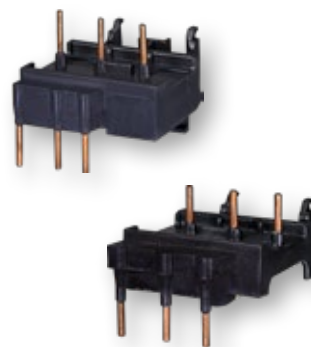


**Circuit breaker-contactor link module**

| Type      | Code No.  | Notes                                 | For use with |  |  |
|-----------|-----------|---------------------------------------|--------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| ECCMPE07  | 004648052 | for electrical and mechanical linking | CE07         |                                                                                   |                                                                                   |
|           |           | motor protective circuit breaker      |              | 27                                                                                | 1                                                                                 |
| ECCMPE25* | 004648053 | MPE25 and contactor                   | CEM9...25    |                                                                                   |                                                                                   |

\*For contactors with AC coil only!

**Motor protective circuit breaker MS25**

Main application field: control (start-up, protection and switch-off) of AC electric motors with powers up to 11 kW (380/400 V) or other consumers up to 25 A; it can also be used as the main switch according to EN 60204 or VDE 0113 standards.

Versions:

- MS25 - with overload and short circuit protection

Manual control:

- START, STOP, push-buttons
- Test of release function (TEST)

- // Phase-failure sensitivity according to IEC/EN 60947-4-1
- // Automatic switch-off with thermal or magnetic release
- // Control with under-voltage release or shunt release
- // Isolating distance between contacts: 4.5 mm per contact place
- // Hard wire or fine wire connection
- // Simple and fast mounting by snap fitting on 35 mm wide mounting rail in compliance with EN 60715; fixing with two screws is also possible
- // Vertical or horizontal operation position

**Technical data - General**

|                                                                |    |                                                                                      |  |
|----------------------------------------------------------------|----|--------------------------------------------------------------------------------------|--|
| Standards                                                      |    | IEC/EN 60947-2, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 60204                     |  |
| Climatic class                                                 |    | constant damp heat acc. to IEC 60068-2-78<br>cyclic damp heat acc. to IEC 60068-2-30 |  |
| Degree of protection                                           |    | IP20, after terminals covering IP20                                                  |  |
| Ambient temperature                                            | °C | -25 ... +60                                                                          |  |
| Storage temperature                                            | °C | -25 ... +70                                                                          |  |
| Temperature range of thermal compensation for overload release | °C | -5 ... +40                                                                           |  |
| Mechanical and electrical endurance                            |    | 100,000                                                                              |  |
| Shock resistance acc. to IEC 68-2-27                           | g  | 20                                                                                   |  |
| Vibration resistance acc. to IEC 68-2-6                        |    | 5 g - f = 5 ... 150 Hz                                                               |  |
| Overvoltage category / pollution degree                        |    | III / 3                                                                              |  |
| Rated insulation voltage $U_i$                                 | V  | 690                                                                                  |  |
| Rated impulse withstand voltage $U_{imp}$                      | kV | 6                                                                                    |  |
| Weight                                                         | kg | 0.252                                                                                |  |

