             | —       |      |     |  |  |
|  | 220V / 240V* | —  | 5*** | 5    | —                         | 10   | 10  | 10                                  | 15   | —        | —                                   | 25/22** |      |     |  |  |
|  | 380V / 400V* | —  | —    | —    | —                         | —    | —   | —                                   | 10   | —        | —                                   | —       |      |     |  |  |
| Trip Unit  |              | Thermal Magnetic                         |      |      | Thermal Magnetic          |      |     | Thermal Magnetic                    |      |          | Thermal Magnetic                    |         |      |     |  |  |

## Plug in type

| Frame (AF)  |              | 50                    |                                    |                     | 100                 |              |                       | 50                                 |      |      | 100              |      |  |
|---|--------------|-----------------------|------------------------------------|---------------------|---------------------|--------------|-----------------------|------------------------------------|------|------|------------------|------|--|
| Type  |              | BL                    |                                    |                     | BLH                 |              |                       | BLS                                |      |      | BKL              |      |  |
| Appearance  |              |                       |                                    |                     |                     |              |                       |                                    |      |      |                  |      |  |
| Rated Voltage (A.C) #1                                |              | 110/220*              | 220                                | 220                 | 110/220*            | 220          | 220                   | 110/220*                           | 380  |      |                  |      |  |
| Rated Current In (A)<br>At Ambient Temp. 40°C         |              | 15, 20, 30<br>40, 50. | 15, 20, 30, 40, 50<br>60, 75, 100. | 15, 20, 30, 40, 50. | 15, 20, 30, 40, 50. | 60, 75, 100. | 15, 20, 30<br>40, 50. | 15, 20, 30, 40, 50<br>60, 75, 100. |      |      |                  |      |  |
| Number of poles (P)                                   |              | 1                     | 2                                  | 3                   | 1                   | 2            | 3                     | 2                                  | 3    | 1    | 2                | 3    |  |
| Dimensions<br>  | a            | 25                    | 50                                 | 75                  | 25                  | 50           | 75                    | 50                                 | 75   | 25   | 50               | 75   |  |
|   | b            | 74                    |                                    |                     | 74                  |              |                       | 74                                 |      |      | 79               |      |  |
|   | c            | 60.5                  |                                    |                     | 60.5                |              |                       | 60.5                               |      |      | 61               |      |  |
|   | ca           | 74                    |                                    |                     | 74                  |              |                       | 74                                 |      |      | 77.5             |      |  |
|   | bb           | —                     |                                    |                     | —                   |              |                       | —                                  |      |      | —                |      |  |
|   | aa           | 0                     | 25                                 | 50                  | 0                   | 25           | 50                    | 25                                 | 50   | 0    | 25               | 50   |  |
| Weight (kg)   |              | 0.13                  | 0.26                               | 0.39                | 0.13                | 0.26         | 0.39                  | 0.33                               | 0.53 | 0.18 | 0.36             | 0.54 |  |
| Rated Breaking Capacity (kA)<br>CNS 14816-2<br>Icu AC | 110V / 120V* | 5                     | —                                  | —                   | 10                  | —            | —                     | —                                  | —    | 15   | —                | —    |  |
|   | 220V / 240V* | —                     | 5                                  | —                   | —                   | 10           | —                     | 10                                 | —    | 10   | 15               | —    |  |
|   | 380V / 400V* | —                     | —                                  | —                   | —                   | —            | —                     | —                                  | —    | —    | —                | 10   |  |
| Trip Unit   |              | Thermal Magnetic      |                                    |                     | Thermal Magnetic    |              |                       | Thermal Magnetic                   |      |      | Thermal Magnetic |      |  |

Note 1. \*\* 1 phase 3 wiring; L-L: 220V, L-N: 110V.  
 2. \*\*\* Rated Breaking Capacity: asym/sym.  
 3. \*\*\*\* BP 1P 220V 5kA Rated Current:15, 20, 30, 40, 50A.

**Earth Leakage Circuit Breaker | Earth Leakage, Overload, and Short Circuit Protection**

| Frame (AF)   | 50                        |      | 50      |      | 50      |      | 50       |      | 50                        |         |    |
|--|---------------------------|------|---------|------|---------|------|----------|------|---------------------------|---------|----|
| Type   | BL-50L                    |      | BL-50UL |      | BLP-50L |      | BLP-50UL |      | BL-50H                    |         |    |
| Appearance   |                           |      |         |      |         |      |          |      |                           |         |    |
| Rated Current In (A)<br>At Ambient Temp. 40°C      | 15, 20, 30, 40, 50.       |      |         |      |         |      |          |      |                           |         |    |
| Phase & Wire                                       | 1φ2W                      |      |         |      |         |      |          |      |                           |         |    |
| Number of poles (P)                                | 2P1E                      | 2P2E | 2P1E    | 2P2E | 2P1E    | 2P2E | 2P1E     | 2P2E | 2P1E                      | 2P2E    |    |
| Rated Voltage (A.C.) #1.                           | 110                       | 220  | 220***  | 220  | 110     | 220  | 220***   | 220  | 220***                    | 220/380 |    |
| Rated Current Sensitivity (mA) #2.                 | 30, (100, 200, 300, 500)* |      |         |      | 30      |      |          |      | 30, (100, 200, 300, 500)* |         |    |
| Max. Operating Time (s)                            | ≤0.1S                     |      |         |      |         |      |          |      |                           |         |    |
| Rated Breaking Capacity (kA)<br>CNS 5422<br>Icu AC | 110V                      | 5    | —       | 10   | —       | 5    | —        | 10   | —                         | 15      | —  |
|  | 220V                      | —    | 5       | 5    | 10      | —    | 5        | 5    | 10                        | 10      | 15 |
| Dimensions<br><br>(mm)                             | a                         | 25   | 50      | 25   | 50      | 25   | 50       | 25   | 50                        | 50      | 75 |
|  | b                         | 110  |         |      |         | 92   |          |      |                           | 95      |    |
|  | c                         | 60   |         |      |         | 60.5 |          |      |                           | 58.5    |    |
|  | ca                        | 78.4 |         |      |         | 78.4 |          |      |                           | 77.5    |    |
|  | bb                        | 120  |         |      |         | —    |          |      |                           | 100     |    |
|  | aa                        | 0    | 25      | 0    | 25      | 0    | 25       | 0    | 25                        | 25      | 50 |
| Weight (kg)  | 0.22                      | 0.39 | 0.22    | 0.39 | 0.2     | 0.34 | 0.2      | 0.34 | 0.4                       | 0.58    |    |
| Trip Unit  | Thermal Magnetic          |      |         |      |         |      |          |      |                           |         |    |
| Earth Leakage Tripping Device                      | Mechanical                |      |         |      |         |      |          |      |                           |         |    |

| Frame (AF)   | Earth Leakage, Overload Protection |      | Earth Leakage Protection  |  |
|--|------------------------------------|------|---------------------------|--|
|  | 30                                 |      | 30                        |  |
| Type   | BL-KLF                             |      | BL-K30F                   |  |
| Appearance   |                                    |      |                           |  |
| Rated Current In(A)<br>At Ambient Temp. 40°C       | 15, 20, 30                         |      | 15, 20, 30, 40            |  |
| Phase & Wire                                       | 1φ2W                               |      | 1φ2W                      |  |
| Poles (P)  | 2P1E                               | 2P2E | 3                         |  |
| Rated Voltage (A.C.)                               | 110~220                            |      | 110~220                   |  |
| Rated Current Sensitivity (mA)<br>#2.              | 30                                 |      | 30, (100, 200, 300, 500)* |  |
| Max. Operating Time (s)                            | ≤0.1S                              |      | ≤0.1S                     |  |
| Rated Breaking Capacity (kA)<br>CNS 5422<br>Icu AC | 110V~220V                          | 1.5  | 1.5, 2.5                  |  |
|  | 380V~480V                          | —    | —                         |  |
| Dimensions<br><br>(mm)                             | a                                  | 66   | 90                        |  |
|  | b                                  | 70   | 70                        |  |
|  | c                                  | 42   | 42                        |  |
|  | ca                                 | 60   | 60                        |  |
|  | bb                                 | 59   | 59                        |  |
|  | aa                                 | 33   | 57                        |  |
| Weight (kg)  | 0.2                                |      | 0.25                      |  |
| Trip Unit  | Thermal Magnetic                   |      | —                         |  |
| Earth Leakage Tripping Device                      | Mechanical                         |      | —                         |  |

Note 1. \*\*\* 3 phase 4 wiring, L-N: 220V  
2. \*\* Special order.

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## Optional Accessories Installation Table

■ AL: Alarm Switch / AX: Auxiliary Switch / SHT: Shunt Trip / UVT: Under Voltage Trip

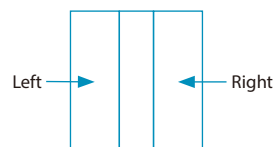
| Model  | Poles    | AL | AX | SHT or UVT | AL+AX | AL+ SHT or UVT | AX+ SHT or UVT | AL+AX+ SHT or UVT |  |   |
|--|----------|----|----|------------|-------|----------------|----------------|-------------------|--|---|
| BM30-SN<br>BM50-CN<br>BM60-SN/HN<br>BM63-SN/HN<br>BM100-SN/MN  | 3P       |    |    |            |       |                |                | —                 |  |   |
| BL50-SN  | 3P<br>4P |    |    |            |       |                |                |                   |  | — |
| BL100-SN<br>BL100-HN   | 3P<br>4P |    |    |            | —     |                |                | —                 |  |   |
| BM100-HS<br>BM160-HS<br>BM250-HS   | 3P<br>4P |    |    |            |       |                |                | —                 |  |   |
| BM100-BTD/STD/LTD<br>BM125-LTD/HTA/RTA<br>BM160-SN/HN/HTA/RTA<br>BM250-SN/HN/HTA/RTA<br>BMA125-STA/LTA/HTA<br>BMA160-STA/LTA/HTA<br>BMA250-STA/LTA/HTA | 3P<br>4P |    |    |            |       |                |                |                   |  |   |
| BL160-SN<br>BL250-SN/ CN   | 3P<br>4P |    |    |            | —     | —              | —              | —                 |  |   |
| BM400-SN/HN/CN/RN/UN<br>BMA400-LTA/HTA/RTA<br>BM630s-STD/LTD/HTD/RTD<br>BM630s-STA/LTA/HTA/RTA<br>BMA630s-STD/LTD/HTD/RTD<br>BMA630s-STA/LTA/HTA/RTA   | 3P<br>4P |    |    |            |       |                |                |                   |  |   |
| BL400-SN/HN/RN/UN  | 3P<br>4P |    |    |            |       |                |                | —                 |  |   |
| BM630-SN/HN/CN/RN/UN<br>BM800-CN/SN/HN/RN<br>BMA630-HTD/RTD/HTA/RTA/HED/RED<br>BMA800-HTD/RTD/HTA/RTA/HED/RED  | 3P<br>4P |    |    |            |       |                |                |                   |  |   |
| BL630-HN/RN/UN<br>BL800-SN/HN/RN   | 3P<br>4P |    |    |            |       |                |                |                   |  |   |
| BM1000-HS<br>BM1200-HS<br>BM1600-HS  | 3P       |    |    |            | —     |                |                | —                 |  |   |

2P, 125Af and below : Accessories are installed on the right side.

Note:

- Standard: AL and AX are installed on left side, SHT and UVT are installed on right side.
- SHT is equipped with coil anti-burn switch.
- BL series can not do right side installation.
- UVT of BM30-SN~BM100-HN can not install on its left side.
- #1 means have no UVT.
- #2 means only can apply to 4P breakers.

● : AL  
○ : AX  
■ : SHT or UVT



## Optional Accessories | Application Table

### Rotary Handle

| TYPE    | Poles    | Model   |
|---------|----------|---|
| EH-100N | 3P~4P    | BM30-SN, BM50-CN, BM60-SN/HN, BM63-SN/HN, BM100-SN/MN, BL50-SN  |
| EH-100T | 3P~4P    | BM100-BTD/STD   |
| EH-100L | 3P~4P    | BM100-LTD, BM125-LTD  |
| EH-125T | 2P~3P~4P | BM125-HTA/RTA   |
| EH-125N | 3P~4P    | BM60-HBN, BM100-HN, BM125-SN/HN, BL100-SN/HN, BMA125-STA/LTA/HTA  |
| EH-250N | 3P~4P    | BM160-SN*/HN, BM250-CN*/SN/HN, BL160-SN, BL250-SN   |
| EH-250T | 3P~4P    | BM160-HTA/RTA, BMA160-STA/LTA/HTA, BM250-HTA/RTA, BMA250-STA/LTA/HTA  |
| EH-400N | 3P~4P    | BM400-CN*/SN/HN/RN/UN, BL400-SN/HN/RN/UN, BMA400-LTA/HTA/RTA<br>BM630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA, BMA630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA |
| EH-800N | 3P~4P    | BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN,<br>BMA630-HTD/RTD/HTA/RTA/HED/RED, BMA800-HTD/RTD/HTA/RTA/HED/RED         |
| EH-250H | 3P~4P    | BM100-HS, BM160-HS, BM250-HS  |

Note: \* indicates the value is can applied to 2P model.

### Extended Rotary Handle

| TYPE    | Poles    | Model   |
|---------|----------|---|
| MA-100N | 3P~4P    | BM30-SN, BM50-CN, BM60-SN/HN, BM63-SN/HN, BM100-SN/MN, BL50-SN  |
| MA-100T | 3P~4P    | BM100-BTD/STD   |
| MA-100L | 3P~4P    | BM100-LTD, BM125-LTD  |
| MA-125T | 2P~3P~4P | BM125-HTA/RTA, BMA125-STA/LTA   |
| MA-125N | 3P~4P    | BM60-HBN, BM100-HN, BM125-SN/HN, BL100-SN/HN, BMA125-STA/LTA/HTA  |
| MA-250N | 3P~4P    | BM160-SN/HN, BM250-SN/HN, BMA125-STA/LTA/HTA, BMA250-STA/LTA/HTA, BL160-SN, BL250-SN  |
| MA-250T | 3P~4P    | BM160-HTA/RTA, BMA160-STA/LTA/HTA, BM250-HTA/RTA, BMA250-STA/LTA/HTA  |
| MA-400N | 3P~4P    | BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN, BMA400-LTA/HTA/RTA<br>BM630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA, BMA630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA |
| MA-800N | 3P~4P    | BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN,<br>BMA630-HTD/RTD/HTA/RTA/HED/RED, BMA800-HTD/RTD/HTA/RTA/HED/RED     |
| MA-250H | 3P~4P    | BM100-HS, BM160-HS, BM250-HS  |

### Terminal Cover

| TYPE    | Poles | Long cover | Short cover | Model  |
|---------|-------|------------|-------------|--|
| TC-30N  | 2     | TC30CN2P   | —           | BM30-CN  |
|         | 3     | TC30CN3P   | —           |  |
| TC-100N | 2     | TC100N2P-K | TCS100N2P-K | BM30-SN, BM50-CN, BM60/63-SN/HN, BM100-MN/SN<br>BL50-SN, BM100-BTD/STD, BM100/125-LTD  |
|         | 3     | TC100N3P-K | TCS100N3P-K |  |
|         | 4     | TC100N4P-K | TCS100N4P-K |  |
| TC-125N | 2     | TC125N2P-K | TCS125N2P-K | BM60-HBN<br>BM100-HN, BM125-SN/HN, BL100-SN/HN   |
|         | 3     | TC125N3P-K | TCS125N3P-K |  |
|         | 4     | TC125N4P   | TCS125N4P   |  |
| TC-125A | 2~3   | TC125A3P-K | TCS125A3P-K | BM125-HTA/RTA, BMA125-STA/LTA/HTA  |
|         | 4     | TC125A4P-K | TCS125A4P-K |  |
| TC-250N | 3     | TC250N3P-K | —           | BM160-SN/HN, BM250-CN/SN/HN, BM160/250-HTA/RTA<br>BMA160/250-STA/LTA/HTA, BL160-SN, BL250-SN   |
|         | 4     | TC250N4P-K | —           |  |
| TC-250H | 3     | TC250H3P   | —           | BM100-HS, BM160/250-HS   |
| TC-400N | 3     | TC400N3P   | —           | BM400-CN/SN/HN/RN/UN, BM630s-STD/LTD/HTD/RTD<br>BM630s-STA/LTA/HTA/RTA, BMA400-LTA/HTA/RTA<br>BMA400-HTD/RTD/HMF/RMF, BMA630s-STD/LTD/HTD/RTD<br>BMA630s-STA/LTA/HTA/RTA, BL400-SN/HN/RN/UN      |
|         | 4     | TC400N4P   | —           |  |
| TC-630N | 3     | TC630N3P   | —           | BM630-CN/SN/HN/UN/RN, BM800-CN/SN/HN/RN<br>BM630-HE/RE/UE, BM800-SE/HE/RE<br>BMA630-HTD/RTD/HTA/RTA, BMA800-HTD/RTD/HTA/RTA<br>BMA630-HED/RED, BMA800-HED/RED,<br>BL630-HN/RN/UN, BL800-SN/HN/RN |
|         | 4     | TC630N4P   | —           |  |

### Motor Operation Device

| TYPE    | Poles | Model   |
|---------|-------|---|
| MT-100N | 3P~4P | BM30-SN, BM50-CN, BM60-SN/HN, BM63-SN/HN, BM100-SN/MN, BL50-SN  |
| MT-125N | 3P~4P | BM60-HBN, BM100-HN, BM125-SN/HN, BL100-SN/HN, BMA125-STA/LTA/RTA  |
| MT-250N | 3P~4P | BM160-SN/HN, BM250-SN/HN, BL160-SN, BL250-SN, BMA160-STA/LTA/HTA, BMA250-STA/LTA/HTA  |
| MT-400N | 3P~4P | BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN, BMA400-LTA/HTA/RTA<br>BM630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA<br>BMA630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA |
| MT-800N | 3P~4P | BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN,<br>BMA630-HTD/RTD/HTA/RTA/HED/RED, BMA800-HTD/RTD/HTA/RTA/HED/RED       |
| MT-250E | 3P~4P | BM100-HS, BM160-HS, BM250-HS  |

Note: \* Applicable voltage: ① DC 24V ② AC 110V/ DC 110V ③ AC 230V/ DC 220V

### Rear Connection

| TYPE       | Poles    | Model  |
|------------|----------|--|
| PGI-100N50 | 3P       | BM30-SN, BM50-CN, BM60-SN/HN, BM63-SN/HN, BL50-SN (50A and below), BM50-CN   |
| PGI-100N   | 3P       | BM60-SN/HN, BM100-SN/MN (60A and below)  |
| PGI-125N50 | 3P       | BM60-HBN, BM100-HN, BM125-SN/HN, BL100-SN/HN (50A and below)   |
|            | 4P       | BM100-HN, BM125-SN, BL100-SN/HN (50A and below)  |
| PGI-125M   | 2P~3P~4P | BM125-HTA/RTA  |
| PGI-125N   | 3P       | BM60-HBN, BM100-HN, BM125-SN, BL100-SN/HN (60A and above)  |
|            | 4P       | BM100-HN, BM125-SN, BL100-SN/HN (60A and above)  |
| PGI-250N   | 3P~4P    | BM160-SN/HN, BM160-HTA/RTA, BM250-SN/HN, BM250-HTA/RTA, BL160-SN, BL250-SN   |
| PGI-400N   | 3P~4P    | BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN, BM630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA,<br>BMA630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA |
| PGI-800N   | 3P~4P    | BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN   |
| PGI-BM250  | 3P       | BM100-HS, BM160-HS, BM250-HS   |

### Locking Device

| TYPE     | Poles    | Model  |
|----------|----------|--|
| FHL-250M | 2P~3P~4P | BM125-HTA/RTA, BMA125-STA/LTA/HTA  |
|          | 3P~4P    | BM160/250-HN/HTA/RTA/SN, BM250-CN, BMA160/250-STA/LTA/HTA, *BL160/250-SN   |
| FHL-400M | 3P~4P    | BM400-CN/SN/HN/RN/UN, BM400-HE/RE/UE, BMA400-LTA/HTA/RTA,<br>BMA630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA, BM630s-STD/LTD/HTD/RTD/STA/LTA/HTA/RTA |
| FHL-800M | 3P~4P    | BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BM630-HE/RE/UE, BM800-SE/HE/RE,<br>BMA630-HED/RED, BMA800-HED/RED, BMA630/800-HTD/RTD                  |

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## Optional Accessories | Dimensions

### Rotary Handle

| Type    | Poles  | fig.1 |     |    |    | fig.2 |     |    | fig.3 |       |          |
|---------|--------|-------|-----|----|----|-------|-----|----|-------|-------|----------|
|         |        | A     | B   | C  | D  | E     | F   | G  | H     | J     | K        |
| EH-100N | 3P, 4P | 104   | 105 | 39 | 44 | 90    | 78  | 10 | 25    | 111   | M4 or ø5 |
| EH-100T | 3P, 4P | 104   | 105 | 39 | 44 | 90    | 78  | 10 | 25    | 111   |          |
| EH-100L | 3P, 4P | 104   | 105 | 39 | 44 | 90    | 78  | 10 | 35    | 126   |          |
| EH-125N | 3P, 4P | 104   | 105 | 39 | 44 | 90    | 78  | 10 | 30    | 132   |          |
| EH-250N | 3P, 4P | 104   | 105 | 39 | 44 | 90    | 78  | 10 | 35    | 126   |          |
| EH-250H | 3P, 4P | 104   | 125 | 39 | 44 | 90    | 78  | 10 | 35    | 126.5 |          |
| EH-400N | 3P, 4P | 150   | 173 | 60 | 77 | 108   | 112 | 10 | 44    | 194   |          |
| EH-800N | 3P, 4P | 150   | 173 | 60 | 77 | 108   | 112 | 10 | 70    | 243   |          |

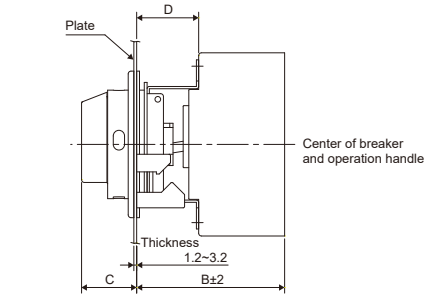
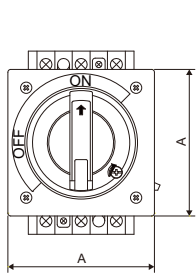
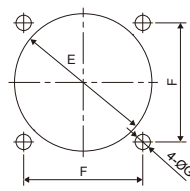
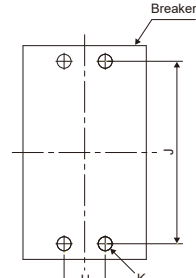


Fig. 1



Panel Dimension  
Fig. 2

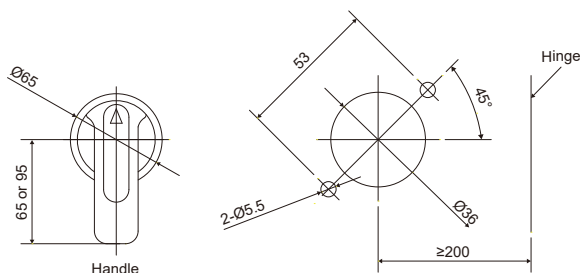
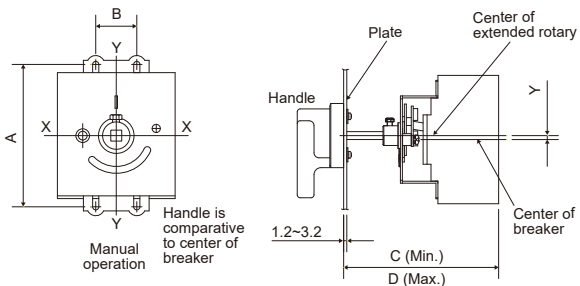


Breaker Dimension  
Fig. 3

Note: 1. Optional for dust and water protection.