## Motor protective circuit breaker MS25

| Type      | Code No.  | Operational<br>inst. current<br>$I_n$ (A) | Setting overl.<br>release<br>$I_r$ (A) |  |  |
|-----------|-----------|-------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| MS25-0,16 | 004600010 | 0.16                                      | 0,1-0,16                               | 255                                                                               | 1                                                                                 |
| MS25-0,25 | 004600020 | 0.25                                      | 0,16-0,25                              | 255                                                                               | 1                                                                                 |
| MS25-0,40 | 004600030 | 0.4                                       | 0,25-0,4                               | 255                                                                               | 1                                                                                 |
| MS25-0,63 | 004600040 | 0.63                                      | 0,4-0,63                               | 255                                                                               | 1                                                                                 |
| MS25-1,0  | 004600050 | 1                                         | 0,63-1,0                               | 255                                                                               | 1                                                                                 |
| MS25-1,6  | 004600060 | 1.6                                       | 1,0-1,6                                | 255                                                                               | 1                                                                                 |
| MS25-2,5  | 004600070 | 2.5                                       | 1,6-2,5                                | 255                                                                               | 1                                                                                 |
| MS25-4,0  | 004600080 | 4                                         | 2,5-4,0                                | 255                                                                               | 1                                                                                 |
| MS25-6,3  | 004600090 | 6.3                                       | 4,0-6,3                                | 255                                                                               | 1                                                                                 |
| MS25-10   | 004600100 | 10                                        | 6,3-10                                 | 255                                                                               | 1                                                                                 |
| MS25-16   | 004600110 | 16                                        | 10-16                                  | 255                                                                               | 1                                                                                 |
| MS25-20   | 004600120 | 20                                        | 16-20                                  | 255                                                                               | 1                                                                                 |
| MS25-25   | 004600320 | 25                                        | 20-25                                  | 255                                                                               | 1                                                                                 |



## Technical data - Main circuit

|                                                   |                  |         |                                                                                                                                                             |
|---------------------------------------------------|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Designation of connection terminals               |                  |         | 1 - L1 ; 3 - L2 ; 5 - L3 ; 2 - T1 ; 4 - T2 ; 6 - T3                                                                                                         |
| Terminal capacity                                 | rigid            | S (mm²) | 0.75 ... 6                                                                                                                                                  |
|                                                   | flexible         |         | 0.75 ... 4                                                                                                                                                  |
| Screw                                             |                  |         | with self-lifting clamp, protected against falling out                                                                                                      |
| Screw head                                        |                  |         | PZ2                                                                                                                                                         |
| Tightening torque                                 |                  | Nm      | 1,8                                                                                                                                                         |
| Max. operational voltage                          | Ue               | V       | 690                                                                                                                                                         |
| Setting range                                     |                  | A       | 0.1 - 0.16 (MS25); 0.16 - 0.25 (MS25);<br>0.25 - 0.4; 0.4 - 0.63; 0.63 - 1; 1 - 1.6; 1.6 - 2.5; 2.5 - 4;<br>4 - 6.3; 6.3 - 10;<br>10 - 16; 16 - 20; 20 - 25 |
| No. of poles                                      |                  |         | 3                                                                                                                                                           |
| Operating current of thermal<br>overload release  | I                |         | $1.05 I_r < I \leq 1.20 I_r$<br>$I_r \dots \text{set value}$                                                                                                |
| Sensitivity to phase failure                      |                  |         | ✓                                                                                                                                                           |
| Operating current of magnetic<br>overload release | I                |         | $11 I_n < I \leq 13 I_n \pm 20 \%$<br>$I_n \dots \text{upper setting limit}$                                                                                |
| Power dissipation on pole at load with $I_n$      | P                | W       | 2 - 2.5                                                                                                                                                     |
| Utilization category                              | IEC/EN 60947-4-1 |         | AC-3                                                                                                                                                        |
|                                                   | IEC/EN 60947-2   |         | A                                                                                                                                                           |
| Trip class acc. to IEC/EN 60947-4-1               |                  |         | 10A                                                                                                                                                         |

## MST25 motor protection switches and max. back-up fuses for short-circuit protection:

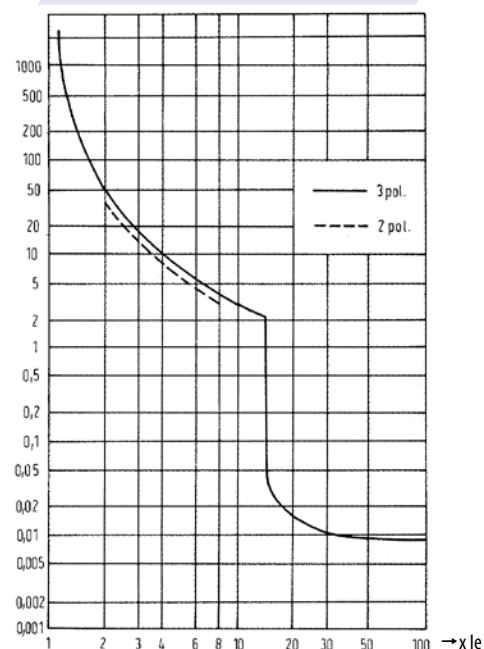
| Type          | Max. back-up fuse<br>$U_e < 400 \text{ V gL (A)}$ |
|---------------|---------------------------------------------------|
| MST 25 - 0,4  | 1                                                 |
| MST 25 - 0,63 | 2                                                 |
| MST 25 - 1    | 2                                                 |
| MST 25 - 1,6  | 4                                                 |
| MST 25 - 2,5  | 6                                                 |
| MST 25 - 4    | 16                                                |
| MST 25 - 6,3  | 20                                                |
| MST 25 - 10   | 25                                                |
| MST 25 - 16   | 35                                                |
| MST 25 - 20   | 50                                                |
| MST 25 - 25   | 50                                                |

**MS25 motor protection switches, rated ultimate short-circuit breaking capacity Icu and max. back-up fuses if prospective short-circuit current Icp exceeds Icu:**

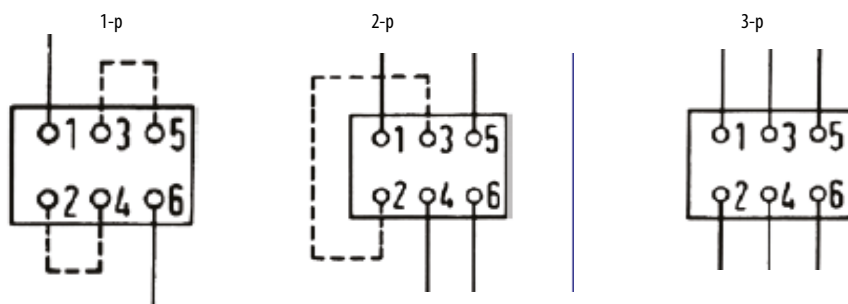
| Type         | Operating current of short-circuit release (A) | Rated ultimate short-circuit breaking capacity Icu (kA) |       |       |       | Max. back-up fuse, if Icp > Icu (gL) (A) |       |       |       |
|--------------|------------------------------------------------|---------------------------------------------------------|-------|-------|-------|------------------------------------------|-------|-------|-------|
|              |                                                | 230 V                                                   | 400 V | 500 V | 690 V | 230 V                                    | 400 V | 500 V | 690 V |
| MS 25 - 0,16 | 2                                              | 50                                                      | 50    | 50    | 50    | No back-up fuse required                 |       |       |       |
| MS 25 - 0,25 | 3                                              | 50                                                      | 50    | 50    | 50    |                                          |       |       |       |
| MS 25 - 0,4  | 5                                              | 50                                                      | 50    | 50    | 50    |                                          |       |       |       |
| MS 25 - 0,63 | 8                                              | 50                                                      | 50    | 50    | 50    |                                          |       |       |       |
| MS 25 - 1    | 12                                             | 50                                                      | 50    | 50    | 50    |                                          |       |       |       |
| MS 25 - 1,6  | 20                                             | 50                                                      | 50    | 50    | 50    |                                          |       |       |       |
| MS 25 - 2,5  | 33                                             | 50                                                      | 50    | 3     | 2,5   |                                          |       | 25    | 20    |
| MS 25 - 4    | 44                                             | 50                                                      | 50    | 3     | 2,5   |                                          |       | 35    | 25    |
| MS 25 - 6,3  | 75                                             | 50                                                      | 50    | 3     | 2,5   |                                          |       | 50    | 35    |
| MS 25 - 10   | 120                                            | 50                                                      | 6     | 3     | 2,5   |                                          | 80    | 50    | 35    |
| MS 25 - 16   | 160                                            | 6                                                       | 4     | 2,5   | 2     | 80                                       | 80    | 63    | 35    |
| MS 25 - 20   | 230                                            | 6                                                       | 4     | 2,5   | 2     | 80                                       | 80    | 63    | 50    |
| MS 25 - 25   | 270                                            | 6                                                       | 4     | 2,5   | 2     | 80                                       | 80    | 63    | 50    |