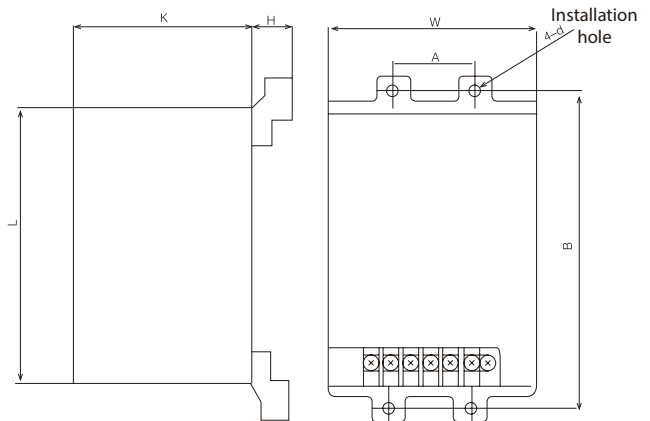
### Extended Rotary Handle

| Type    | Dimensions (mm) |    |     |     |     | Screw          |
|---------|-----------------|----|-----|-----|-----|----------------|
|         | A               | B  | C   | D   | Y   |                |
| MA-100N | 111             | 25 | 125 | 229 | +8  | M4x80          |
| MA-100T | 111             | 25 | 125 | 229 | 0   | M4x75          |
| MA-100L | 111             | 25 | 125 | 229 | 0   | M4x75          |
| MA-125N | 114             | 30 | 125 | 229 | +8  | M4x80          |
| MA-250N | 126             | 35 | 125 | 229 | 0   | ST3x10         |
| MA-250H | 126             | 35 | 143 | 247 | 0   | M4x50          |
| MA-400N | 221             | 44 | 190 | 290 | +10 | M5x50          |
| MA-800N | 242             | 70 | 190 | 290 | +10 | M6x125 & M6x12 |



### Motor Operation Device

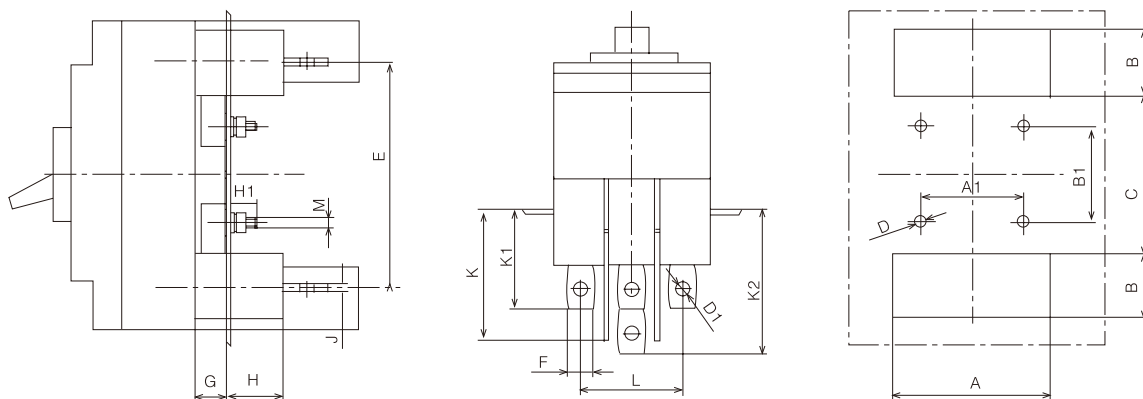
| Type    | Dimensions (mm) |     |      |      |     |     |     |
|---------|-----------------|-----|------|------|-----|-----|-----|
|         | A               | B   | d    | H    | K   | L   | W   |
| MT-100N | 25              | 111 | ø4.5 | 16.5 | 79  | 102 | 74  |
| MT-125N | 30              | 132 | ø4.5 | 15   | 77  | 116 | 90  |
| MT-250N | 30              | 126 | ø4.5 | 15   | 77  | 116 | 90  |
| MT-400N | 44              | 194 | ø4.5 | 36   | 115 | 176 | 130 |
| MT-800N | 70              | 234 | ø4.5 | 36   | 115 | 176 | 130 |
| MT-250E | 30              | 126 | ø4.5 | 15   | 77  | 116 | 90  |





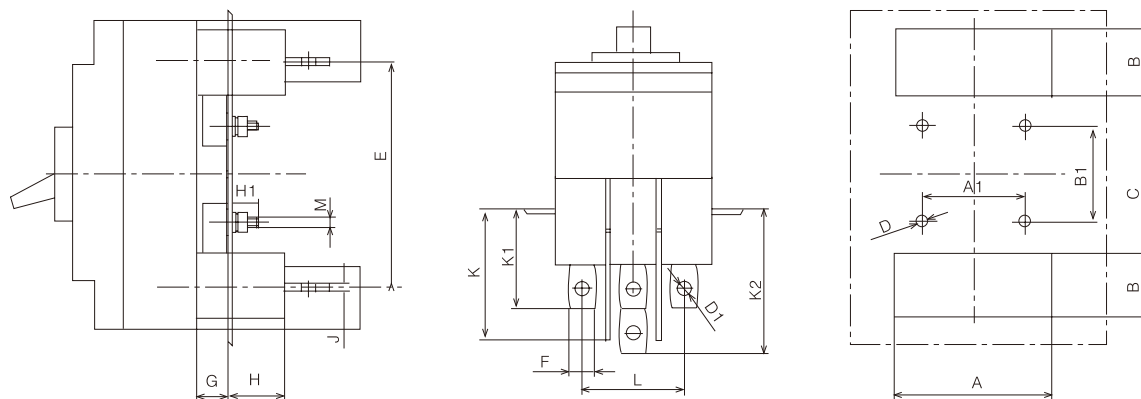
■ Rear Connection

| Type     | Poles | Dimensions (mm) |     |    |     |     |     |     |     |     |     |    |    |     |     |     |     | Connect Direction |    |            |          |
|----------|-------|-----------------|-----|----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-------------------|----|------------|----------|
|          |       | A               | A1  | B  | B1  | C   | D   | D1  | E   | F   | G   | H  | H1 | J   | K   | K1  | K2  | L                 | M  | Horizontal | Vertical |
| PGI-100N | 3     | 74              | 50  | 24 | 58  | 90  | ø5  | /   | 116 | M10 | 9.5 | 28 | 12 | M10 | /   | 62  | 122 | 50                | M4 | ⊙          | ⊙        |
|          | 4     | 99              | 75  |    |     |     |     |     |     |     |     |    |    |     |     |     |     | 75                |    |            |          |
| PGI-125N | 3     | 92              | 60  | 30 | 70  | 104 | ø6  | /   | 134 | M10 | 13  | 26 | 16 | M10 | /   | 62  | 122 | 60                | M5 | ⊙          | ⊙        |
|          | 4     | 122             | 90  |    |     |     |     |     |     |     |     |    |    |     |     |     |     | 90                |    |            |          |
| PGI-250N | 3     | 107             | 70  | 38 | 76  | 106 | ø6  | ø10 | 144 | 25  | 13  | 34 | 15 | 6   | /   | 79  | 134 | 70                | M5 | ⊙          | ⊙        |
|          | 4     | 142             | 105 |    |     |     |     |     |     |     |     |    |    |     |     |     |     | 105               |    |            |          |
| PGI-400N | 3     | 137             | 44  | 50 | 135 | 175 | ø10 | ø13 | 225 | 28  | 18  | 40 | 24 | 8   | 120 | 79  | /   | 44                | M8 | ⊙          | ⊙        |
|          | 4     | 181             | 88  |    |     |     |     |     |     |     |     |    |    |     |     |     |     | 88                |    |            |          |
| PGI-800N | 3     | 212             | 140 | 57 | 143 | 185 | ø10 | ø13 | 243 | 44  | 17  | 53 | 20 | 11  | /   | 146 | /   | 140               | M8 | ⊙          | ⊙        |
|          | 4     | 282             | 210 |    |     |     |     |     |     |     |     |    |    |     |     |     |     | 210               |    |            |          |



■ Rear Connection

| Type      | Poles | Dimensions (mm) |    |    |    |     |    |     |     |    |    |    |    |   |   |    |     | Connect Direction |    |            |          |
|-----------|-------|-----------------|----|----|----|-----|----|-----|-----|----|----|----|----|---|---|----|-----|-------------------|----|------------|----------|
|           |       | A               | A1 | B  | B1 | C   | D  | D1  | E   | F  | G  | H  | H1 | J | K | K1 | K2  | L                 | M  | Horizontal | Vertical |
| PGI-BM250 | 3     | 107             | 70 | 38 | 76 | 106 | ø6 | ø10 | 144 | 25 | 13 | 34 | 15 | 6 | / | 79 | 134 | 70                | M5 | ⊙          | ⊙        |





## ATS (Automatic Transfer Switches)

### A. PC Class

| Frame size                                      |                 | 63  |   |   | 125          |   |   | 250                |   |   | 500           |   |   |
|---|-----------------|---|---|---|--------------|---|---|--------------------|---|---|---------------|---|---|
| Insulation Voltage, Ui                          |                 | AC800V  |   |   |              |   |   |                    |   |   |               |   |   |
| Rated Impulse Withstand Voltage, Uimp           |                 | 12kV  |   |   |              |   |   |                    |   |   |               |   |   |
| Rated Voltage, Ue                               |                 | 2P: AC220 / 230 / 240V<br>3/4P: AC380 / 400 / 415V                |   |   |              |   |   |                    |   |   |               |   |   |
| Control Voltage , Us                            |                 | AC220 / 230 / 240V, 50/60Hz                                       |   |   |              |   |   |                    |   |   |               |   |   |
| Rated Current, In (A)                           |                 | 16, 20 , 25, 32, 40, 50, 63                                       |   |   | 80, 100, 125 |   |   | 160, 200, 225, 250 |   |   | 350, 400, 500 |   |   |
| Pole  |                 | 2   | 3 | 4 | 2            | 3 | 4 | 2                  | 3 | 4 | 2             | 3 | 4 |
| Operation current (A)                           | AC220/230 /240V | 3   | 3 | 4 | 3            | 3 | 4 | 5                  | 5 | 5 | 5             | 5 | 6 |
| Tripping current (A)                            | AC220/230 /240V | 1   |   |   |              |   |   |                    |   |   | 1.4           |   |   |
| Rated condition short circuit current (fuse)    |                 | 100kA   |   |   | 100kA        |   |   | 120kA              |   |   | 120kA         |   |   |
| Rated condition short circuit current (breaker) |                 | 50kA  |   |   | 50kA         |   |   | 65kA               |   |   | 65kA          |   |   |
| Making and Breaking Capacity                    |                 | AC-33B, DC-33B  |   |   |              |   |   |                    |   |   |               |   |   |
| Switching time                                  | I -> II         | ≤1s   |   |   |              |   |   |                    |   |   |               |   |   |
|   | II -> I         |   |   |   |              |   |   |                    |   |   |               |   |   |
| Endurance                                       |                 | Electrical: 6000<br>Mechanical: 20000                             |   |   |              |   |   |                    |   |   |               |   |   |
| Switching frequency                             |                 | 120 times / hr  |   |   |              |   |   |                    |   |   |               |   |   |
| Auxiliary switch                                |                 | 2NO2NC on both source<br>AC110V, 5A<br>AC220V, 3A<br>DC220V, 0.2A |   |   |              |   |   |                    |   |   |               |   |   |

Note : AC-33A: Making & Breaking: 10Ie, cosφ=0.35  
 AC-33B: Making & Breaking: 10Ie, cosφ=0.35 (Ie≤100A, cosφ=0.45)  
 DC-33B: Making & Breaking: 4Ie, L/R=2.5ms



### ATS Controller Specification

#### • XST-5

| Type                           | Standard                                  |
|--------------------------------|---|
| Poles                          | 2 / 3 / 4                                 |
| Rated operation voltage (V)    | AC380 / 220<br>AC400 / 230<br>AC415 / 240 |
| Rated operation frequency (Hz) | 50 / 60                                   |
| Operation voltage (V)          | 165~300 (Phase voltage)                   |
| Operation temperature (°C)     | -25 ~ 60                                  |
| Optional functions             | —   |

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| 800   |   | 1250       |   | 2500             |   | 5000             |    |
|---|---|------------|---|------------------|---|------------------|----|
| AC800V  |   |            |   |                  |   |                  |    |
| 12kV  |   |            |   |                  |   |                  |    |
| AC400V  |   |            |   |                  |   |                  |    |
| AC220V, 50Hz  |   |            |   |                  |   |                  |    |
| 630, 800  |   | 1000, 1250 |   | 1600, 2000, 2500 |   | 3200, 4000, 5000 |    |
| 3   | 4 | 3          | 4 | 3                | 4 | 3                | 4  |
| 6   | 6 | 6          | 8 | 8                | 9 | 18               | 20 |
| 2   |   |            |   |                  |   |                  |    |
| 120kA   |   | 120kA      |   | —                |   | 200kA            |    |
| 50kA  |   | 50kA       |   | 50kA             |   | —                |    |
| AC-33B, DC-33B  |   |            |   |                  |   | AC-33A, DC-33B   |    |
| ≤1s   |   |            |   |                  |   |                  |    |
| Electrical: 6000<br>Mechanical: 10000                             |   |            |   |                  |   |                  |    |
| 120 times / hr  |   |            |   |                  |   |                  |    |
| 2NO2NC on both source<br>AC110V, 5A<br>AC220V, 3A<br>DC220V, 0.2A |   |            |   |                  |   |                  |    |

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## ATS Controller Specification

### • XST-6

| Type                           | Multifunction                             |
|--------------------------------|---|
| Poles                          | 2 / 3 / 4                                 |
| Rated operation voltage (V)    | AC380 / 220<br>AC400 / 230<br>AC415 / 240 |
| Rated operation frequency (Hz) | 50 / 60                                   |
| Operation voltage (V)          | 165~300 (Phase voltage)                   |
| Operation temperature (°C)     | -25 ~ 60                                  |
| Optional functions             | Current measurement + communication       |



(Controller voltage: AC 220V)

## ATS (Automatic Transfer Switches)

### A. MCCB Type

| Type     | Pole   | Rated current In (A)                 | Rated Breaking Capacity Sym r.m.s. (kA)<br>IEC 60947-2 AC Icu |      |
|----------|--------|--------------------------------------|---|------|
|          |        |                                      | 220V  | 380V |
| BS100SN  | 3P, 4P | 10, 15, 20, 30, 40, 50, 60, 75, 100. | 25  | 15   |
| BS100HN  | 3P, 4P |                                      | 50  | 30   |
| BS250SN  | 3P, 4P | 125, 150, 175, 200, 225, 250.        | 50  | 30   |
| BS400SN  | 3P, 4P | 250, 300, 350, 400.                  | 50  | 35   |
| BS400HN  | 3P, 4P |                                      | 85  | 50   |
| BS630SN  | 3P, 4P | 500, 600, 630.                       | 50  | 35   |
| BS630HN  | 3P, 4P |                                      | 85  | 50   |
| BS800SN  | 3P, 4P | 700, 800.                            | 85  | 50   |
| BS1000HS | 3P     | 1000                                 | 130   | 100  |
| BS1200HS | 3P     | 1200                                 | 130   | 100  |
| BS1600HS | 3P     | 1400, 1600.                          | 130   | 100  |

Note: 1. Standard: IEC 60947-2  
 2. Special breaking capacity, please contact sales representative.  
 3. BS225SN rated current 250A is optional order.

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### B. MS Type

| Type  | ATS Protection Switch                          | Rated current In (A) | Pole | Voltage |
|-------|--|----------------------|------|---------|
| BS-MB | Miniature Circuit Breaker<br>Protection Switch | 20A                  | R, N | 110V    |
|       |  |                      | R, T | 220V    |



## Air Circuit Breaker

| Frame Size                            |                          | 1600AF               |               | 2000AF           |                    | 2500AF                                  |                   | 3200AF          |             | 4000AF    |             | 6300AF    |                 | 6300                     |                 |                 |
|---------------------------------------|--------------------------|----------------------|---------------|------------------|--------------------|---|-------------------|-----------------|-------------|-----------|-------------|-----------|-----------------|--------------------------|-----------------|-----------------|
| Model                                 |                          | BW-1600              |               | BW-2000          |                    | BWA-2500                                |                   | BW-3200         |             | BW-4000   |             | BW-6300   |                 | BW-6300                  |                 |                 |
| Rated Current, In                     |                          | 400/630/<br>800/1000 | 1250/<br>1600 | 630/<br>800/1000 | 1250/<br>1600/2000 | 400/630/800/<br>1000/1250/<br>1600/2000 | 2500              | 2000/<br>2500   | 3200        | 4000      | 5000        | 6300      | 4000/<br>5000   | 6300                     |                 |                 |
| Pole                                  |                          | 3P / 4P              |               | 3P / 4P          |                    | 3P / 4P                                 |                   | 3P / 4P         |             | 3P / 4P   |             | 3P / 4P   |                 | 3P / 4P                  |                 |                 |
| Frequency (Hz)                        |                          | 50 / 60HZ            |               | 50 / 60HZ        |                    | 50/60HZ                                 |                   | 50 / 60HZ       |             | 50 / 60HZ |             | 50 / 60HZ |                 | 50 / 60HZ                |                 |                 |
| Rated Voltage, Ue                     |                          | AC690V               |               | AC690V           |                    | AC 400/415/690V                         |                   | AC690V          |             | AC690V    |             | AC690V    |                 | AC380 / 400 / 415, AC690 |                 |                 |
| Rated Impulse Withstand Voltage, Uimp |                          | 12kV                 |               | 12kV             |                    | 12kV                                    |                   | 12kV            |             | 12kV      |             | 12kV      |                 | 12kV                     |                 |                 |
| Insulation Voltage, Ui                |                          | AC1000V              |               | AC1000V          |                    | AC1000V                                 |                   | AC1000V         |             | AC1000V   |             | AC1000V   |                 | AC1000V                  |                 |                 |
| Rated Current of Neutral (%)          |                          | 100%In               |               | 100%In           |                    | 100%In                                  |                   | 100%In          |             | 100%In    |             | 100%In    |                 | 100%In                   |                 |                 |
| Breaking Capacity                     | Model                    | SN                   | HS            | HN               | H                  | HS                                      | HN                | HS              | HN          | HS        | HN          | HS        | HN              |                          |                 |                 |
|                                       | Icu / Ics (kA)           | 690V                 | 50/50         | 50/50            | 55/55              | 65 / 65                                 | 60/50             | 55/55           | 60/50       | 55/55     | 85/85       | 85        |                 |                          |                 |                 |
|                                       |                          | 380/400/415V         | 65/65         | 80/50            | 85/85              | 85 / 85                                 | 100/65            | 100/100         | 100/65      | 100/100   | 120/100     | 120       |                 |                          |                 |                 |
|                                       |                          | 240V                 | —             | 80/50            | 85/85              | —                                       | 100/65            | 100/100         | 100/65      | 100/100   | 120/100     | -         |                 |                          |                 |                 |
|                                       | Icw (kA) 1sec            | 400/415V             | 50            | 50               | 65                 | 85                                      | 65                | 85              | 65          | 85        | 100         | 100       |                 |                          |                 |                 |
| 690V                                  |                          | 50                   | 50            | 65               | 65                 | 65                                      | 65                | 65              | 75          | 85        | 85          |           |                 |                          |                 |                 |
| Operating time (ms)                   | Max. total breaking time | ≤ 30                 |               | 40               |                    | 40                                      |                   | 40              |             | 40        |             | 40        | 40              | 40                       |                 |                 |
|                                       | Max. closing time        | ≤ 70                 |               | 80               |                    | 80                                      |                   | 80              |             | 80        |             | 80        | 80              | 80                       |                 |                 |
| Endurance                             | Mechanical               | With maintenance     | 20,000        |                  | 20,000             |   | 30000             |                 | 20,000      |           | 20,000      |           | 10,000          | 10,000                   | 13000           |                 |
|                                       |                          | Without maintenance  | 15,000        |                  | 10,000             |   | 15000             |                 | 10,000      |           | 10,000      |           | 2,500           | 2,500                    | 6500            |                 |
|                                       | Electrical               | With maintenance     | 10,000        | 8,000            | 15,000             |   | 8000              |                 | 13,000      |           | 12,000      |           | 2,000           | 2,000                    | 4000            |                 |
|                                       |                          | Without maintenance  | 10,000        | 8,000            | 8,000              |   | 6000              |                 | 6,500       |           | 6,000       |           | 500             | 500                      | 4000            |                 |
| Dimension HxWxD (mm)                  | Fixed Type               | 3P                   | 312x265x201   |                  | 402x362x332        |   | 397x365x364       |                 | 402x422x332 |           | 402x422x377 |           | —               | —                        | 402x800x377     |                 |
|                                       |                          | 4P                   | 312x335x201   |                  | 402x455x332        |   | 397x460x364       |                 | 402x537x332 |           | 402x537x377 |           | —               | —                        | 402x915x377     |                 |
|                                       | Drawout Type             | 3P                   | 345x275x300   |                  | 430x375x421        |   | 435x<br>405x448.5 | 435x<br>405x473 | 430x435x421 |           | 430x465x466 |           | 435x<br>842x505 | 435x<br>960x505          | 435x<br>842x495 | 435x<br>958x495 |
|                                       |                          | 4P                   | 345x345x300   |                  | 430x470x421        |   | 435x<br>500x448.5 | 435x<br>500x473 | 430x550x421 |           | 430x580x466 |           | 435x956x492     |                          | 435x958x495     |                 |

Note: Icu/Ics/Icw for HS type only labeled 400V and 690V on the name plate, other voltage are for reference.

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## MCB (Miniature Circuit Breaker) | BHA Series

### Applications:

Applicable to the residential, industrial and commercial power distribution systems, provide circuit-control and protection on equipments against any impacts of overload, short-circuit and earth leakage.

- DIN rail TH 35mm
- Ambient temperature: -5°C~ +40°C



### BHA

#### • Overload, Short Circuit

| BHA   | 2  | 2          | C  | 32   |                         |                   |
|-------|--|------------|--|--|-------------------------|-------------------|
| Type  | Rated short-circuit breaking capacity (kA)<br>Rated voltage (V)  | Poles (P)  | Tripping characteristics                           | Rated current In (A)                                 | Standard                | Mechanical life   |
| BHA   | 2: 4.5kA; 3: 6kA;<br>230/400V                                    | 1, 2, 3, 4 | C type: 5~ 10In<br>D type: 10~ 15In                | 1, 2, 3, 4, 5, 6, 10, 16,<br>20, 25, 32, 40, 50, 63. | IEC 60898               | 20,000 operations |
| BHA   | 125: 10kA<br>230/240V: 1P<br>400/415V: 2/3/4P                    | 1, 2, 3, 4 | 8~12In   | 80, 100, 125   | IEC 60947-2             | 10,000 operations |
| BHA   | 10kA<br>4: DC125V(1P) / DC250V(2P)<br>5: DC220V(1P) / DC440V(2P) | 1, 2       | DC Type  | 1, 2, 3, 4, 5, 6, 10, 16,<br>20, 25, 32, 40, 50, 63. | IEC 60947-2             | 20,000 operations |
| BHA-B | 3: 6kA, 4: 10kA<br>240/415V                                      | 1, 2, 3, 4 | B type: 3~5In<br>C type: 5~10In<br>D type: 10~15In | 1, 2, 3, 4, 5, 6, 10, 16, 20,<br>25, 32, 40, 50, 63  | IEC 60898IEC<br>60947-2 | 20,000 operations |

• BHA5 can't be used in IT system



### BHL

#### • Overload, Short Circuit, Leakage

| BHL  | 2   | 2         | C                                   | 32   | G   |
|------|---|-----------|-------------------------------------|--|---|
| Type | Rated short-circuit breaking capacity (kA)<br>Rated voltage (V) | Poles (P) | Tripping characteristics            | Rated current In (A)                                 | Optional function (2P)                            |
| BHL  | 2: 4.5kA<br>230V: 2P ; 400V: 3P/4P                              | 2, 3, 4   | C type: 5~ 10In<br>D type: 10~ 15In | 1, 2, 3, 4, 5, 6, 10, 16,<br>20, 25, 32, 40, 50, 63. | Over-voltage protection<br>(230V, internal built) |
| BHL  | 3: 6kA<br>230/400V  | 2, 3, 4   | C type: 5~ 10In<br>D type: 10~ 15In | 1, 2, 3, 4, 5, 6, 10, 16,<br>20, 25, 32, 40, 50, 63. | Over-voltage protection<br>(230V, internal built) |

- Standard: IEC 61009
- Internal OVT over voltage range AC 280V ± 5%



### BHL-A

#### • Overload, Short Current, Leakage

| BHL-A | 3   | 1         | C                                   | 32                                   | A                     | 30                             | G   |
|-------|---|-----------|-------------------------------------|--------------------------------------|-----------------------|--------------------------------|---|
| Type  | Rated short-circuit breaking capacity (kA)<br>Rated voltage (V) | Poles (P) | Tripping characteristics            | Rated current In (A)                 | Residual current type | Rated sensitivity current (mA) | Optional function (2P)                            |
| BHL-A | 2: 4.5kA; 3: 6kA<br>230V  | 1P+N      | C type: 5~ 10In<br>D type: 10~ 15In | 6, 10, 16, 20, 25, 32,<br>40, 50, 63 | A, AC                 | 10, 30, 100, 300               | Over-voltage protection<br>(230V, internal built) |
| BHL-B | 4L: 10kA<br>AC 230/240V   | 1P+N      | C type: 5~10In<br>D type: 10~15In   | 6, 10, 16, 20,<br>25, 32, 40         | A, AC                 | 10, 30, 100mA                  | -   |



### BL-BF

· Overload, Short Current, Leakage

| BL-BF | V                               | 15                   | 015  | 20   |
|-------|---------------------------------|----------------------|--|--|
| ↓     | ↓                               | ↓                    | ↓  | ↓  |
| Model | Type                            | Rated current In (A) | Rated sensitivity current IΔn (mA)                               | Pole   |
| BL-BF | V : RCCB<br>L : RCBO<br>C : MCB | 15, 20, 30           | 000 : N/A (C Type)<br>015 : 15 (V/L Type)<br>030 : 30 (V/L Type) | 20 : 2P0E (V type)<br>21 : 2P1E (C type)<br>22 : 2P2E (L type) |



### BHR-A

· Residual Current

| BHR-A | 42               | 25                   | A                     | 030                                |
|-------|------------------|----------------------|-----------------------|------------------------------------|
| ↓     | ↓                | ↓                    | ↓                     | ↓                                  |
| Type  | Poles (P)        | Rated current In (A) | Residual current Type | Rated sensitivity current IΔn (mA) |
| BHR-A | 42: 2P<br>44: 4P | 25, 32, 40, 63       | A, AC                 | 030: 30<br>100: 100<br>300: 300    |

### BHG

· Disconnect Switch

| BHG  |                   | 2          | 32                        |             |                   |
|------|-------------------|------------|---------------------------|-------------|-------------------|
| ↓    |                   | ↓          | ↓                         |             |                   |
| Type | Rated voltage (V) | Poles (P)  | Rated current In (A)      | Standard    | Mechanical life   |
| BHG  | 230/400V          | 1, 2, 3, 4 | 32A, 40A, 63A, 80A, 100A. | IEC 60947-3 | 50,000 operations |



### BHN

· N+L Overload, Short Circuit

| BHN  | 2                            | 1 | C         | 32                       |                        |
|------|------------------------------|---|-----------|--------------------------|------------------------|
| ↓    | ↓                            | ↓ | ↓         | ↓                        |                        |
| Type | Rated breaking capacity (kA) |   | Poles (P) | Tripping characteristics | Rated current In (A)   |
|      | Rated voltage (V)            |   |           |                          |                        |
| BHN  | 2: 4.5kA; 3: 6kA<br>230V     |   | 1P+N      | C type: 5~ 10In          | 6, 10, 16, 20, 25, 32. |



· Standard: IEC 60898

### BHZ

· Over / Under Voltage Protective Device with Auto-reset

| BHZ2 | 25                   |                 |                  |                 |                  |   |               |        |
|------|----------------------|-----------------|------------------|-----------------|------------------|---|---------------|--------|
| ↓    | ↓                    |                 |                  |                 |                  |   |               |        |
| Type | Rated current In (A) | Over voltage    |                  | Under voltage   |                  | Operation time  |               | Reset  |
|      |                      | Operating value | Reset value      | Operating value | Reset value      | Over voltage  | Under voltage |        |
| BHZ2 | 25, 32, 40, 50, 63   | > 275V          | 255V-265V<br>260 | 50V~160V        | 180V~190V<br>185 | 275V: 3-15s<br>300V: 1-3s<br>350V: 0.25-0.75s<br>400V: 0.1-0.2s | 0.7s          | 30s±5s |



· Standard: IEC 60898

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**BHK**

· Accessories

| <b>BHK</b> | <b>2</b>       |    |     |     |      | <b>1</b> | <b>0</b>     |        |                 |            |       |                      |       |                          |
|------------|----------------|----|-----|-----|------|----------|--------------|--------|-----------------|------------|-------|----------------------|-------|--------------------------|
| ↓          | ↓              | ↓  | ↓   | ↓   | ↓    | ↓        | ↓            | ↓      | ↓               | ↓          | ↓     |                      |       |                          |
| Type       | Accessory Code |    |     |     |      |          | Installation |        | Control Voltage |            |       |                      |       |                          |
|            | 1              | 2  | 3   | 4   | 5    | 6        | 1            | 2      | 0               | 1          | 2     | 3                    | 4     | 5                        |
|            | AL             | AX | SHT | UVT | OVT  | OUVT     | Standard     | Option | —               | AC220~240V | DC48V | AC24~48V<br>DC12~48V | AC12V | AC230~415V<br>DC110~130V |
| BHK        | AL             |    |     |     |      |          | ○            |        | ○               |            |       |                      |       |                          |
|            |                | AX |     |     |      |          | ○            | ○      | ○               |            |       |                      |       |                          |
|            |                |    | SHT |     |      |          | ○            | ○      |                 |            |       | ○                    | ○     | ○                        |
|            |                |    |     | UVT |      |          | ○            | ○      |                 | ○          | ○     |                      |       |                          |
|            |                |    |     |     | OVT  |          | ○            | ○      | ○               |            |       |                      |       |                          |
|            |                |    |     |     | OUVT | ○        | ○            | ○      |                 |            |       |                      |       |                          |

Note: 1. Standard: Attached on left side of breaker  
 2. Option: Attached on left side of accessory

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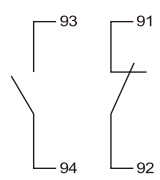

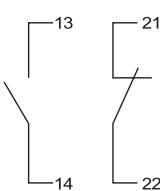
ACB

MCB


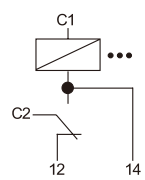

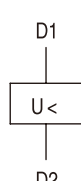
SPD

MS


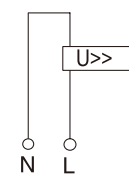
MMS

| Type  | Auxiliary Contact              |   | Width<br>(mm)  | Product Code |
|---|--------------------------------|---|----------------|--------------|
|   | AC/12                          |   |                |              |
|  <p>AL<br/>Alarm Switch</p>          | 1NO. 1NC<br>230V 6A<br>440V 3A | 9 | BHK11          |              |
|  <p>AX<br/>Auxiliary Contact</p>  | 1NO. 1NC<br>230V 6A<br>440V 3A | 9 | BHK21<br>BHK22 |              |

| Type  | Control Voltage        |                  | Width<br>(mm) | Product Code   |
|---|------------------------|------------------|---------------|----------------|
|   | V AC                   | V DC             |               |                |
|  <p>SHT<br/>Shunt Trip</p>          | 12<br>24-48<br>230-415 | 12-48<br>110-130 | 18            | BHK31<br>BHK32 |
|  <p>UVT<br/>Under Voltage Trip</p>  | 220-240                | 48               | 18            | BHK41<br>BHK42 |

| Type   | Rated voltage | Current | Over voltage range | Trip time | Width (mm) | Product Code   |
|--|---------------|---------|--------------------|-----------|------------|----------------|
|  <p>OVT<br/>Over Voltage Trip</p>  | 230V          | 15mA    | 280V±5%            | ≤0.2S     | 18         | BHK51<br>BHK52 |



## MCB (Miniature Circuit Breaker) | RP Series

### Applications:

Applicable to power distribution, provide circuit to againsts overload, short-circuit and leakage.

- Windows display
- Din-rail TH35mm

### RPC

#### · Overload, Short Circuit

| Type  | Poles (P)  | Tripping characteristics | Rated current In(A)                             | Rated short-circuit breaking capacity(kA) | Standard               | Mechanical life (times) |
|-------|------------|--------------------------|---|---|------------------------|-------------------------|
|       |            |                          |   | Rated voltage (V)                         |                        |                         |
| RPC   | 1, 2, 3, 4 | B,C,D Type or 8~12In     | 1, 2, 3, 4, 5, 6,10, 16, 20, 25, 32, 40, 50, 63 | 6kA @240/415Vac                           | IEC60898-1, IEC60947-2 | 20000                   |
| RPC-H | 1, 2, 3, 4 | B,C,D Type or 8~12In     | 1, 2, 3, 4, 5, 6,10, 16, 20, 25, 32, 40, 50, 63 | 10kA @240/415Vac                          | IEC60898-1, IEC60947-2 | 20000                   |



### RPV

#### · Residual Current

| Type | Poles (P)    | Rated current In(A) | Rated conditional short-circuit current (I <sub>nc</sub> ) | Residual current type | Rated residual current |
|------|--------------|---------------------|--|-----------------------|------------------------|
| RPV  | 1P+N<br>3P+N | 16,20,25,32,40,63   | 6kA=C<br>10kA=H  | A=A<br>AC=C           | 10~300mA               |

· Note: Rated residual current 10 is below 40A



### RPL

#### · Overload, Short Current, Leakage

| Type | Poles (P) | Tripping characteristics | Rated current In(A)               | Residual current type | Rated short-circuit breaking capacity(kA) | Rated residual current |
|------|-----------|--------------------------|-----------------------------------|-----------------------|---|------------------------|
|      |           |                          |                                   |                       | Rated voltage (V)                         |                        |
| RPL  | 1P+N      | C,D Type                 | 6, 10, 16, 20, 25, 32, 40, 50, 63 | A~AC Type             | 6kA<br>2P: AC240V                         | 10, 30, 100, 300mA     |



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## Surge Protective Device | BHP Series



|     |    |    |   |     |
|-----|----|----|---|-----|
| BHP | 20 | 3P | R | 320 |
|-----|----|----|---|-----|

| Type   | I <sub>max</sub> /I <sub>imp</sub> (kA) | Waveform (μs) | Pole (P)   | Alarm auxiliary contact<br>R: with<br>Blank: without | U <sub>c</sub> (V) | U <sub>n</sub> (V) | U <sub>p</sub> (kV) | Waveform (μs) | I <sub>n</sub> (kA) | Connection wire diameter |                    |
|--------|---|---------------|--|--|--------------------|--------------------|---------------------|---------------|---------------------|--------------------------|--------------------|
|        |   |               |  |  |                    |                    |                     |               |                     | L-N                      | PE                 |
| BHP20  | 20: 20kA                                | 8/20          | 1P: 1P<br>1P1: 1P+1<br>2P: 2P<br>3P: 3P<br>3P1: 3P+1<br>4P: 4P | R  | 275<br>320         | 230/400            | 1.1<br>1.2          | 8/20          | 10                  | ≧ 2.5mm <sup>2</sup>     | ≧ 6mm <sup>2</sup> |
| BHP40  | 40: 40kA                                | 8/20          |  | R  | 275<br>385         |                    | 230/400             |               |                     | 1.3<br>1.8               | 8/20               |
| BHP80  | 80: 80kA                                | 8/20          |  | R  | 275<br>385         | 230/400            |                     | 1.8<br>2.1    | 8/20                | 40                       |                    |
| BHP100 | 100: 100kA                              | 8/20          |  | R  | 275<br>385         |                    | 230/400             | 2.1<br>2.3    |                     |                          | 8/20               |
| BHP250 | 250: 25kA                               | 10/350        |  |  | 275<br>440         | 230/400            |                     | 2.3<br>2.3    | 10/350              | -                        |                    |

To enable the surge protective device to work, please read the following note:

1. The grounding system type of the protected device and maximum operating voltage of the power grid U<sub>s</sub>. Max.
2. The impulse withstand voltage of the protected device.

Note: 1. BHP20, 40 are plug-in type; BHP80, 100, 250 are fixed type.  
2. The standard operation voltage U<sub>c</sub>(V) is below table. Max operation voltage U<sub>c</sub>(V): 660V.

## SPD Counter

| Model          | TAD-04-99 |
|----------------|-----------|
| Rated Voltage  | AC85~250V |
| Max. Count     | 99        |
| Display        | LED       |
| Dimension (mm) | 91X69X18  |

## Normal working conditions

- Frequency: the AC power frequency shall be 50/60Hz.
- Voltage: the voltage continuously supplied between the wiring terminals of the surge protective device shall not exceed its maximum continuous operating voltage U<sub>c</sub>.
- Altitude: less than 2,000m.
- Use and storage temperature: -Normal range: -5°C ~ +40°C;  
-Ultimate range: -40°C ~ +80°C;
- Humidity: Relative humidity 30%~90% under ambient temperature.