**Switch selection for motor protection**

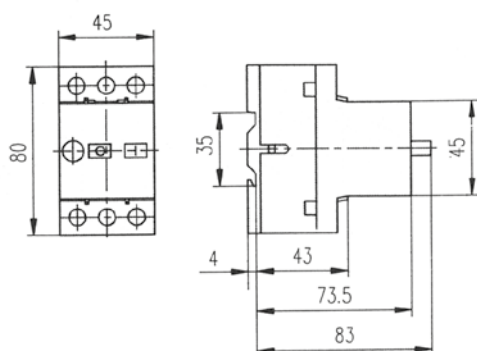
| Single-phase  |               | Standard motor power |               |              |               | Setting range |
|---------------|---------------|----------------------|---------------|--------------|---------------|---------------|
|               |               | 3-phase              |               |              |               |               |
| 220 V         | 220 V         | 380 V                |               |              |               |               |
| 230 V         | 230 V         | 400 V                | 440 V         | 500 V        | 660 V         |               |
| 240 V         | 240 V         | 415 V                |               |              | 690 V         |               |
| kW            |               |                      |               |              |               | A             |
|               |               | 0,02                 |               |              | 0,06          | 0,1 ... 0,16  |
|               |               | 0,06                 | 0,06          | 0,06         | 0,09          | 0,16 ... 0,25 |
|               | 0,06          | 0,09                 | 0,12          | 0,12         | 0,18          | 0,25 ... 0,4  |
|               | 0,09          | 0,12                 | 0,18          | 0,25         | 0,25          | 0,4 ... 0,63  |
| 0,06 ... 0,09 | 0,09 ... 0,12 | 0,18 ... 0,25        | 0,25          | 0,37         | 0,37 ... 0,55 | 0,61 ... 1    |
| 0,12          | 0,18 ... 0,25 | 0,37 ... 0,55        | 0,37 ... 0,55 | 0,55 ... 0,8 | 0,75 ... 1,1  | 1 ... 1,6     |
| 0,18 ... 0,25 | 0,37          | 0,75 ... 1,1         | 0,75 ... 1,1  | 1,1          | 1,5           | 1,6 ... 2,5   |
| 0,37          | 0,55 ... 0,8  | 1,1 ... 1,5          | 1,5           | 1,5 ... 2,2  | 2,2 ... 3     | 2,5 ... 4     |
| 0,55 ... 0,75 | 1,1 ... 1,5   | 2,2 ... 2,5          | 2,2 ... 3     | 3            | 4             | 4 ... 6,3     |
| 1,1 ... 1,5   | 1,5 ... 2,5   | 3 ... 4              | 4 ... 5       | 4 ... 5,5    | 5,5 ... 7,5   | 6,3 ... 10    |
| 2,2           | 3 ... 4       | 5 ... 7,5            | 5,5 ... 9     | 7,5 ... 9    | 11            | 10 ... 16     |
| 3             | 5,5           | 9                    | 11            | 11 ... 12,5  | 15            | 16 ... 20     |
|               | 5,5 ... 7,5   | 11 ... 12,5          | 12,5          | 15           | 18,5          | 20 ... 25     |