# Magnetic Contactor / Motor Starter ◆ AC control



| Model                           |  | 9T  | 11                | 12T              | 15          |              |              |             |
|---------------------------------|--|---|-------------------|------------------|-------------|--------------|--------------|-------------|
| Type                            | Magnetic Contactor                         | Nonreversing                                  | S-P9T             | S-P11            | S-P12T      | S-P15        |              |             |
|                                 |  | Reversing                                     | S-2xP9T           | S-2xP11          | S-2xP12T    | S-2xP15      |              |             |
|                                 | Motor Starter                              | without enclosure                             | Nonreversing      | MSO-P9T          | MSO-P11     | MSO-P12T     | MSO-P15      |             |
|                                 |  |   | Reversing         | MSO-2xP9T        | MSO-2xP11   | MSO-2xP12T   | MSO-2xP15    |             |
|                                 |  | with enclosure                                | Nonreversing      | MS-P9T           | MS-P11      | MS-P12T      | MS-P15       |             |
|                                 |  |   | Reversing         | MS-2xP9T         | MS-2xP11    | MS-2xP12T    | MS-2xP15     |             |
|                                 |  | with enclosure (push button)                  | Nonreversing      | MS-P9TPB         | MS-P11PB    | MS-P12TPB    | MS-P15PB     |             |
|                                 | TOR  | Standard                                      | TH-P12ES          | TH-P12ES         | TH-P12ES    | TH-P12ES     |              |             |
|                                 |  | Differential                                  | TH-P12ES PP       | TH-P12ES PP      | TH-P12ES PP | TH-P12ES PP  |              |             |
|                                 | Rated Capacity                             | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660 | AC 3<br>(kW/HP/A) | 3 Ø              | 240V        | 2.5/3/11     | 3.5/ 4.5/ 13 | 3.5/4.5/13  |
| 380/415V                        |  |   |                   |                  | 4/5.5/9     | 5.5/ 7.5/ 12 | 5.5/7.5/12   | 7.5/ 10/ 18 |
| 440V                            |  |   |                   |                  | 4/5.5/9     | 5.5/ 7.5/ 12 | 5.5/7.5/12   | 7.5/ 10/ 16 |
| 550V                            |  |   |                   |                  | 4/5.5/7     | 5.5/ 7.5/ 9  | 7.5/10/12    | 7.5/ 10/ 13 |
| 660V                            |  |   |                   |                  | 4/5.5/6     | 5.5/ 7.5/ 7  | 7.5/10/9     | 7.5/ 10/ 9  |
| Operation current (lth) AC1 (A) |  | 25  | 20                | 25               | 25          |              |              |             |
| Rated insulation voltage (V)    |  | AC690   | AC660             | AC690            | AC660       |              |              |             |
| UL 508<br>CSA-C22.2             |  | AC3<br>(HP/A)                                 | 1 Ø               | 100~120V         | 0.5/9.8     | 0.5/ 9.8     | 0.75/13.8    | —           |
|                                 |  |   |                   | 200~240V         | 1.5/10      | 2/ 10        | 2/12         | —           |
|                                 |  | 3 Ø   | 200~240V          | 3/9.6            | 3/ 9.6      | 5/15.2       | —            |             |
|                                 |  |   | 380~480V          | 5/7.6            | 7.5/ 11     | 7.5/11       | —            |             |
|                                 |  |   | 550~600V          | 7.5/9            | 10/ 11      | 10/11        | —            |             |
|                                 |  | Operation current (lth) AC1 (A)               |                   | 25               | 24          | 25           | —            |             |
|                                 |  | Rated insulation voltage (V)                  |                   | AC600            | AC600       | AC600        | —            |             |
| NEMA                            |  | —   | 0                 | —                | 0           |              |              |             |
| Auxiliary Contact               | IEC 60947-5-1<br>EN 60947-5-1<br>GB14048.4 | AC 15   | Contact           | Standard         | 1No 1NC     | 1NO          | 1No 1NC      | 1NO         |
|                                 |  |   |                   | Special          | —           | 1NC          | —            | 1NC         |
|                                 |  |   |                   | 220V             | 1.6         | 1.6          | 1.6          | 1.6         |
|                                 |  |   |                   | 380V             | 0.95        | 0.95         | 0.95         | 0.95        |
|                                 | Operation current (lth) AC1 (A)            |   | 16                | 16               | 16          | 16           |              |             |
|                                 | Contact class (UL)                         |   | A600 · Q300       | A600, P600, Q300 | A600 · Q300 | —            |              |             |
| Electrical Life AC3             |  | 1.6 Mil.                                      | 1.6 Mil.          | 1.6 Mil.         | 1.3 Mil.    |              |              |             |
| Mechanical Life                 |  | 10 Mil.                                       | 10 Mil.           | 10 Mil.          | 10 Mil.     |              |              |             |
| Operation (Time/Hour)           |  | 1200  | 1200              | 1200             | 1200        |              |              |             |
| Magnetic Contactor              | Weight (kg)                                |   | 0.34              | 0.33             | 0.34        | 0.33         |              |             |
|                                 | Appearance Dimensions (W×H×D) (mm)         |   | 43×81×86          | 43×81×83.5       | 43×81×86    | 43×81×83.5   |              |             |
|                                 | Installation Dimension (mm)                |   |                   |                  |             |              |              |             |
|                                 | Mechanical Interlock                       |   | MPU-11            | MPU-11           | MPU-11      | MPU-11       |              |             |

# Magnetic Contactor / Motor Starter ◆ AC control



| Model                             |  | 16  | 21 (A)                          | 25           | 30T               |               |              |
|-----------------------------------|--|---|---------------------------------|--------------|-------------------|---------------|--------------|
| Type                              | Magnetic Contactor                         | Nonreversing                                  | S-P16                           | S-P21 (A)    | S-P25             | S-P30T        |              |
|                                   |  | Reversing                                     | S-2xP16                         | S-2xP21 (A)  | S-2xP25           | S-2xP30T      |              |
|                                   | Motor Starter                              | without enclosure                             | Nonreversing                    | MSO-P16      | MSO-P21 (A)       | MSO-P25       | MSO-P30T     |
|                                   |  |   | Reversing                       | MSO-2xP16    | MSO-2xP21 (A)     | MSO-2xP25     | MSO-2xP30T   |
|                                   |  | with enclosure                                | Nonreversing                    | MS-P16       | MS-P21 (A)        | MS-P25        | MS-P30T      |
|                                   |  |   | Reversing                       | MS-2xP16     | MS-2xP21 (A)      | MS-2xP25      | MS-2xP30T    |
|                                   |  | with enclosure (push button)                  | Nonreversing                    | MS-P16PB     | MS-P21PB (A)      | MS-P25PB      | MS-P30TPB    |
|                                   | TOR  | Standard                                      | TH-P20ES                        | TH-P20ES     | TH-P20ES TA       | TH-P20ES TA   |              |
|                                   |  | Differential                                  | TH-P20ES PP                     | TH-P20ES PP  | TH-P20ES TAPP     | TH-P20ES TAPP |              |
|                                   | Rated Capacity                             | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660 | 3 Ø                             | 240V         | 4.5/ 6/ 18        | 5.5/ 7.5/ 24  | 6.5/ 8.5/ 26 |
| 380/415V                          |  |   |                                 | 7.5/ 10/ 18  | 11/ 15/ 21        | 12/ 16/ 25    | 15/ 20/ 30   |
| 440V                              |  |   |                                 | 7.5/ 10/ 16  | 11/ 15/ 21        | 12/ 16/ 23    | 15/ 20/ 27   |
| 550V                              |  |   |                                 | 7.5/ 10/ 13  | 11/ 15/ 17        | 12/ 16/ 20    | 15/ 20/ 22   |
| 660V                              |  |   |                                 | 7.5/ 10/ 9   | 11/ 15/ 14        | 12/ 16/ 16    | 15/ 20/ 18   |
| AC 3<br>(kW/HP/A)                 |  | Continuous current (Ith) AC1 (A)              | 30                              | 32           | 32                | 50            |              |
|                                   |  | Rated insulation voltage (Ui) (V)             | AC660                           | AC660        | AC660             | AC660         |              |
| UL 508<br>CSA-C22.2               |  | 1 Ø   | 100~120V                        | 1/ 16        | 2/ 24             | 2/ 24         | 2/ 24        |
|                                   |  |   | 200~240V                        | 3/ 17        | 3/ 17             | 3/ 17         | 5/ 28        |
|                                   |  | 3 Ø   | 200~240V                        | 5/ 15.2      | 7.5/ 22           | 10/ 28        | 10/ 28       |
|                                   |  |   | 380~480V                        | 10/ 14       | 15/ 21            | 15/ 21        | 20/ 27       |
|                                   |  |   | 550~600V                        | 10/ 11       | 15/ 17            | 15/ 17        | 30/ 32       |
|                                   |  | AC3<br>(HP/A)                                 | Operation current (Ith) AC1 (A) | 30           | 35                | 40            | 50           |
| Rated insulation voltage (Ui) (V) |  |   | AC600                           | AC600        | AC600             | AC600         |              |
| NEMA                              |  | 0   | 1                               | 1            | 2                 |               |              |
| Auxiliary Contact                 | IEC 60947-5-1<br>EN 60947-5-1<br>GB14048.4 | Contact                                       | Standard                        | 1NO 1NC      | 1NO 1NC (2NO 2NC) | 1NO 1NC       | 2NO 2NC      |
|                                   |  |   | Special                         | —            | —                 | —             | —            |
|                                   |  | AC 15   | 220V                            | 1.6          | 1.6               | 1.6           | 1.6          |
|                                   |  |   | 380V                            | 0.95         | 0.95              | 0.95          | 0.95         |
|                                   | Continuous current (Ith) AC1 (A)           | 16  | 16                              | 16           | 16                |               |              |
|                                   | Contact class (UL)                         | A600, Q300                                    | A600, Q300                      | A600, Q300   | A600, Q300        |               |              |
| Electrical Life                   | AC3  | 1.3 Mil.                                      | 1.3 Mil.                        | 1.3 Mil.     | 1.3 Mil.          |               |              |
| Mechanical Life                   |  | 10 Mil.                                       | 10 Mil.                         | 10 Mil.      | 10 Mil.           |               |              |
| Operation                         | (Time/Hour)                                | 1200  | 1200                            | 1200         | 1200              |               |              |
| Magnetic Contactor                | Weight (kg)                                | 0.37  | 0.38                            | 0.38         | 0.55              |               |              |
|                                   | Appearance Dimensions (W×H×D) (mm)         | 53.5×81×83.5                                  | 53.5×81×83.5                    | 53.5×81×83.5 | 73×95×93          |               |              |
|                                   | Installation Dimension (mm)                |   |                                 |              |                   |               |              |
| Mechanical Interlock              |  | MPU-21  | MPU-21                          | MPU-21       | MPU-11            |               |              |



| 32T           | 35T           | 38T           | 40T           | 50T          | 60T           |
|---------------|---------------|---------------|---------------|--------------|---------------|
| S-P32T        | S-P35T        | S-P38T        | S-P40T        | S-P50T       | S-P60T        |
| S-2xP32T      | S-2xP35T      | S-2xP38T      | S-2xP40T      | S-2xP50T     | S-2xP60T      |
| MSO-P32T      | MSO-P35T      | MSO-P38T      | MSO-P40T      | MSO-P50T     | MSO-P60T      |
| MSO-2xP32T    | MSO-2xP35T    | MSO-2xP38T    | MSO-2xP40T    | MSO-2xP50T   | MSO-2xP60T    |
| MS-P32T       | MS-P35T       | MS-P38T       | MS-P40T       | MS-P50T      | MS-P60T       |
| MS-2xP32T     | MS-2xP35T     | MS-2xP38T     | MS-2xP40T     | MS-2xP50T    | MS-2xP60T     |
| MS-P32TPB     | MS-P35TPB     | MS-P38TPB     | MS-P40TPB     | MS-P50TPB    | MS-P60TPB     |
| TH-P20ES TA   | TH-P20ES TA   | TH-P20ES TA   | TH-P20ES TA   | TH-P60ES     | TH-P60ES TA   |
| TH-P20ES TAPP | TH-P20ES TAPP | TH-P20ES TAPP | TH-P20ES TAPP | TH-P60ES PP  | TH-P60ES TAPP |
| 7.5/10/32     | 9/ 12.5/ 35   | 11/15/39      | 11/ 15/ 44    | 15/ 20/ 58   | 19/ 25/ 65    |
| 15/20/32      | 18.5/ 25/ 35  | 18.5/25/38    | 22/ 30/ 40    | 30/ 40/ 52   | 37/ 50/ 65    |
| 15/20/32      | 18.5/ 25/ 27  | 18.5/25/38    | 22/ 30/ 40    | 30/ 40/ 52   | 37/ 50/ 65    |
| 15/20/22      | 18.5/ 25/ 22  | 18.5/25/29    | 22/ 30/ 32    | 30/ 40/ 41   | 37/ 50/ 52    |
| 15/20/18      | 18.5/ 25/ 18  | 18.5/25/22    | 22/ 30/ 26    | 30/ 40/ 34   | 37/ 50/ 43    |
| 50            | 50            | 60            | 60            | 115          | 115           |
| AC660         | AC660         | AC660         | AC660         | AC660        | AC660         |
| —             | 2/ 24         | —             | 3/ 34         | 5/ 56        | 5/ 56         |
| —             | 5/ 28         | —             | 7.5/ 40       | 10/ 50       | 10/ 50        |
| —             | 10/ 28        | —             | 15/ 42        | 20/ 54       | 20/ 54        |
| —             | 20/ 27        | —             | 20/ 27        | 30/ 40       | 40/ 52        |
| —             | 30/ 32        | —             | 30/ 32        | 40/ 41       | 50/ 52        |
| —             | 50            | —             | 60            | 115          | 115           |
| —             | AC600         | —             | AC600         | AC600        | AC600         |
| 2             | 2             | 2             | 2             | 2            | 2             |
| 1NO 1NC       | 2NO 2NC       | 2NO 2NC       | 2NO 2NC       | 2NO 2NC      | 2NO 2NC       |
| —             | —             | —             | —             | —            | —             |
| 1.6           | 1.6           | 1.6           | 1.6           | 1.6          | 1.6           |
| 0.95          | 0.95          | 0.95          | 0.95          | 0.95         | 0.95          |
| 16            | 16            | 16            | 16            | 16           | 16            |
| A600, Q300    | A600, Q300    | A600, Q300    | A600, Q300    | A600, Q300   | A600, Q300    |
| 1.3 Mil.      | 1.3 Mil.      | 1.3 Mil.      | 1.3 Mil.      | 1.3 Mil.     | 1.3 Mil.      |
| 10 Mil.       | 10 Mil.       | 10 Mil.       | 10 Mil.       | 6 Mil.       | 6 Mil.        |
| 1200          | 1200          | 1200          | 1200          | 1200         | 1200          |
| 0.38          | 0.55          | 0.55          | 0.55          | 1.05         | 1.05          |
| 53.5x81x83.5  | 73x95x93      | 73x95x93      | 73x95x93      | 87.9x115x107 | 87.9x115x107  |
|               |               |               |               |              |               |
| MPU-21        | MPU-11        | MPU-11        | MPU-11        | MPU-11       | MPU-11        |

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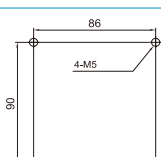
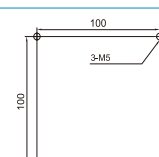
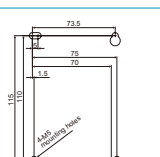
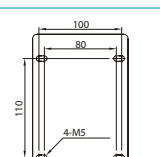
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# Magnetic Contactor / Motor Starter ◆ AC control



| Model                             |                                    | 80T   | 100T  | 100E  | 125T  |               |              |             |
|-----------------------------------|------------------------------------|---|---|---|---|---------------|--------------|-------------|
| Type                              | Magnetic Contactor                 | Nonreversing  | S-P80T  | S-P100T   | S-P100E   | S-P125T       |              |             |
|                                   |                                    | Reversing   | S-2xP80T  | S-2xP100T   | S-2xP100E   | S-2xP125T     |              |             |
|                                   | Motor Starter                      | without enclosure   | Nonreversing  | MSO-P80T  | MSO-P100T   | MSO-E100      | MSO-P125T    |             |
|                                   |                                    |   | Reversing   | MSO-2xP80T  | MSO-2xP100T   | MSO-2xE100    | MSO-2xP125T  |             |
|                                   |                                    | with enclosure  | Nonreversing  | MS-P80T   | MS-P100T  | MS-E100       | MS-P125T     |             |
|                                   |                                    |   | Reversing   | MS-2xP80T   | MS-2xP100T  | MS-2xE100     | MS-2xP125T   |             |
|                                   |                                    | with enclosure (push button)  | Nonreversing  | —   | —   | MS-E100PB     | —            |             |
|                                   | TOR                                | Standard  | TH-P60ES TA   | TH-P120 E(TA)   | TH-E100E  | TH-P120 E(TA) |              |             |
|                                   |                                    | Differential  | TH-P60ES TAPP   | TH-P120(TA)PP   | TH-E100PP   | TH-P120(TA)PP |              |             |
|                                   | Rated Capacity                     | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660                                       | 3 Ø   | 240V  | 22/ 30/ 80  | 30/ 40/ 105   | 30/ 40/ 105  | 37/ 50/ 135 |
| 380/415V                          |                                    |   |   | 45/ 60/ 80  | 60/ 80/ 105   | 55/ 75/ 100   | 75/ 100/ 130 |             |
| 440V                              |                                    |   |   | 45/ 60/ 75  | 60/ 80/ 105   | 60/ 80/ 100   | 75/ 100/ 130 |             |
| 550V                              |                                    |   |   | 45/ 60/ 60  | 60/ 80/ 85  | 60/ 80/ 85    | 75/ 100/ 105 |             |
| 660V                              |                                    |   |   | 45/ 60/ 50  | 60/ 80/ 70  | 60/ 80/ 70    | 75/ 100/ 90  |             |
| AC 3<br>(kW/HP/A)                 |                                    | Continuous current (Ith) AC1 (A)  | 115   | 150   | 135   | 170           |              |             |
|                                   |                                    | Rated insulation voltage (Ui) (V)   | AC660   | AC660   | AC690   | AC660         |              |             |
| UL 508<br>CSA-C22.2               |                                    | 1 Ø   | 100~120V  | 7.5/ 80   | —   | —             | —            |             |
|                                   |                                    |   | 200~240V  | 15/ 68  | —   | —             | —            |             |
|                                   |                                    | 3 Ø   | 200~240V  | 25/ 68  | 30/ 80  | —             | 50/ 130      |             |
|                                   |                                    |   | 380~480V  | 50/ 65  | 60/ 77  | —             | 100/ 124     |             |
|                                   |                                    |   | 550~600V  | 60/ 62  | 60/ 62  | —             | 100/ 99      |             |
|                                   |                                    | (HP/A)  | Continuous current (Ith) AC1 (A)  | 115   | 150   | —             | 170          |             |
| Rated insulation voltage (Ui) (V) |                                    |   | AC600   | AC600   | —   | AC600         |              |             |
| NEMA                              |                                    | 3   | 3   | —   | 3   |               |              |             |
| Auxiliary Contact                 |                                    | IEC 60947-5-1<br>EN 60947-5-1<br>GB14048.4  | Contact   | Standard  | 2NO 2NC   | 2NO 2NC       | 1NO 1NC      | 2NO 2NC     |
|                                   |                                    |   |   | Special   | —   | —             | —            | —           |
|                                   |                                    |   | AC 15   | 220V  | 1.6   | 1.6           | 3*           | 3.3         |
|                                   | 380V                               |   |   | 0.95  | 0.95  | 1.9           | 1.6          |             |
|                                   | Operation current (Ith) AC1 (A)    | 16  | 16  | 10  | 16  |               |              |             |
|                                   | Contact class (UL)                 | A600, Q300  | A600, Q300  | A600, Q300  | A600, Q300  |               |              |             |
| Electrical Life                   | AC3                                | 1.2 Mil.  | 1.2 Mil.  | 1 Mil.  | 1.2 Mil.  |               |              |             |
| Mechanical Life                   |                                    | 6 Mil.  | 6 Mil.  | 6 Mil.  | 6 Mil.  |               |              |             |
| Operation                         | (Time/Hour)                        | 1200  | 1200  | 1200  | 1200  |               |              |             |
| Magnetic Contactor                | Weight (kg)                        | 1.5   | 2.35  | 1.34  | 2.7   |               |              |             |
|                                   | Appearance Dimensions (W×H×D) (mm) | 100×142×116   | 120×116×128   | 85×125×127  | 106×152.5×140   |               |              |             |
|                                   | Installation Dimension (mm)        |  |  |  |  |               |              |             |
|                                   | Mechanical Interlock               | MPU-50  | Assembled and adjusted by the factory.  | MEU-11  | MPU-125   |               |              |             |

Note: Mark \* means the value is @240V



| 150T          | 200T          | 220T          | 300T          | 400T          |
|---------------|---------------|---------------|---------------|---------------|
| S-P150T       | S-P200T       | S-P220T       | S-P300T       | S-P400T       |
| S-2xP150T     | S-2xP200T     | S-2xP220T     | S-2xP300T     | S-2xP400T     |
| MSO-P150T     | MSO-P200T     | MSO-P220T     | MSO-P300T     | MSO-P400T     |
| MSO-2xP150T   | MSO-2xP200T   | MSO-2xP220T   | MSO-2xP300T   | MSO-2xP400T   |
| MS-P150T      | MS-P200T      | MS-P220T      | —             | —             |
| MS-2xP150T    | MS-2xP200T    | MS-2xP220T    | —             | —             |
| —             | —             | —             | —             | —             |
| TH-P120 E(TA) | TH-P220T E    | TH-P220T E    | TH-P400T E    | TH-P400T E    |
| TH-P120(TA)PP | TH-P220TTPP   | TH-P220TTPP   | TH-P400TTPP   | TH-P400TTPP   |
| 45/ 60/ 165   | 55/ 75/ 200   | 65/ 85/ 225   | 90/ 125/ 300  | 110/ 150/ 400 |
| 90/ 125/ 160  | 110/ 150/ 190 | 120/ 160/ 220 | 160/ 220/ 300 | 220/ 300/ 400 |
| 90/ 125/ 160  | 110/ 150/ 190 | 120/ 160/ 220 | 185/ 250/ 300 | 250/ 340/ 400 |
| 90/ 125/ 130  | 110/ 150/ 150 | 132/ 180/ 180 | 185/ 250/ 263 | 250/ 340/ 360 |
| 90/ 125/ 110  | 110/ 150/ 125 | 132/ 180/ 150 | 200/ 300/ 220 | 280/ 380/ 305 |
| 225           | 275           | 315           | 500           | 635           |
| AC660         | AC660         | AC660         | AC1000        | AC1000        |
| —             | —             | —             | —             | —             |
| —             | —             | —             | —             | —             |
| 60/ 154       | 75/ 192       | 75/ 192       | 100/ 248      | 125/ 312      |
| 125/ 156      | 150/ 180      | 150/ 180      | 200/ 240      | 250/ 302      |
| 125/ 125      | 150/ 144      | 150/ 144      | 200/ 192      | 300/ 289      |
| 225           | 275           | 315           | 500           | 635           |
| AC600         | AC600         | AC600         | AC1000        | AC1000        |
| 3             | 4             | 4             | 5             | 5             |
| 2NO 2NC       | 2NO 2NC       | 2NO 2NC       | 2NO 2NC       | 2NO 2NC       |
| —             | —             | —             | —             | —             |
| 3.3           | 3.3           | 3.3           | 3.3           | 3.3           |
| 1.6           | 1.6           | 1.6           | 1.6           | 1.6           |
| 16            | 16            | 16            | 10            | 10            |
| A600, Q300    | A600, Q300    | A600, Q300    | A600, Q300    | A600, Q300    |
| 1.2 Mil.      | 1.2 Mil.      | 1.2 Mil.      | 1.2 Mil.      | 1.2 Mil.      |
| 6 Mil.        | 6 Mil.        | 6 Mil.        | 6 Mil.        | 6 Mil.        |
| 1200          | 1200          | 1200          | 1200          | 1200          |
| 2.7           | 4.35          | 4.35          | 9.75          | 9.75          |
| 106×152.5×140 | 138×185×159.5 | 138×185×159.5 | 164×246×196.5 | 164×246×196.5 |
|               |               |               |               |               |
| MPU-125       | MPU-125       | MPU-125       | MPU-125       | MPU-125       |

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## Magnetic Contactor / Motor Starter ◆ AC control



| Model                             |   | 630T                              | 800T         | 1260T           |                 |   |
|-----------------------------------|---|-----------------------------------|--------------|-----------------|-----------------|---|
| Type                              | Magnetic Contactor                            | Nonreversing                      | S-P630T      | S-P800T         | S-P1260T        |   |
|                                   |   | Reversing                         | S-2xP630T    | S-2xP800T       | S-2xP1260T      |   |
|                                   | Motor Starter                                 | without enclosure                 | Nonreversing | —               | —               | — |
|                                   |   |                                   | Reversing    | —               | —               | — |
|                                   |   | with enclosure                    | Nonreversing | —               | —               | — |
| Reversing                         | —   |                                   | —            | —               |                 |   |
| with enclosure (push button)      | Nonreversing                                  | —                                 | —            | —               |                 |   |
| TOR                               | Standard                                      | TH-P600(E)                        | TH-P600(E)   | —               |                 |   |
|                                   | Differential                                  | TH-P600PP                         | TH-P600PP    | —               |                 |   |
| Rated Capacity                    | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660 | 3 Ø                               | 240V         | 200 / 270 / 630 | 250 / 340 / 800 | — |
|                                   |   |                                   | 380/415V     | 335 / 450 / 630 | 450 / 610 / 800 | — |
|                                   |   |                                   | 440V         | 400 / 545 / 630 | 450 / 610 / 800 | — |
|                                   |   |                                   | 550V         | 400 / 545 / 552 | 450 / 610 / 620 | — |
|                                   |   |                                   | 660V         | 450 / 610 / 450 | 475 / 645 / 475 | — |
|                                   | AC 3<br>(kW/HP/A)                             | Continuous current (Ith) AC1 (A)  | 800          | 1000            | 1260            |   |
|                                   |   | Rated insulation voltage (Ui) (V) | AC1000       | AC1000          | AC1000          |   |
|                                   | UL 508<br>CSA-C22.2                           | 1 Ø                               | 100~120V     | —               | —               | — |
|                                   |   |                                   | 200~240V     | —               | —               | — |
|                                   |   | 3 Ø                               | 200~240V     | —               | —               | — |
|                                   |   |                                   | 380~480V     | —               | —               | — |
|                                   |   |                                   | 550~600V     | —               | —               | — |
| Continuous current (Ith) AC1 (A)  |   | —                                 | —            | —               |                 |   |
| Rated insulation voltage (Ui) (V) | —   | —                                 | —            |                 |                 |   |
| NEMA                              |   | 3                                 | 3            | 4               |                 |   |
| Auxiliary Contact                 | IEC 60947-5-1<br>EN 60947-5-1<br>GB14048.4    | Contact                           | Standard     | 2NO 2NC*        | 2NO 2NC*        | — |
|                                   |   |                                   | Special      | —               | —               | — |
|                                   |   |                                   | 220V         | —               | —               | — |
|                                   |   |                                   | 380V         | —               | —               | — |
|                                   | AC 15   | Operation current (Ith) AC1 (A)   | —            | —               | —               |   |
| Contact class (UL)                | —   | —                                 | —            |                 |                 |   |
| Electrical Life                   | AC3   | 500000                            | 500000       | —               |                 |   |
| Mechanical Life                   |   | 3000000                           | 3000000      | 3000000         |                 |   |
| Operation                         | (Time/Hour)                                   | —                                 | —            | —               |                 |   |
| Magnetic Contactor                | Weight (kg)                                   | 16.4                              | 18.3         | 18.3            |                 |   |
|                                   | Appearance Dimensions (W×H×D) (mm)            | 309×304×255                       | 309×338×255  | 309×338×255     |                 |   |
|                                   | Installation Dimension (mm)                   |                                   |              |                 |                 |   |
| Mechanical Interlock              |   | —                                 | —            | —               |                 |   |

\*Note: S-P630T and S-P800T is equipped with AP-22N (2NO2NC) when ordered, S-P1260T can be purchase separated.



# Magnetic Contactor / Motor Starter ◆ AC control

## Mini Contactor



## Thermal Overload Relay



| Model                        |  | 06  | 09           |                                  |             |              |
|------------------------------|--|---|--------------|----------------------------------|-------------|--------------|
| Type                         | Magnetic Contactor                         | Nonreversing                                  | S-P06        | S-P09                            |             |              |
|                              |  | Reversing                                     | S-2×P06      | S-2×P09                          |             |              |
|                              | Motor Starter                              | without enclosure                             | Nonreversing | MSO-P06                          | MSO-P09     |              |
|                              |  |   | Reversing    | —                                | —           |              |
|                              |  | with enclosure                                | Nonreversing | —                                | —           |              |
|                              |  |   | Reversing    | —                                | —           |              |
|                              | with enclosure (push button)               | Nonreversing                                  | —            | —                                |             |              |
|                              | TOR  | Standard                                      | —            | —                                |             |              |
|                              |  | Differential                                  | TH-P09PP     | TH-P09PP                         |             |              |
|                              | Rated Capacity                             | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660 | 3 ∅          | 240V                             | 1.5/ 2/ 7.5 | 2.2/ 3/ 10.1 |
| 380/415V                     |  |   |              | 3/ 4/ 6.6                        | 4/ 5.5/ 9   |              |
| 440V                         |  |   |              | 3/ 4/ 6.5                        | 4/ 5.5/ 8.5 |              |
| 550V                         |  |   |              | 3/ 4/ 5                          | 4/ 5.5/ 6.5 |              |
| 660V                         |  |   |              | 3/ 4/ 4                          | 4/ 5.5/ 5   |              |
| AC 3 (kW/HP/A)               |  |   |              | Continuous Current (Ith) AC1 (A) | 20          | 20           |
| UL 508<br>CSA-C22.2          |  | AC3 (HP/A)                                    | 1 ∅          | 100~120V                         | 0.25/ 5.8   | 0.5/ 9.8     |
|                              |  |   |              | 200~240V                         | 1/ 8        | 1.5/ 10      |
|                              |  |   | 3 ∅          | 200~240V                         | 2/ 6.8      | 3/ 9.6       |
|                              |  |   |              | 380~480V                         | 3/ 4.8      | 5/ 7.6       |
|                              |  |   | 550~600V     | 3/ 3.9                           | 5/ 6.1      |              |
|                              |  |   | AC3 (HP/A)   | Continuous Current (Ith) AC1 (A) | 20          | 20           |
| Rated insulation voltage (V) | AC600                                      | AC600   |              |                                  |             |              |
| NEMA                         |  | 00  | 00           |                                  |             |              |
| Auxiliary Contact            | IEC 60947-5-1<br>EN 60947-5-1<br>GB14048.4 | Contact                                       | Standard     | 1NO                              | 1NO         |              |
|                              |  |   | Special      | 1NC                              | 1NC         |              |
|                              |  |   | 220V         | 3.3                              | 3.3         |              |
|                              |  |   | 380V         | 1.9                              | 1.9         |              |
|                              | AC 15                                      | Continuous Current (Ith) AC1 (A)              | 10           | 10                               |             |              |
| Contact class (UL)           | A600                                       | A600  |              |                                  |             |              |
| Electrical Life              |  | AC3   | 1.6 Mil.     | 1.6 Mil.                         |             |              |
| Mechanical Life              |  |   | 10 Mil.      | 10 Mil.                          |             |              |
| Operation (Time/Hour)        |  |   | 1200         | 1200                             |             |              |
| Magnetic Contactor           | Weight (kg)                                |   | 0.15         | 0.15                             |             |              |
|                              | Appearance Dimensions (W×H×D) (mm)         |   | 46×58×51     | 46×58×51                         |             |              |
|                              | Installation dimension (mm)                |   |              |                                  |             |              |
| Mechanical Interlock         |  | —   | —            | —                                |             |              |

| Type                          |                              | 09                 |           |
|-------------------------------|------------------------------|--------------------|-----------|
| Standard                      | Contact Assembled Type       | —                  |           |
|                               | Independently Installed Type | —                  |           |
| With phase failure protection | Contact Assembled Type       | TH-P09PP           |           |
|                               | Independently Installed Type | —                  |           |
| Reset Mode                    |                              | Manual / Automatic |           |
| Magnetic Contactor            |                              | S-P06, S-P09.      |           |
| TOR Adjustment Range (A)      |                              | Rating (A)         | Range (A) |
|                               |                              | 0.13               | 0.1~0.16  |
|                               |                              | 0.20               | 0.16~0.24 |
|                               |                              | 0.32               | 0.24~0.4  |
|                               |                              | 0.5                | 0.4~0.6   |
|                               |                              | 0.8                | 0.6~1     |
|                               |                              | 1.3                | 1~1.6     |
| Auxiliary Contact             |                              | 1NO 1NC            |           |
| Weight                        |                              | 0.075              |           |
| Dimensions (mm) (W×H×D)       |                              | 45.5×64.8×50       |           |

## Coil Specification Table

| ◆ S-P06, S-P09                    |           |               |               |               |               |               |
|-----------------------------------|-----------|---------------|---------------|---------------|---------------|---------------|
| Description                       | AC12V     | AC24V         | AC48V         | AC110V        | AC120V        | AC220V        |
| Coil rated specifications marking | 12V 50Hz  | 24V 50Hz      | 48~50V 50Hz   | 100V 50Hz     | 110~120V 50Hz | 200~220V 50Hz |
|                                   | 12V 60Hz  | 24V 60Hz      | 48~50V 60Hz   | 100~110V 60Hz | 115~120V 60Hz | 220V 60Hz     |
| Description                       | AC230V    | AC240V        | AC380V        | AC440V        | AC480V        | AC550V        |
| Coil rated specifications marking | 230V 50Hz | 220~240V 50Hz | 346~380V 50Hz | 400V 50Hz     | 415~440V 50Hz | 500V 50Hz     |
|                                   | 230V 60Hz | 240~260V 60Hz | 380V 60Hz     | 400~440V 60Hz | 460~480V 60Hz | 500~550V 60Hz |

# Magnetic Contactor / Motor Starter ◆ DC control



| Model                         |   |                               | 06                             | 09           | 11             | 16                                       | 21            |                |
|-------------------------------|---|-------------------------------|--------------------------------|--------------|----------------|--|---------------|----------------|
| Magnetic Contactor            | Nonreversing                                  |                               | SD-P06                         | SD-P09       | SD-P11         | SD-P16                                   | SD-P21        |                |
|                               | Reversing                                     |                               | SD-2xP06                       | SD-2xP09     | SD-2xP11       | SD-2xP16                                 | SD-2xP21      |                |
| Type                          | Motor Starter                                 | without enclosure             | Nonreversing                   | -            | -              | MDO-P11                                  | MDO-P16       | MDO-P21        |
|                               |   |                               | Reversing                      | -            | -              | MDO-2xP11                                | MDO-2xP16     | MDO-2xP21      |
|                               |   | with enclosure                | Nonreversing                   | -            | -              | -  | -             | -              |
|                               | Reversing                                     |                               | -                              | -            | -              | -  | -             |                |
|                               | with enclosure (push button)                  | Nonreversing                  | -                              | -            | -              | -  | -             |                |
|                               | TOR   | Standard                      | -                              | -            | TH-P12ES       | TH-P20ES                                 | TH-P20ES      |                |
| Differential                  |   | TH-P09PP                      | TH-P09PP                       | TH-P12ES PP  | TH-P20ES PP    | TH-P20ES PP                              |               |                |
| Rated Capacity                | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660 | 3 ø                           | 240V                           | 1.5 / 2 / 6  | 2.2 / 3 / 9    | 3.5 / 4.5 / 13                           | 4.5 / 6 / 18  | 5.5 / 7.5 / 24 |
|                               |   |                               | 380/440V                       | 3 / 4 / 6    | 4 / 5.5 / 9    | 5.5 / 7.5 / 12                           | 7.5 / 10 / 18 | 11 / 15 / 21   |
|                               |   |                               | 550V                           | 3 / 4 / 6    | 4 / 5.5 / 9    | 5.5 / 7.5 / 9                            | 7.5 / 10 / 13 | 11 / 15 / 17   |
|                               |   |                               | 660V                           | -            | -              | 5.5 / 7.5 / 7                            | 7.5 / 10 / 9  | 11 / 15 / 14   |
|                               | AC 3<br>(kW/HP/A)                             | Continuous Current (Ith)      | AC1 (A)                        | 20           | 20             | 20                                       | 30            | 32             |
|                               |   | Rated insulation voltage (Ui) |                                | 690          | 690            | 660                                      | 660           | 660            |
|                               | UL 508<br>CSA-C22.2                           | 1 ø                           | 110~120V                       | 0.25 / 5.8   | 0.5 / 9.8      | 0.5 / 9.8                                | 1 / 16        | 2 / 24         |
|                               |   |                               | 220~240V                       | 1 / 8        | 1.5 / 10       | 2 / 12                                   | 3 / 17        | 3 / 17         |
|                               |   | 3 ø                           | 220~240V                       | 2 / 6.8      | 3 / 9.6        | 3 / 9.6                                  | 5 / 15.2      | 7.5 / 22       |
|                               |   |                               | 440~480V                       | 3 / 4.8      | 5 / 7.6        | 7.5 / 11                                 | 10 / 14       | 15 / 21        |
| 550~600V                      |   |                               | 3 / 3.9                        | 5 / 6.1      | 10 / 11        | 10 / 11                                  | 15 / 17       |                |
| Continuous Current (Ith)      |   | AC1 (A)                       | 20                             | 20           | 24             | 30                                       | 35            |                |
| Rated insulation voltage      |   | (Ui)                          | 600                            | 600          | 600            | 600                                      | 600           |                |
| NEMA                          |   |                               | 0                              | 0            | 0              | 0  | 1             |                |
| Auxiliary Contact             | Auxiliary contact                             | Standard                      | 1NO                            | 1NO          | 1NO            | 1NO1NC                                   | 1NO1NC        |                |
|                               |   | Special                       | 1NC                            | 1NC          | 1NC            | -  | -             |                |
|                               | Control coil voltage DC (V)                   |                               | 24 / 36 / 48 / 110 / 220 / 240 |              |                | 12 / 24 / 30 / 48 / 72 / 110 / 125 / 220 |               |                |
|                               | EC 60947-5-1<br>EN 60947-5-1                  | 220V                          | 3.3                            | 3.3          | 1.6            | 1.6                                      | 1.6           |                |
| 380V                          |   | 1.9                           | 1.9                            | 0.95         | 0.95           | 0.95                                     |               |                |
| Rated heating current (Ith)   |   | (A)                           | 10                             | 10           | 16             | 16                                       | 16            |                |
| Contact class                 |   | (UL)                          | A600                           | A600         | A600           | A600                                     | A600          |                |
| Performanc                    | Electrical life (AC3) (10 thousand)           |                               | 120                            | 120          | 120            | 120                                      | 120           |                |
|                               | Mechanical life (10 thousand)                 |                               | 600                            | 600          | 600            | 600                                      | 600           |                |
| Weight                        |   | (kg)                          | 0.43                           | 0.43         | 0.33           | 0.37                                     | 0.38          |                |
| Appearance Dimensions (WxHxD) |   | (mm)                          | 46 x 58 x 51                   | 46 x 58 x 51 | 43 x 81 x 83.5 | 53.5x81x83.5                             | 53.5x81x83.5  |                |
| Installation dimension        |   | (mm)                          |                                |              |                |  |               |                |

# Capacitor Contactors



| Type   |  | SC-P12                        | SC-P16         | SC-P20     | SC-P25     | SC-P33     | SC-P45     | SC-P60     | SC-P70     |             |                 |
|--|--|-------------------------------|----------------|------------|------------|------------|------------|------------|------------|-------------|-----------------|
| Rated insulation voltage (Ui)  |  | (V)                           | 690            | 690        | 690        | 690        | 690        | 690        | 690        |             |                 |
| Rated Capacity   | IEC 60947-4-1<br>EN 60947-4-1<br>DIN VDE 0660<br><br>AC 3<br>(kW/HP/A) | AC-6b<br>3 $\phi$<br>(kVar/A) | 200~240V       | 6.7/ 18    | 8.5/ 22    | 10/ 26     | 15/ 39     | 20/ 48     | 25/ 66     | 35/ 92      | 60/118          |
|  |  |                               | 400~440V       | 12.5/ 16   | 16.7/ 22   | 20/ 26     | 25/ 33     | 33.3/ 44   | 45/ 59     | 60/ 86      | 70/101          |
|  |  |                               | 660~690V       | 18/ 15     | 24/ 20     | 30/ 25     | 36/ 30     | 48/ 40     | 58/ 49     | 75/ 63      | 90/78           |
|  | Continuous Current (Ith)   |                               | AC1 (A)        | 20         | 30         | 40         | 50         | 80         | 90         | 100         | 135             |
| Auxiliary Contact  |  |                               | 2NO or 1NO 1NC | 2NO 1NC    | 2NO 1NC    | 3NO 2NC    | 3NO 2NC    | 3NO 2NC    | 3NO 2NC    | 3NO 2NC     |                 |
| Auxiliary Contact  | IEC 60947-5-1<br>EN 60947-5-1  | AC12<br>(A)                   | 110V           | 6          | 6          | 6          | 6          | 6          | 6          | 6           |                 |
|  |  |                               | 220V           | 5          | 5          | 5          | 5          | 5          | 5          | 5           |                 |
|  |  |                               | 440V           | 3          | 3          | 3          | 3          | 3          | 3          | 3           |                 |
|  |  |                               | 550V           | 3          | 3          | 3          | 3          | 3          | 3          | 3           |                 |
|  | Continuous Current (Ith)   |                               | (A)            | 16         | 16         | 16         | 16         | 16         | 16         | 16          | 16              |
| Mechanical Life /<br>Electrical Life (AC-6b) $\leq 440V$ (10 thousand) |  |                               | 100 / 30       | 100 / 30   | 100 / 30   | 100 / 30   | 100 / 30   | 100 / 30   | 100 / 30   | 600/20      |                 |
| Operation Frequency  |  | (time/ hour)                  | 240            | 240        | 240        | 240        | 240        | 240        | 100        | 100         |                 |
| Magnetic Contactor   | Weight   |                               | (kg)           | 0.42       | 0.47       | 0.47       | 0.63       | 1.14       | 1.14       | 1.59        | 2.4             |
|  | Installation Dimensions (WxHxD)  |                               | (mm)           | 44x108x134 | 54x112x134 | 54x112x134 | 74x185x144 | 89x185x158 | 89x185x158 | 101x195x168 | 120 x 180 x 169 |
|  | Dimensions   |                               | (mm)           |            |            |            |            |            |            |             |                 |

# Capacitor Unit



| Capacitor Unit | Magnetic Contactor | Maximum operating power(kvar) |          |          | Max. peak current(A) |
|----------------|--------------------|-------------------------------|----------|----------|----------------------|
|                |                    | 220~240V                      | 400~440V | 660~690V |                      |
| AP-40 A        | S-P11              | 6.7                           | 12.5     | 18       | 560                  |
|                | S-P16              | 8.5                           | 16.7     | 24       | 560                  |
|                | S-P21              | 10                            | 20       | 30       | 1250                 |
| AP-40 B        | S-P40T             | 15                            | 25       | 36       | 1900                 |
|                | S-P50T             | 20                            | 33.3     | 48       | 2160                 |
|                | S-P60T             | 25                            | 45       | 58       | 3040                 |
|                | S-P80T             | 35                            | 60       | 75       | 3040                 |

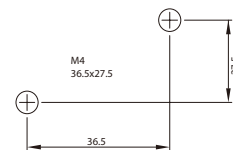
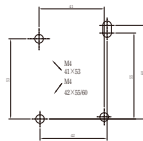
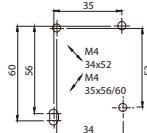
## Thermal Overload Relay