**Tripping characteristic**


## Connection diagram



## Dimensions



## Accessories

## Auxiliary switch for lateral mounting PS

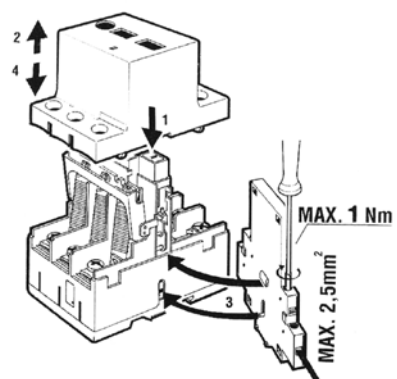
|                                                            |                 |                            |
|------------------------------------------------------------|-----------------|----------------------------|
| Rated insulation voltage $U_i$                             | V               | 500V                       |
| Thermal current $I_{th}$                                   | A               | 6 A                        |
| Rated operational current at AC-15<br>230V/400V/500V $I_e$ | A               | 3,5 A / 2 A / 1,5 A        |
| Terminal capacity                                          | mm <sup>2</sup> | 0,75 - 2,5 mm <sup>2</sup> |
| Tightening torque                                          | Nm              | 1                          |

## Auxiliary switch for lateral mounting PS

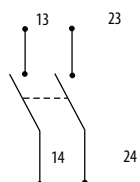
| Type  | Code No.  | Wiring diagram                                                                      | Auxiliary contacts<br>NO, NC |  g |  |
|-------|-----------|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| PS 20 | 004600160 |  | 2,0                          | 30                                                                                    | 1/10                                                                                |
| PS 01 | 004600150 |  | 0,1                          | 30                                                                                    | 1/10                                                                                |
| PS 10 | 004600140 |  | 1,0                          | 30                                                                                    | 1/10                                                                                |
| PS 11 | 004600130 |  | 1,1                          | 30                                                                                    | 1/10                                                                                |



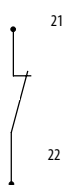
PS mounting



PS designation of contacts



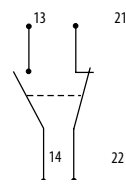
PS 20



PS 01

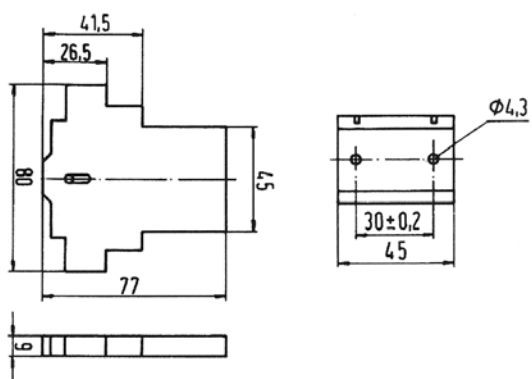


PS 10



PS 11

## Dimensions



**Shunt release**

| Type  | Code No.  | Wiring diagram                                                                    | actuating voltages |  g |  |
|-------|-----------|-----------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| A 230 | 004600170 |  | 220V-240V          | 30                                                                                  | 1/10                                                                              |

**Undervoltage release**

| Type  | Code No.  | Wiring diagram                                                                    | actuating voltages |  g |  |
|-------|-----------|-----------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| U 230 | 004600180 |  | 220V-240V          | 30                                                                                  | 1/10                                                                              |

**Under-voltage release U, Shunt release A**

|                                       |         |                             |
|---------------------------------------|---------|-----------------------------|
| Standard                              |         | IEC 60947-5-1, UL 60947-5-1 |
| Approvals                             |         | CE, UL, EAC                 |
| Control voltages $U_c$                | V       | 230, 400                    |
| Rated frequency $f$                   | Hz      | 50/60                       |
| Pick-up voltage                       | $x U_c$ | < 0.85                      |
| Drop-out voltage                      |         | 0.7 ... 0.35                |
| Power consumption switch-on operation | VA/W    | 7.5 / 4.3                   |
| switch-on operation                   |         | 3.8 / 1.3                   |
| Duty cycle tON/tOFF                   | %       | 100                         |
| Noise level                           | dB      | < 35                        |
| Mechanical and electrical endurance   | op. c.  | 100.000                     |

Mounting of Under-voltage release U or shunt release A