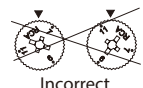
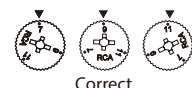
| Type   |                            | 12   |           | 18                 |             | 20   |           |  |           |
|--|----------------------------|--|-----------|--------------------|-------------|--|-----------|--|-----------|
| Standard   | Contactor Assembled Type   | TH-P12ES   |           | TH-P18E            |             | TH-P20ES   |           | TH-P20ES TA                                    |           |
|  | #3 Separate Installed Type | Install UATP12   |           | TH-P18ER           |             | -  |           | -  |           |
| Differential type  | Contactor Assembled Type   | TH-P12ES PP  |           | TH-P18PP           |             | TH-P20ES PP  |           | TH-P20ES TAPP                                  |           |
|  | #3 Separate Installed Type | Install UATP12   |           | TH-P18PPR          |             | -  |           | -  |           |
| Reset Mode   |                            | Manual / Automatic   |           | Manual / Automatic |             | Manual / Automatic   |           |  |           |
| Magnetic Contactor   |                            | S-P09T, S-P11, S-P12T, S-P15.                                  |           | S-P16, S-P21       |             | S-P16, S-P21, S-P25, S-P30T, S-P32T, S-P35T, S-P38T, S-P40T. |           | S-P25, S-P30T, S-P32T, S-P35T, S-P38T, S-P40T. |           |
| Index<br>MCCB<br>ELCB<br>ATS<br>ACB<br>MCB<br>SPD<br>MS<br>MMS | TOR Adjustment Range (A)   | Rating (A)   | Range (A) | Rating             | Range       | Rating (A)   | Range (A) | Rating (A)                                     | Range (A) |
|  |                            | 0.25   | 0.19~0.31 | 0.25               | 0.19 - 0.31 | 0.25   | 0.19~0.31 | 28   | 22~34     |
|  |                            | 0.4  | 0.3~0.5   | 0.4                | 0.3 - 0.5   | 0.4  | 0.3~0.5   | 33   | 28~38     |
|  |                            | 0.6  | 0.45~0.75 | 0.6                | 0.45 - 0.75 | 0.6  | 0.45~0.75 | 40   | 32~48     |
|  |                            | 0.9  | 0.7~1.1   | 0.9                | 0.7-1.1     | 0.9  | 0.7~1.1   |  |           |
|  |                            | 1.2  | 0.9~1.5   | 1.2                | 0.9-1.5     | 1.2  | 0.9~1.5   |  |           |
|  |                            | 1.7  | 1.3~2.1   | 1.7                | 1.3-2.1     | 1.7  | 1.3~2.1   |  |           |
|  |                            | 2.1  | 1.6~2.6   | 2.1                | 1.6-2.6     | 2.1  | 1.6~2.6   |  |           |
|  |                            | 3.3  | 2.5~4.1   | 3.3                | 2.5-4.1     | 3.3  | 2.5~4.1   |  |           |
|  |                            | 4.4  | 3.4~5.4   | 4.4                | 3.4-5.4     | 4.4  | 3.4~5.4   |  |           |
|  |                            | 6.5  | 5~8       | 6.5                | 5 - 8       | 6.5  | 5~8       |  |           |
|  |                            | 9  | 7~11      | 9                  | 7-11        | 9  | 7~11      |  |           |
|  |                            | 11   | 9~13      | 11                 | 9-13        | 11   | 9~13      |  |           |
|  |                            | *15  | 12~18     | 15                 | 12-18       | 15   | 12~18     |  |           |
|  |                            |  |           | 21                 | 17-24       | 21   | 17~24     |  |           |
| Auxiliary Contact  |                            | 1NO 1NC  |           | 1NO 1NC            |             | 1NO 1NC  |           |  |           |
| Weight   |                            | 0.11/0.12  |           | 0.15               |             | 0.18/0.19  |           | 0.20/0.21                                      |           |
| Appearance Dimensions (W×H×D)                                  |                            | TH-P12ES PP:<br>45.5×55.5×78<br><br>TH-P12ES PP:<br>47×71×86.2 |           | 53.5×55.5×78.5     |             | TH-P12ES PP:<br>64.5×46.1×80                                 |           | TH-P12ES TAPP:<br>64.5×56.2×80                 |           |

Installation Dimensions (mm)

TH-P12ES PP:  
TH-P12(PP)R:



- Note.
1. The purpose of using TOR is protecting load tripping. For protecting circuit, please choose circuit breaker.
  2. When adjusting the rated current; please refer to the TOR range table above. Do not exceed its range.
  3. (E): 3 Elements
  4. \*: The rating current of TH-P12 can only use up to "11A" when combined with S-P11.





| 60                         |                      | 120                            |                      | 220T                       |                      | 400T                           |                      | 600CT              |                      |                   |                      |   |         |
|----------------------------|----------------------|--------------------------------|----------------------|----------------------------|----------------------|--------------------------------|----------------------|--------------------|----------------------|-------------------|----------------------|---|---------|
| TH-P60ES                   | TH-P60ES TA          | TH-P120E                       | TH-P120ETA           | TH-P220TE                  | TH-P400TE            | TH-P600CTE                     |                      |                    |                      |                   |                      |   |         |
| TH-P60PP                   | TH-P60ES TAPP        | TH-P120PP                      | TH-P120TAPP          | TH-P220TPP                 | TH-P400TPP           | TH-P600CTPP                    |                      |                    |                      |                   |                      |   |         |
| Manual / Automatic         |                      | Manual / Automatic             |                      | Manual / Automatic         |                      | Manual / Automatic             |                      | Manual / Automatic |                      |                   |                      |   |         |
| S-P50T, S-P60T, S-P80T.    |                      | S-P60T, S-P80T.                |                      | S-P100T, S-P125T, S-P150T. |                      | S-P200T, S-P220T.              |                      | S-P300T, S-P400T.  |                      | S-P630T, S-P800T. |                      |   |         |
| Rated (A)                  | Adjustable Range (A) | Rated (A)                      | Adjustable Range (A) | Rated (A)                  | Adjustable Range (A) | Rated (A)                      | Adjustable Range (A) | Rated (A)          | Adjustable Range (A) | Rated (A)         | Adjustable Range (A) |   |         |
| 11                         | 9~13                 | 67                             | 54~80                | 40                         | 32~48                | 105                            | 80~130               | 80                 | 60~100               | 105               | 80~130               | 260   | 200~320 |
| 15                         | 12~18                | 80                             | 60~100               | 54                         | 43~65                | 130                            | 100~160              | 105                | 80~130               | 130               | 100~160              | 350   | 260~440 |
| 21                         | 17~24                |                                |                      | 67                         | 54~80                | 160                            | 120~200              | 130                | 100~160              | 160               | 120~200              | 500   | 400~600 |
| 28                         | 22~34                |                                |                      | 80                         | 60~100               |                                |                      | 160                | 120~200              | 200               | 150~250              |   |         |
| 33                         | 28~38                |                                |                      |                            |                      |                                |                      | 200                | 150~250              | 260               | 200~320              |   |         |
| 40                         | 32~48                |                                |                      |                            |                      |                                |                      |                    |                      | 350               | 260~440              |   |         |
| 54                         | 43~65                |                                |                      |                            |                      |                                |                      |                    |                      |                   |                      |   |         |
| 1NO 1NC                    |                      | 1NO 1NC                        |                      | 1NO 1NC                    |                      | 1NO 1NC                        |                      | 1NO 1NC            |                      | 1NO 1NC           |                      | 1NO 1NC   |         |
| 0.28/ 0.30                 |                      | 0.34/ 0.36                     |                      | 0.55                       |                      | 0.76                           |                      | 2.25               |                      | 2.65              |                      | 3.93/ 3.95  |         |
| TH-P60ES PP:<br>98x50.5x78 |                      | TH-P60ES TAPP:<br>64.5x65.5x80 |                      | TH-P120(PP):<br>133x54x105 |                      | TH-P120TA(PP):<br>133x85.5x105 |                      | 140x151.5x158.7    |                      | 164x165x163.7     |                      | TOR:<br>64.5x46.1x80<br>TOR W/CT:<br>106x46.8x104.5 |         |

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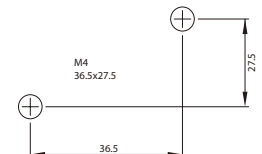
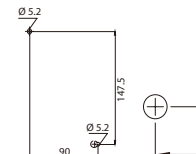
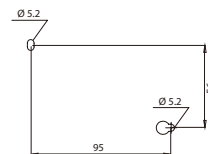
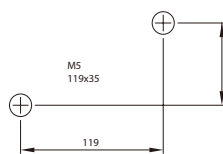
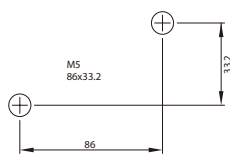
ACB

MCB

SPD

MS

MMS



## Magnetic Control Relays



| Type   |                          | SR-P40                    | SR-P50                               | SR-P80  |
|--|--------------------------|---------------------------|--------------------------------------|---|
| <b>Auxiliary Contact</b>                           |                          | 4NO<br>3NO 1NC<br>2NO 2NC | 5NO<br>4NO 1NC<br>3NO 2NC<br>2NO 3NC | 8NO<br>7NO 1NC<br>6NO 2NC<br>5NO 3NC<br>4NO 4NC |
| <b>Rated Capacity</b><br>IEC 60947-4-1<br>AC15 (A) | <b>220V</b>              | 1.6                       | 1.6                                  | 1.6   |
|  | <b>380V</b>              | 0.95                      | 0.95                                 | 0.95  |
| <b>Rated insulation voltage</b>                    | <b>(Ui) (V)</b>          | 660                       | 660                                  | 660   |
| <b>Operation current</b>                           | <b>(Ith) (A)</b>         | 16                        | 16                                   | 16  |
| <b>Contact Class</b>                               | <b>(UL)</b>              | A600, Q300                | A600, Q300                           | A600, Q300                                      |
| <b>Electrical Life</b>                             | <b>(10 thousand)</b>     | 50 and up                 | 50 and up                            | 50 and up                                       |
| <b>Mechanical Life</b>                             | <b>(10 thousand)</b>     | 500                       | 500                                  | 500   |
| <b>On/ Off Frequency</b>                           | <b>(time per / hour)</b> | 500                       | 500                                  | 500   |

## Definite Purpose Magnetic Contactor | SF Series

| Type   |                   | 20   | 25  | 30   | 35     | 40     |
|--|-------------------|--|---|--|--------|--------|
|  |                   |  C1 |  C2 |  C3 |        |        |
| Type   | 1 Pole            | SF20C1   | SF25C1  | SF30C1   | SF35C1 | SF40C1 |
|  | 2 Pole            | SF20C2   | SF25C2  | SF30C2   | SF35C2 | SF40C2 |
|  | 1Pole w/shunt     | SF20C3   | SF25C3  | SF30C3   | SF35C3 | SF40C3 |
| Start Current(A)<br>(Per Pole)                 | AC 240V / AC 277V | 120  | 150   | 180  | 180    | 180    |
|  | AC 480V           | 100  | 125   | 150  | 150    | 150    |
|  | AC 600V           | 80   | 100   | 120  | 120    | 120    |
| Start Current(A)<br>(Single Phase)<br>(2 Pole) | AC 240V / AC 277V | 120  | 150   | 180  | 210    | 240    |
|  | AC 480V           | 100  | 125   | 150  | 175    | 200    |
|  | AC 600V           | 80   | 100   | 120  | 140    | 160    |
| Rated Current w/resistance load (A)            |                   | 30   | 35  | 40   | 50     | 50     |
| Full Rated Current (A)                         |                   | 20   | 25  | 30   | 35     | 40     |
| Mechanical / Electrical life ( 10 thousand )   |                   | 50/25  | 50/25   | 50/25  | 50/25  | 50/25  |
| Operation frequency ( time / hour )            |                   | 360  | 360   | 360  | 360    | 360    |
| Coil Control Voltage 50/60 Hz                  |                   | 24 / 110-120 / 200 / 220 / 208-240 / 277   |   |  |        |        |

## Star-delta Starter

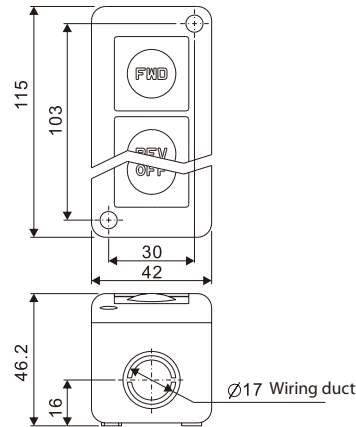
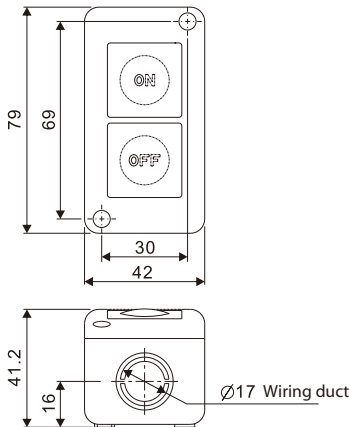


| Model  |                               | 21       | 35       | 50       | 60        | 80        | 100       | 125       | 150       | 220       |
|--|-------------------------------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Type   | Without enclosure (no CT)     | SDO-P21  | SDO-P35  | SDO-P50  | SDO-P60   | SDO-P80   | SDO-P100  | SDO-P125  | SDO-P150  | SDO-P220  |
|  | Without enclosure (with CT)   | SDO-P21T | SDO-P35T | SDO-P50T | SDO-P60T  | SDO-P80T  | SDO-P100T | SDO-P125T | SDO-P150T | SDO-P220T |
|  | With enclosure (no Ammeter)   | SDE-P21  | SDE-P35  | SDE-P50  | SDE-P60   | SDE-P80   | SDE-P100  | SDE-P125  | SDE-P150  | SDE-P220  |
|  | With enclosure (With Ammeter) | SDA-P21  | SDA-P35  | SDA-P50  | SDA-P60   | SDA-P80   | SDA-P100  | SDA-P125  | SDA-P150  | SDA-P220  |
| Rated Capacity (kW/HP)                           | 200V~220V                     | 11/ 15   | 19/ 25   | 22/ 30   | 30/ 40    | 37/ 50    | 45/ 60    | 55/ 75    | 75/ 100   | 110/ 150  |
|  | 380V~440V                     | 19/ 25   | 30/ 40   | 45/ 60   | 55/ 75    | 75/ 100   | 90/ 125   | 110/ 150  | 132/ 180  | 200/ 260  |
| AC Magnetic Contactor                            | MCM                           | S-P21    | S-P35T   | S-P50T   | S-P60T    | S-P80T    | S-P100T   | S-P125T   | S-P150T   | S-P220T   |
|  | MCD                           | S-P21    | S-P35T   | S-P50T   | S-P60T    | S-P80T    | S-P100T   | S-P125T   | S-P150T   | S-P220T   |
|  | MCS                           | S-P11    | S-P16    | S-P21    | S-P21     | S-P35T    | S-P35T    | S-P50T    | S-P50T    | S-P60T    |
| Thermal Overload Relay                           |                               | TH-P20   | TH-P60   | TH-P60   | TH-P120   | TH-P120   | TH-P120   | TH-P220T  | TH-P220T  | TH-P400T  |
|  |                               | TH-P20TA | TH-P60TA | TH-P60TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P220T  | TH-P400T  | TH-P400T  |
| Conducting wire size of motor (mm <sup>2</sup> ) | Line side                     | 2.5~16   | 2.5~25   | 2.5~35   | 2.5~50    | 10~70     | 10~95     | 35~150    | 35~150    | 35~240    |
|  | Load side                     | 2.5~10   | 2.5~16   | 2.5~25   | 2.5~35    | 4~50      | 4~70      | 10~95     | 10~90     | 16~150    |
|  | Control side                  | 1~2.5    | 1~2.5    | 1~2.5    | 1~2.5     | 1~2.5     | 1~2.5     | 1~2.5     | 1~2.5     | 1~2.5     |

## Push Button | PB Series

| Type           | PB2 | PB3 |
|----------------|-----|-----|
| Contact schema |     |     |

External dimensions (mm)



WET.

72.5g

110g

## Separate Mounting Unit



| Type | UATP12 |
|------|--------|
| TOR  | TH-P12 |



## Auxiliary Contact Block

### ◆ AP Series

| Installation                |           | 2P FRONT MOUNTED TYPE                            |         |       |  |         |        | 4P FRONT MOUNTED TYPE                            |         |         |  |         |         |         |
|-----------------------------|-----------|--|---------|-------|--|---------|--------|--|---------|---------|--|---------|---------|---------|
| Model                       |           | AP-20  | AP-11   | AP-02 | AP-20N                                 | AP-11N  | AP-02N | AP-40  | AP-31   | AP-22   | AP-40N                                 | AP-31N  | AP-22N  | AP-13N  |
| Contact                     |           | 2NO  | 1NO 1NC | 2NC   | 2NO                                    | 1NO 1NC | 2NC    | 4NO  | 3NO 1NC | 2NO 2NC | 4NO                                    | 3NO 1NC | 2NO 2NC | 1NO 3NC |
| Applicable contactor        |           | SR-P40, SR-P50<br>S-P09T~S-P80T<br>SD-P11~SD-P21 |         |       | S-P100E<br>S-P100T<br>S-P630T~S-P1260T |         |        | SR-P40, SR-P50<br>S-P09T~S-P80T<br>SD-P11~SD-P21 |         |         | S-P100E<br>S-P100T<br>S-P630T~S-P1260T |         |         |         |
| Rated Capacity<br>AC 15 (A) | 220V      | 1.6  |         |       | 3                                      |         |        | 1.6  |         |         | 3                                      |         |         |         |
|                             | 380V      | 0.95   |         |       | 1.9                                    |         |        | 0.95   |         |         | 1.9                                    |         |         |         |
| Operation current           | (Ith) (A) | 16   |         |       | 10                                     |         |        | 16   |         |         | 10                                     |         |         |         |

## Auxiliary Contact Block

### ◆ AP Series



| Installation                |           | SIDE MOUNTED TYPE                                |   |
|-----------------------------|-----------|--|---|
| Model                       |           | APS-11   | APL-11  |
| Contact                     |           | 1NO 1NC  | 1NO 1NC   |
| Applicable contactor        |           | SR-P40, SR-P50<br>S-P09T~S-P60T<br>SD-P11~SD-P21 | S-P125, S-P150T<br>S-P200T, S-P220T<br>S-P300T, S-P400T |
| Rated Capacity<br>AC 15 (A) | 220V      | 1.6  |   |
|                             | 380V      | 0.95   |   |
| Operation current           | (Ith) (A) | 16   |   |

## Auxiliary Contact Block

### ◆ MAP Series

| Installation                |           | 2P FRONT MOUNTED TYPE |         |        | 4P FRONT MOUNTED TYPE |         |         |
|-----------------------------|-----------|-----------------------|---------|--------|-----------------------|---------|---------|
| Model                       |           | MAP-20                | MAP-11  | MAP-02 | MAP-40                | MAP-31  | MAP-22  |
| Contact                     |           | 2NO                   | 1NO 1NC | 2NC    | 4NO                   | 3NO 1NC | 2NO 2NC |
| Applicable contactor        |           | S-P06, S-P09.         |         |        |                       |         |         |
| Rated Capacity<br>AC 15 (A) | 220V      | 3.3                   |         |        |                       |         |         |
|                             | 380V      | 1.9                   |         |        |                       |         |         |
| Operation current           | (Ith) (A) | 10                    |         |        |                       |         |         |



## Timer

| Model                       |           | PTR-30                                | PRT-30F   | PTR-180  | PRT-180F  |
|-----------------------------|-----------|---------------------------------------|-----------|----------|-----------|
| Delay type                  |           | On Delay                              | Off Delay | On Delay | Off Delay |
| Adjustable time (Sec)       |           | 0~30                                  |           |          | 0~180     |
| Rated Capacity<br>AC 15 (A) | 220V      | 1.6                                   |           |          |           |
|                             | 380V      | 0.95                                  |           |          |           |
| Operation current           | (Ith) (A) | 16                                    |           |          |           |
| Applicable contactor        |           | SR-P40, SR-P50, S-P09T~60T, SD-P11~21 |           |          |           |





## Surge unit

| Model                | BMSACW220V                     | BMSACW380V |
|----------------------|--------------------------------|------------|
| Applicable contactor | SR-P40, SR-P50, S-P9T~ S-P60T. |            |

## Mechanical Interlock

| Model                | MPU-11                 | MPU-21          | MPU-50 |
|----------------------|------------------------|-----------------|--------|
| Applicable contactor | S-P11/S-P15/S-P35T~60T | S-P12/S-P16~30T | S-P80T |

## Coil Characteristics

| Model                 | S-P06<br>S-P09 | S-P9T<br>S-P12T | S-P11<br>S-P15 | S-P16<br>S-P21<br>S-P25<br>S-P32T | S-P30T<br>S-P35T<br>S-P38T<br>S-P40T | S-P50T<br>S-P60T<br>S-P80T | S-P100T | S-P125T<br>S-P150T | S-P200T<br>S-P220T | S-P300T<br>S-P400T | S-P630T<br>S-P800T<br>S-P1260T |           |        |          |
|-----------------------|----------------|-----------------|----------------|-----------------------------------|--------------------------------------|----------------------------|---------|--------------------|--------------------|--------------------|--------------------------------|-----------|--------|----------|
| Coil type             | AC             | AC              | AC             | AC                                | AC                                   | AC                         | AC      | AC                 | AC/DC              | AC                 | AC/DC                          | AC/DC     | AC/DC  |          |
| Coil Capacity (VA)    | Impulse        | 35              | 76             | 76                                | 76                                   | 72                         | 250     | 319                | 370                | 350                | 440                            | 350       | 420    | 500~1000 |
|                       | Operation      | 8               | 9              | 9                                 | 9                                    | 12                         | 28      | 36                 | 42                 | 20                 | 50                             | 20        | 27     | 15~35    |
| Power Consumption (W) | 2.5            | 2.7             | 2.7            | 2.7                               | 3                                    | 7                          | 11      | 10                 | 1.3~8              | 12                 | 1.3~8                          | 3         | 4~8    |          |
| Operation Volt. (Us)  | On             | 55~70%          | 55~75%         | 55~75%                            | 59~75%                               | 60~75%                     | 63~75%  | 65~75%             | 75~80%             | Above 75%          | 75~80%                         | Above 75% | 65~80% | Above77% |
|                       | Off            | 25~50%          | 35~50%         | 34~48%                            | 36~52%                               | 40~57%                     | 40~57%  | 40~55%             | 40~55%             | 20~62%             | 40~60%                         | 20~62%    | 20~50% | 20~60%   |
| Close Time (ms)       | Aux. OFF       | 8~15            | 6~14           | 6~14                              | 6~14                                 | 6~13                       | 6~13    | 18~28              | 9~20               | 15~45              | 10~19                          | 20~45     | 22~37  | -        |
|                       | Aux. ON        | 10~18           | 12~20          | 12~20                             | 12~25                                | 12~20                      | 12~20   | 22~32              | 15~24              | 18~45              | 17~25                          | 20~45     | 25~40  | -        |
|                       | Contact ON     | 10~18           | 12~20          | 12~20                             | 12~25                                | 12~20                      | 12~20   | 22~32              | 10~20              | 18~50              | 12~27                          | 24~50     | 30~45  | 50~70    |
| Open Time (ms)        | Aux. OFF       | 9~20            | 13~22          | 13~22                             | 13~24                                | 10~17                      | 10~17   | 50~100             | 9~18               | 30~70              | 10~20                          | 40~70     | 40~60  | -        |
|                       | Aux. ON        | 12~23           | 6~17           | 6~17                              | 6~17                                 | 5~12                       | 5~12    | 48~98              | 7~15               | 30~70              | 7~18                           | 25~70     | 31~51  | -        |
|                       | Contact ON     | 9~20            | 6~17           | 6~17                              | 6~17                                 | 5~12                       | 5~12    | 46~96              | 7~15               | 40~70              | 7~20                           | 40~70     | 30~50  | 40~60    |

## Coil Specifications Table

| ◆ S-P9T~S-P25, S-P30T~P220T, SR-P40~P80, SC-P12~P60 |                        |                                |                            |                            |                                |                            |
|---|------------------------|--------------------------------|----------------------------|----------------------------|--------------------------------|----------------------------|
| Description   | AC12V                  | AC24V                          | AC48V                      | AC110V                     | AC120V                         | AC220V                     |
| Coil rated specifications marking                   | 12V 50Hz<br>12V 60Hz   | 24V 50Hz<br>24V 60Hz           | 48~50V 50Hz<br>48~50V 60Hz | 100V 50Hz<br>100~110V 60Hz | 110~120V 50Hz<br>115~120V 60Hz | 200~220V 50Hz<br>220V 60Hz |
| Description   | AC230V                 | AC240V                         | AC380V                     | AC440V                     | AC480V                         | AC550V                     |
| Coil rated specifications marking                   | 230V 50Hz<br>230V 60Hz | 220~240V 50Hz<br>240~260V 60Hz | 346~380V 50Hz<br>380V 60Hz | 400V 50Hz<br>400~440V 60Hz | 415~440V 50Hz<br>460~480V 60Hz | 500V 50Hz<br>500~550V 60Hz |

"Note: Control voltage of SR-P40 can be customized DC 12/24/30/48/72/110/125/220V."

| ◆ S-P300T~P400T                   |                             |                                    |                                    |                     |                     |
|-----------------------------------|-----------------------------|------------------------------------|------------------------------------|---------------------|---------------------|
| Description                       | AC48V                       | AC100V                             | AC220V                             | AC380V              | AC550V              |
| Coil rated specifications marking | AC 48~50V 50/60Hz<br>DC 48V | AC 100~127V 50/60Hz<br>DC 100~127V | AC 220~250V 50/60Hz<br>DC 200~250V | AC 265~450V 50/60Hz | AC 440~575V 50/60Hz |

| ◆ S-P630T~S-P1260T                |                                    |                                    |                     |
|-----------------------------------|------------------------------------|------------------------------------|---------------------|
| Description                       | AC110V                             | AC220V                             | AC380V              |
| Coil rated specifications marking | AC 100~127V 50/60Hz<br>DC 100~127V | AC 200~250V 50/60Hz<br>DC 200~250V | AC 380~440V 50/60Hz |

Index

MCCB  
ELCB

ATS

ACB

MCB

SPD

MS

MMS

BO

55

## Selection Table ◆ Direct On-Line Starter

| Motor rated capacity kW (HP) |          | 3 φ 200V~220V              |            |                            |                |
|------------------------------|----------|----------------------------|------------|----------------------------|----------------|
|                              |          | Heating element rating (A) |            | Selection of the contactor |                |
| 0.016                        | (1/47)   | 0.13A                      | 0.1~0.16A  | S-P06                      |                |
| 0.025                        | (1/30)   | 0.2A                       | 0.16~0.24A |                            |                |
| 0.04                         | (1/19)   | 0.32A                      | 0.24~0.4A  |                            |                |
| 0.09                         | (1/8)    | 0.5A                       | 0.4~0.6A   |                            |                |
| 0.12                         | (1/6)    | 0.8A                       | 0.6~1.0A   |                            |                |
| 0.25                         | (1/3)    | 1.3A                       | 1.0~1.6A   |                            |                |
| 0.37                         | (1/2)    | 2.0A                       | 1.6~2.4A   |                            |                |
| 0.75                         | (1)      | 3.2A                       | 2.4~4.0A   |                            |                |
| 1.1                          | (1 1/2)  | 5A                         | 4.0~6.0A   |                            |                |
| 1.5                          | (2)      | 7.5A                       | 6.0~9.0A   | S-P09                      |                |
| 0.03                         | (1/25)   | 0.25A                      | 0.19~0.31A |                            |                |
| 0.05                         | (1/15)   | 0.4A                       | 0.3~0.5A   |                            |                |
| 0.1                          | (1/8)    | 0.6A                       | 0.45~0.75A |                            |                |
| 0.15                         | (1/5)    | 0.9A                       | 0.7~1.1A   |                            |                |
| 0.2                          | (1/4)    | 1.2A                       | 0.9~1.5A   |                            |                |
| 0.3                          | (2/5)    | 1.7A                       | 1.3~2.1A   |                            |                |
| 0.4                          | (1/2)    | 2.1A                       | 1.6~2.6A   |                            |                |
| 0.75                         | (1)      | 3.3A                       | 2.5~4.1A   |                            |                |
| 1.1                          | (1 1/2)  | 4.4A                       | 3.4~5.4A   | S-P9T, S-P11, S-P12T       |                |
| 1.5                          | (2)      | 6.5A                       | 5~8A       |                            |                |
| 2.2                          | (3)      | 9A                         | 7~11A      |                            |                |
| 3                            | (4)      | 11A                        | 9~13A      |                            |                |
| 3.7                          | (5)      | 15A                        | 12~18A     |                            |                |
| 5.5                          | (7 1/2)  | 21A                        | 17~24A     |                            |                |
| 6.5                          | (8 1/2)  | 28A                        | 22~34A     |                            |                |
| 7.5                          | (10)     | 33A                        | 28~38A     |                            |                |
| 9                            | (12 1/2) | 40A                        | 32~48A     |                            |                |
| 11                           | (15)     | 54A                        | 43~65A     | S-P15, S-P16               |                |
| 15                           | (20)     | 67A                        | 54~80A     |                            |                |
| 19                           | (25)     | 80A                        | 60~100A    |                            |                |
| 22                           | (30)     | 105A                       | 80~130A    |                            |                |
| 25                           | (35)     | 130A                       | 100~160A   |                            |                |
| 30                           | (40)     | 160A                       | 120~200A   |                            |                |
| 37                           | (50)     | 200A                       | 150~250A   |                            |                |
| 45                           | (60)     | 260A                       | 200~320A   |                            |                |
| 55                           | (75)     | 350A                       | 260~440A   |                            |                |
| 65                           | (85)     | 500A                       | 400~600A   | S-P21                      |                |
| 75                           | (100)    | 500A                       | 400~600A   |                            |                |
| 90                           | (125)    | 500A                       | 400~600A   |                            |                |
| 110                          | (150)    | 500A                       | 400~600A   |                            |                |
| 132                          | (180)    | 500A                       | 400~600A   |                            |                |
| 160                          | (220)    | 500A                       | 400~600A   |                            |                |
| 0.15                         | (1/5)    | 0.9A                       | 0.7~1.1A   |                            | S-P25          |
| 0.2                          | (1/4)    | 1.2A                       | 0.9~1.5A   |                            |                |
| 0.3                          | (2/5)    | 1.7A                       | 1.3~2.1A   |                            |                |
| 0.4                          | (1/2)    | 2.1A                       | 1.6~2.6A   |                            |                |
| 0.75                         | (1)      | 3.3A                       | 2.5~4.1A   |                            |                |
| 1.1                          | (1 1/2)  | 4.4A                       | 3.4~5.4A   |                            |                |
| 1.5                          | (2)      | 6.5A                       | 5~8A       |                            |                |
| 2.2                          | (3)      | 9A                         | 7~11A      |                            |                |
| 3                            | (4)      | 11A                        | 9~13A      |                            |                |
| 3.7                          | (5)      | 15A                        | 12~18A     | S-P30T, S-P32T             |                |
| 5.5                          | (7 1/2)  | 21A                        | 17~24A     |                            |                |
| 6.5                          | (8 1/2)  | 28A                        | 22~34A     |                            |                |
| 7.5                          | (10)     | 33A                        | 28~38A     |                            |                |
| 9                            | (12 1/2) | 40A                        | 32~48A     |                            |                |
| 11                           | (15)     | 54A                        | 43~65A     |                            |                |
| 15                           | (20)     | 67A                        | 54~80A     |                            |                |
| 19                           | (25)     | 80A                        | 60~100A    |                            |                |
| 22                           | (30)     | 105A                       | 80~130A    |                            | S-P35T, S-P38T |
| 25                           | (35)     | 130A                       | 100~160A   |                            |                |
| 30                           | (40)     | 160A                       | 120~200A   |                            |                |
| 37                           | (50)     | 200A                       | 150~250A   |                            |                |
| 45                           | (60)     | 260A                       | 200~320A   |                            |                |
| 55                           | (75)     | 350A                       | 260~440A   |                            |                |
| 65                           | (85)     | 500A                       | 400~600A   |                            |                |
| 75                           | (100)    | 500A                       | 400~600A   |                            |                |
| 90                           | (125)    | 500A                       | 400~600A   | S-P40T                     |                |
| 110                          | (150)    | 500A                       | 400~600A   |                            |                |
| 132                          | (180)    | 500A                       | 400~600A   |                            |                |
| 160                          | (220)    | 500A                       | 400~600A   |                            |                |
| 0.15                         | (1/5)    | 0.9A                       | 0.7~1.1A   |                            | S-P50T         |
| 0.2                          | (1/4)    | 1.2A                       | 0.9~1.5A   |                            |                |
| 0.3                          | (2/5)    | 1.7A                       | 1.3~2.1A   |                            |                |
| 0.4                          | (1/2)    | 2.1A                       | 1.6~2.6A   |                            |                |
| 0.75                         | (1)      | 3.3A                       | 2.5~4.1A   |                            |                |
| 1.1                          | (1 1/2)  | 4.4A                       | 3.4~5.4A   |                            |                |
| 1.5                          | (2)      | 6.5A                       | 5~8A       |                            |                |
| 2.2                          | (3)      | 9A                         | 7~11A      |                            |                |
| 3                            | (4)      | 11A                        | 9~13A      | S-P60T                     |                |
| 3.7                          | (5)      | 15A                        | 12~18A     |                            |                |
| 5.5                          | (7 1/2)  | 21A                        | 17~24A     |                            |                |
| 6.5                          | (8 1/2)  | 28A                        | 22~34A     |                            |                |
| 7.5                          | (10)     | 33A                        | 28~38A     |                            |                |
| 9                            | (12 1/2) | 40A                        | 32~48A     |                            |                |
| 11                           | (15)     | 54A                        | 43~65A     |                            |                |
| 15                           | (20)     | 67A                        | 54~80A     |                            | S-P80T         |
| 19                           | (25)     | 80A                        | 60~100A    |                            |                |
| 22                           | (30)     | 105A                       | 80~130A    |                            |                |
| 25                           | (35)     | 130A                       | 100~160A   |                            |                |
| 30                           | (40)     | 160A                       | 120~200A   |                            |                |
| 37                           | (50)     | 200A                       | 150~250A   |                            |                |
| 45                           | (60)     | 260A                       | 200~320A   |                            |                |
| 55                           | (75)     | 350A                       | 260~440A   | S-P100T                    |                |
| 65                           | (85)     | 500A                       | 400~600A   |                            |                |
| 75                           | (100)    | 500A                       | 400~600A   |                            |                |
| 90                           | (125)    | 500A                       | 400~600A   |                            |                |
| 110                          | (150)    | 500A                       | 400~600A   |                            |                |
| 132                          | (180)    | 500A                       | 400~600A   |                            |                |
| 160                          | (220)    | 500A                       | 400~600A   |                            |                |
| 0.15                         | (1/5)    | 0.9A                       | 0.7~1.1A   |                            | S-P125T        |
| 0.2                          | (1/4)    | 1.2A                       | 0.9~1.5A   |                            |                |
| 0.3                          | (2/5)    | 1.7A                       | 1.3~2.1A   |                            |                |
| 0.4                          | (1/2)    | 2.1A                       | 1.6~2.6A   |                            |                |
| 0.75                         | (1)      | 3.3A                       | 2.5~4.1A   |                            |                |
| 1.1                          | (1 1/2)  | 4.4A                       | 3.4~5.4A   |                            |                |
| 1.5                          | (2)      | 6.5A                       | 5~8A       |                            |                |
| 2.2                          | (3)      | 9A                         | 7~11A      |                            |                |
| 3                            | (4)      | 11A                        | 9~13A      | S-P150T                    |                |
| 3.7                          | (5)      | 15A                        | 12~18A     |                            |                |
| 5.5                          | (7 1/2)  | 21A                        | 17~24A     |                            |                |
| 6.5                          | (8 1/2)  | 28A                        | 22~34A     |                            |                |
| 7.5                          | (10)     | 33A                        | 28~38A     |                            |                |
| 9                            | (12 1/2) | 40A                        | 32~48A     |                            |                |
| 11                           | (15)     | 54A                        | 43~65A     |                            |                |
| 15                           | (20)     | 67A                        | 54~80A     |                            | S-P200T        |
| 19                           | (25)     | 80A                        | 60~100A    |                            |                |
| 22                           | (30)     | 105A                       | 80~130A    |                            |                |
| 25                           | (35)     | 130A                       | 100~160A   |                            |                |
| 30                           | (40)     | 160A                       | 120~200A   |                            |                |
| 37                           | (50)     | 200A                       | 150~250A   |                            |                |
| 45                           | (60)     | 260A                       | 200~320A   |                            |                |
| 55                           | (75)     | 350A                       | 260~440A   | S-P220T                    |                |
| 65                           | (85)     | 500A                       | 400~600A   |                            |                |
| 75                           | (100)    | 500A                       | 400~600A   |                            |                |
| 90                           | (125)    | 500A                       | 400~600A   |                            |                |
| 110                          | (150)    | 500A                       | 400~600A   |                            |                |
| 132                          | (180)    | 500A                       | 400~600A   |                            |                |
| 160                          | (220)    | 500A                       | 400~600A   |                            |                |
| 0.15                         | (1/5)    | 0.9A                       | 0.7~1.1A   |                            | S-P300T        |
| 0.2                          | (1/4)    | 1.2A                       | 0.9~1.5A   |                            |                |
| 0.3                          | (2/5)    | 1.7A                       | 1.3~2.1A   |                            |                |
| 0.4                          | (1/2)    | 2.1A                       | 1.6~2.6A   |                            |                |
| 0.75                         | (1)      | 3.3A                       | 2.5~4.1A   |                            |                |
| 1.1                          | (1 1/2)  | 4.4A                       | 3.4~5.4A   |                            |                |
| 1.5                          | (2)      | 6.5A                       | 5~8A       |                            |                |
| 2.2                          | (3)      | 9A                         | 7~11A      |                            |                |
| 3                            | (4)      | 11A                        | 9~13A      | S-P400T                    |                |
| 3.7                          | (5)      | 15A                        | 12~18A     |                            |                |
| 5.5                          | (7 1/2)  | 21A                        | 17~24A     |                            |                |
| 6.5                          | (8 1/2)  | 28A                        | 22~34A     |                            |                |
| 7.5                          | (10)     | 33A                        | 28~38A     |                            |                |
| 9                            | (12 1/2) | 40A                        | 32~48A     |                            |                |
| 11                           | (15)     | 54A                        | 43~65A     |                            |                |
| 15                           | (20)     | 67A                        | 54~80A     |                            | M-600C         |
| 19                           | (25)     | 80A                        | 60~100A    |                            |                |
| 22                           | (30)     | 105A                       | 80~130A    |                            |                |
| 25                           | (35)     | 130A                       | 100~160A   |                            |                |
| 30                           | (40)     | 160A                       | 120~200A   |                            |                |
| 37                           | (50)     | 200A                       | 150~250A   |                            |                |
| 45                           | (60)     | 260A                       | 200~320A   |                            |                |
| 55                           | (75)     | 350A                       | 260~440A   |                            |                |
| 65                           | (85)     | 500A                       | 400~600A   |                            |                |
| 75                           | (100)    | 500A                       | 400~600A   |                            |                |
| 90                           | (125)    | 500A                       | 400~600A   |                            |                |
| 110                          | (150)    | 500A                       | 400~600A   |                            |                |
| 132                          | (180)    | 500A                       | 400~600A   |                            |                |
| 160                          | (220)    | 500A                       | 400~600A   |                            |                |

# Selection Table ◆ Direct On-Line Starter

| Motor rated capacity kW (HP) |         | Heating element rating (A) |            | 3 φ 380V~440V              |              |                |                |         |         |         |        |
|------------------------------|---------|----------------------------|------------|----------------------------|--------------|----------------|----------------|---------|---------|---------|--------|
|                              |         |                            |            | Selection of the contactor |              |                |                |         |         |         |        |
| 0.025                        | (1/30)  | 0.13A                      | 0.1~0.16A  | S-P06                      | S-P09        |                |                |         |         |         |        |
| 0.04                         | (1/19)  | 0.2A                       | 0.16~0.24A |                            |              |                |                |         |         |         |        |
| 0.09                         | (1/8)   | 0.32A                      | 0.24~0.4A  |                            |              |                |                |         |         |         |        |
| 0.18                         | (1/4)   | 0.5A                       | 0.4~0.6A   |                            |              |                |                |         |         |         |        |
| 0.25                         | (1/3)   | 0.8A                       | 0.6~1.0A   |                            |              |                |                |         |         |         |        |
| 0.37                         | (1/2)   | 1.3A                       | 1.0~1.6A   |                            |              |                |                |         |         |         |        |
| 0.55                         | (3/4)   | 2.0A                       | 1.6~2.4A   |                            |              |                |                |         |         |         |        |
| 0.75                         | (1)     |                            |            |                            |              |                |                |         |         |         |        |
| 1.1                          | (1 1/2) | 3.2A                       | 2.4~4.0A   |                            |              |                |                |         |         |         |        |
| 1.5                          | (2)     |                            |            |                            |              |                |                |         |         |         |        |
| 2.2                          | (3)     | 5A                         | 4.0~6.0A   |                            |              |                |                |         |         |         |        |
| 3                            | (4)     | 7.5A                       | 6.0~9.0A   |                            |              |                |                |         |         |         |        |
| 0.05                         | (1/15)  | 0.25A                      | 0.19~0.31A | S-P09T, S-P11, S-P12T      | S-P15, S-P16 |                |                |         |         |         |        |
| 0.1                          | (1/8)   | 0.4A                       | 0.3~0.5A   |                            |              |                |                |         |         |         |        |
| 0.2                          | (1/4)   | 0.6A                       | 0.45~0.75A |                            |              |                |                |         |         |         |        |
| 0.3                          | (2/5)   | 0.9A                       | 0.7~1.1A   |                            |              |                |                |         |         |         |        |
| 0.4                          | (1/2)   | 1.2A                       | 0.9~1.5A   |                            |              |                |                |         |         |         |        |
| 0.75                         | (1)     | 1.7A                       | 1.3~2.1A   |                            |              |                |                |         |         |         |        |
| 1.1                          | (1 1/2) | 2.1A                       | 1.6~2.6A   |                            |              |                |                |         |         |         |        |
| 1.5                          | (2)     | 3.3A                       | 2.5~4.1A   |                            |              |                |                |         |         |         |        |
| 2.2                          | (3)     | 4.4A                       | 3.4~5.4A   |                            |              |                |                |         |         |         |        |
| 3                            | (4)     | 6.5A                       | 5~8A       |                            |              |                |                |         |         |         |        |
| 3.7                          | (5)     |                            |            | S-P21                      | S-P25        |                |                |         |         |         |        |
| 4                            | (5 1/2) | 9A                         | 7~11A      |                            |              |                |                |         |         |         |        |
| 4.5                          | (6)     |                            |            |                            |              | S-P30T, S-P32T | S-P35T, S-P38T |         |         |         |        |
| 5.5                          | (7 1/2) | 11A                        | 9~13A      |                            |              |                |                |         |         |         |        |
| 7.5                          | (10)    | 15A                        | 12~18A     |                            |              |                |                |         |         |         |        |
| 11                           | (15)    | 21A                        | 17~24A     |                            |              |                |                |         |         |         |        |
| 12                           | (16)    |                            |            |                            |              |                |                | S-P40T  | S-P50T  |         |        |
| 15                           | (20)    | 28A                        | 22~34A     |                            |              |                |                |         |         |         |        |
| 19                           | (25)    | 33A                        | 28~38A     |                            |              |                |                |         |         |         |        |
| 22                           | (30)    |                            |            |                            |              |                |                |         |         | S-P60T  | S-P80T |
| 25                           | (35)    | 40A                        | 32~48A     |                            |              |                |                |         |         |         |        |
| 30                           | (40)    | 54A                        | 43~65A     |                            |              |                |                |         |         |         |        |
| 37                           | (50)    |                            |            | S-P100T                    | S-P125T      |                |                |         |         |         |        |
| 45                           | (60)    | 67A                        | 54~80A     |                            |              |                |                |         |         |         |        |
| 50                           | (70)    | 80A                        | 60~100A    |                            |              |                |                |         |         |         |        |
| 60                           | (80)    |                            |            |                            |              | S-P150T        | S-P200T        |         |         |         |        |
| 75                           | (100)   | 105A                       | 80~130A    |                            |              |                |                |         |         |         |        |
| 90                           | (125)   | 130A                       | 100~160A   |                            |              |                |                |         |         |         |        |
| 110                          | (150)   |                            |            |                            |              |                |                | S-P220T | S-P300T |         |        |
| 132                          | (180)   | 200A                       | 150~250A   |                            |              |                |                |         |         |         |        |
| 150                          | (200)   |                            |            |                            |              |                |                |         |         | S-P400T | M-600C |
| 160                          | (220)   | 260A                       | 200~320A   |                            |              |                |                |         |         |         |        |
| 220                          | (330)   | 350A                       | 260~440A   |                            |              |                |                |         |         |         |        |
| 250                          | (350)   |                            |            |                            |              |                |                |         |         |         |        |
| 315                          | (420)   | 500A                       | 400~600A   |                            |              |                |                |         |         |         |        |

Motor Starter

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## Selection Table ◆ Direct On-Line Starter

| Motor rated capacity kW (HP) |         | 3 φ 500V~550V              |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
|------------------------------|---------|----------------------------|------------|----------------------------|--------------|-------|-------|----------------|----------------|--------|--|--|--|--|--|--|--|--|--------|--|--|--|--|--|--|
|                              |         | Heating element rating (A) |            | Selection of the contactor |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.06                         | (1/12)  | 0.13A                      | 0.1~0.16A  | S-P06                      | S-P09        |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.09                         | (1/8)   | 0.2A                       | 0.16~0.24A |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.12                         | (1/6)   | 0.32A                      | 0.24~0.4A  |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.18                         | (1/4)   | 0.5A                       | 0.4~0.6A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.37                         | (1/2)   | 0.8A                       | 0.6~1.0A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.55                         | (3/4)   | 1.3A                       | 1.0~1.6A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.75                         | (1)     | 2.0A                       | 1.6~2.4A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 1.1                          | (1 1/2) |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 1.5                          | (2)     | 3.2A                       | 2.4~4.0A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 2.2                          | (3)     | 5A                         | 4.0~6.0A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 3                            | (4)     |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 4                            | (5 1/2) | 7.5A                       | 6.0~9.0A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.12                         | (1/6)   | 0.25A                      | 0.19~0.31A | S-P9T, S-P11, S-P12T       | S-P15, S-P16 | S-P21 | S-P25 | S-P30T, S-P32T | S-P35T, S-P38T | S-P40T |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.18                         | (1/4)   | 0.4A                       | 0.3~0.5A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.25                         | (1/3)   | 0.6A                       | 0.45~0.75A |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.37                         | (1/2)   | 0.9A                       | 0.7~1.1A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.55                         | (3/4)   | 1.2A                       | 0.9~1.5A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 0.75                         | (1)     | 1.7A                       | 1.3~2.1A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 1.1                          | (1 1/2) | 2.1A                       | 1.6~2.6A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 1.5                          | (2)     | 3.3A                       | 2.5~4.1A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 2.2                          | (3)     | 4.4A                       | 3.4~5.4A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 4                            | (5 1/2) | 6.5A                       | 5~8A       |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 4.5                          | (6)     | 9A                         | 7~11A      |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 5.5                          | (7 1/2) | 11A                        | 9~13A      |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 7.5                          | (10)    | 15A                        | 12~18A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 11                           | (15)    | 21A                        | 17~24A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 12                           | (16)    |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 15                           | (20)    | 28A                        | 22~34A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 19                           | (25)    | 33A                        | 28~38A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 22                           | (30)    | 40A                        | 32~48A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 30                           | (40)    | 54A                        | 43~65A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 37                           | (50)    |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 45                           | (60)    | 67A                        | 54~80A     |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 50                           | (70)    |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 60                           | (80)    | 80A                        | 60~100A    |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 75                           | (100)   | 105A                       | 80~130A    |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 90                           | (125)   | 130A                       | 100~160A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 110                          | (150)   | 160A                       | 120~200A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 132                          | (180)   |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 150                          | (200)   | 200A                       | 150~250A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 160                          | (220)   | 260A                       | 200~320A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 220                          | (330)   | 350A                       | 260~440A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
| 315                          | (420)   | 500A                       | 400~600A   |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |
|                              |         |                            |            |                            |              |       |       |                |                |        |  |  |  |  |  |  |  |  | M-600C |  |  |  |  |  |  |

# Selection Table ◆ λ-Δ Starter

| Heater selection table (A) | Motor output kW (HP) |          |          |         | TH selection of λ-Δ Starter |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|----------------------------|----------------------|----------|----------|---------|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                            | A                    |          | B        |         | 21                          |           | 35        |           | 50        |           | 60        |           | 80        |           | 100       |           | 125       |           | 150       |           | 220       |           |
|                            | 200~220V             |          | 380~440V |         | A                           | B         | A         | B         | A         | B         | A         | B         | A         | B         | A         | B         | A         | B         | A         | B         | A         | B         |
| 6.5                        | 1.5                  | (2)      | 3        | (4)     | TH-P20                      | TH-P20    |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 9                          | 1.9                  | (2 1/2)  | 3.7      | (5)     |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 9                          | 2.2                  | (3)      | 4.5      | (6)     |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 11                         | 3                    | (4)      | 5.5      | (7 1/2) |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 15                         | 3.7                  | (5)      | 7.5      | (10)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 15                         | 4.5                  | (6)      | 10       | (13)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 21                         | 5.5                  | (7 1/2)  | 11       | (15)    | TH-P20TA                    | TH-P20TA  | TH-P60    | TH-P60    | TH-P60    | TH-P60    |           |           |           |           |           |           |           |           |           |           |           |           |
| 28                         | 6.5                  | (8)      | 14       | (19)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 28                         | 7.5                  | (10)     | 15       | (20)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 33                         | 9                    | (12 1/2) | 19       | (25)    | TH-P60TA                    | TH-P60TA  | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   |
| 40                         | 11                   | (15)     | 22       | (30)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 40                         | 14                   | (19)     | 26       | (35)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 54                         | 15                   | (20)     | 30       | (40)    | TH-P60TA                    | TH-P60TA  | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   | TH-P120   |
| 67                         | 19                   | (25)     | 37       | (50)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 80                         | 22                   | (30)     | 45       | (60)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 80                         | 25                   | (34)     | 50       | (67)    | TH-P120TA                   | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA |
| 105                        | 30                   | (40)     | 55       | (75)    |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 130                        | 37                   | (50)     | 75       | (100)   |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 160                        | 45                   | (60)     | 90       | (125)   | TH-P120TA                   | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA | TH-P120TA |
| 200                        | 55                   | (75)     | 110      | (150)   |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 200                        | 65                   | (85)     | 132      | (200)   |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 260                        | 75                   | (100)    | 150      | (200)   | TH-P400T                    | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  | TH-P400T  |
| 350                        | 110                  | (150)    | 200      | (260)   |                             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |

Motor Starter

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- MCCB ELCB
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- ACB
- MCB
- SPD
- MS
- MMS

## Modular Contactor



| Model                                      | Modular Contactors | Standard   | SMC16-S |     | SMC25-S |     | SMC40-S |     | SMC63-S |     |
|--|--------------------|------------|---------|-----|---------|-----|---------|-----|---------|-----|
|  |                    | Manual     | SMC16-M |     | SMC25-M |     | SMC40-M |     | SMC63-M |     |
|  |                    | Pole       | 2P      | 4P  | 2P      | 4P  | 2P      | 4P  | 2P      | 4P  |
| Rated insulation voltage (Ui) IEC          |                    | (V)        | 500     | 500 | 500     | 500 | 500     | 500 | 500     | 500 |
| Rated operational voltage (Ue) IEC / UL    |                    | (V)        | 230     | 400 | 250     | 400 | 250     | 400 | 250     | 400 |
| Rated impulse withstand voltage (Uimp) IEC |                    | (kV)       | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   |
| Rated operational current                  |                    | AC-7a (A)  | 16      | 16  | 25      | 25  | 40      | 40  | 63      | 63  |
|  |                    | AC-7b (A)  | 6       | 6   | 8.5     | 8.5 | 15      | 15  | 20      | 20  |
| Continuous Current (Ith)                   |                    | (A)        | 25      | 25  | 25      | 25  | 63      | 63  | 63      | 63  |
| Mechanical Life (Thousand)                 |                    | (Thousand) | 100     |     |         |     |         |     |         |     |
| Electrical Life AC-7a (Thousand)           |                    | (Thousand) | 10      |     |         |     |         |     |         |     |
| IP Level                                   |                    | —          | IP20    |     |         |     |         |     |         |     |

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### Accessory

- Side mount auxiliary contacts



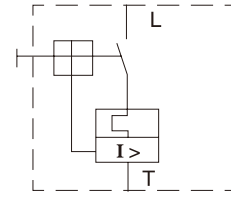
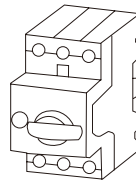
| Model  | Contacts | Voltage |
|--------|----------|---------|
| smAX11 | 1NO1NC   | 500V    |

- 9mm spacing block



| Model | Usage  |
|-------|--|
| smSB  | When modular contactor is installed in distribution box, attach spacing block on both side of the contactor for heat radiation |

# MANUAL MOTOR STARTER

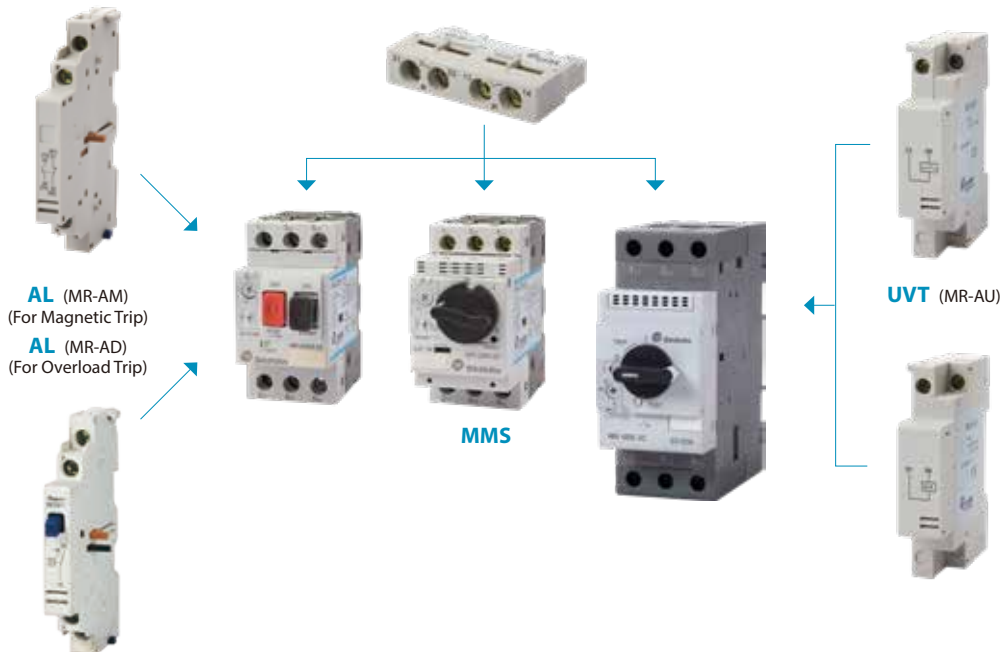


| Power factor AC-3 |           | Rated current<br>In (A) | Overload adjustable range<br>Ie (A) | Tripping current (A)<br>Id ± 20% | Type        |             |
|-------------------|-----------|-------------------------|-------------------------------------|----------------------------------|-------------|-------------|
| 220V (kW)         | 400V (kW) |                         |                                     |                                  | Button      | Rotary      |
| —                 | —         | 0.16                    | 0.1-0.16                            | 1.92                             | MR-32S-0.16 | MR-32R-0.16 |
| —                 | —         | 0.25                    | 0.16-0.25                           | 3                                | MR-32S-0.25 | MR-32R-0.25 |
| —                 | —         | 0.4                     | 0.25-0.4                            | 4.8                              | MR-32S-0.4  | MR-32R-0.4  |
| —                 | —         | 0.63                    | 0.4-0.63                            | 7.56                             | MR-32S-0.63 | MR-32R-0.63 |
| —                 | —         | 1                       | 0.63-1                              | 12                               | MR-32S-1    | MR-32R-1    |
| —                 | 0.37      | 1.6                     | 1-1.6                               | 19.2                             | MR-32S-1.6  | MR-32R-1.6  |
| 0.37              | 0.75      | 2.5                     | 1.6-2.5                             | 30                               | MR-32S-2.5  | MR-32R-2.5  |
| 0.55              | 1.5       | 4                       | 2.5-4                               | 48                               | MR-32S-4    | MR-32R-4    |
| 1.1               | 2.2       | 6.3                     | 4-6.3                               | 75.6                             | MR-32S-6.3  | MR-32R-6.3  |
| 2.2               | 4         | 10                      | 6-10                                | 120                              | MR-32S-10   | MR-32R-10   |
| 2.2               | 5.5       | 14                      | 9-14                                | 168                              | MR-32S-14   | MR-32R-14   |
| 3.7               | 7.5       | 18                      | 13-18                               | 216                              | MR-32S-18   | MR-32R-18   |
| 5.5               | 11        | 23                      | 17-23                               | 276                              | MR-32S-23   | MR-32R-23   |
| 5.5               | 11        | 25                      | 20-25                               | 300                              | MR-32S-25   | MR-32R-25   |
| 7.5               | 15        | 32                      | 24-32                               | 384                              | MR-32S-32   | MR-32R-32   |
| 3                 | 5.5       | 13                      | 9-13                                | 182                              | —           | MR-65R-13   |
| 4                 | 7.5       | 18                      | 12-18                               | 252                              | —           | MR-65R-18   |
| 5.5               | 11        | 25                      | 17-25                               | 350                              | —           | MR-65R-25   |
| 7.5               | 15        | 32                      | 23-32                               | 448                              | —           | MR-65R-32   |
| 7.5               | 18.5      | 40                      | 30-40                               | 560                              | —           | MR-65R-40   |
| 11                | 22        | 50                      | 37-50                               | 700                              | —           | MR-65R-50   |
| 15                | 30        | 65                      | 48-65                               | 910                              | —           | MR-65R-65   |

Side AX (MR-AN)

Front AX (MR-AE)

SHT (MR-AS)



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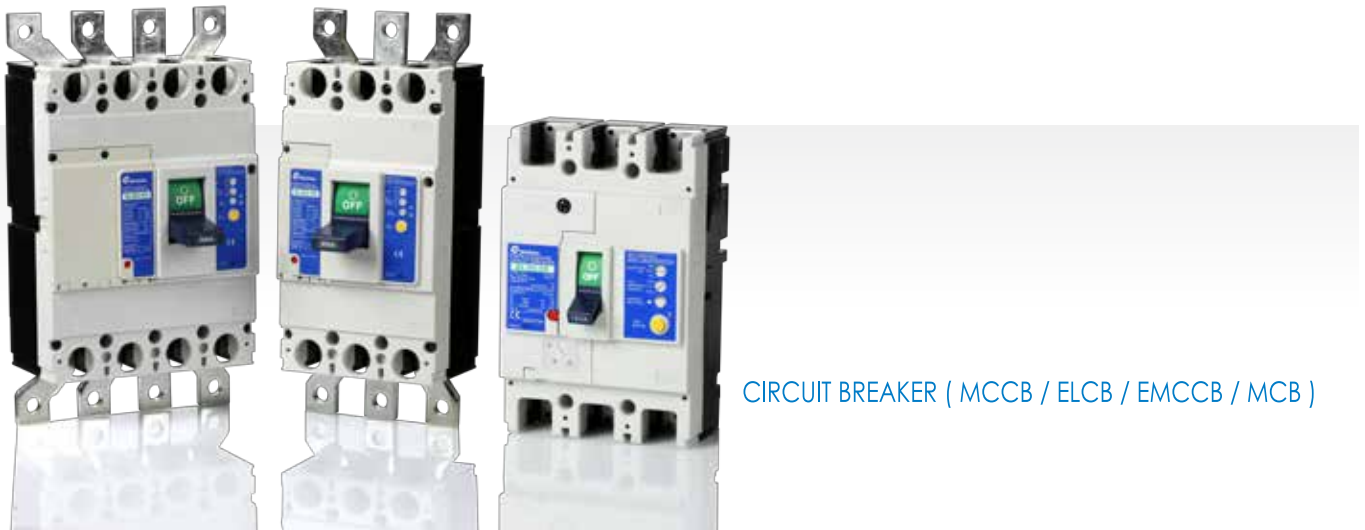
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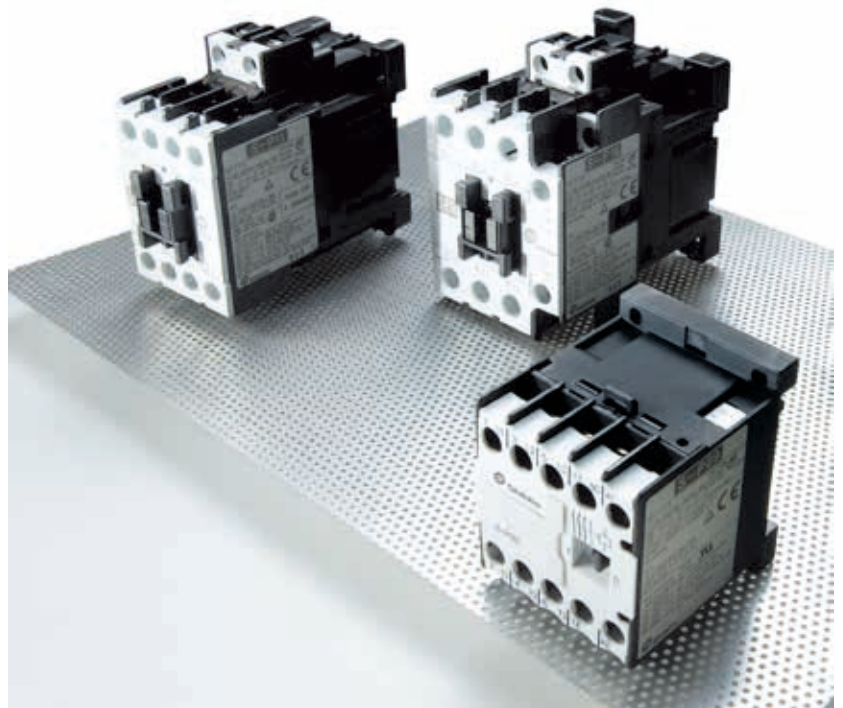


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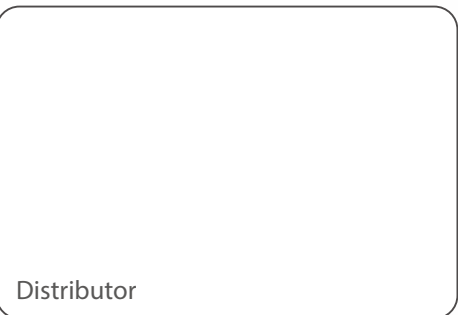
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