# Motor contactor CEM

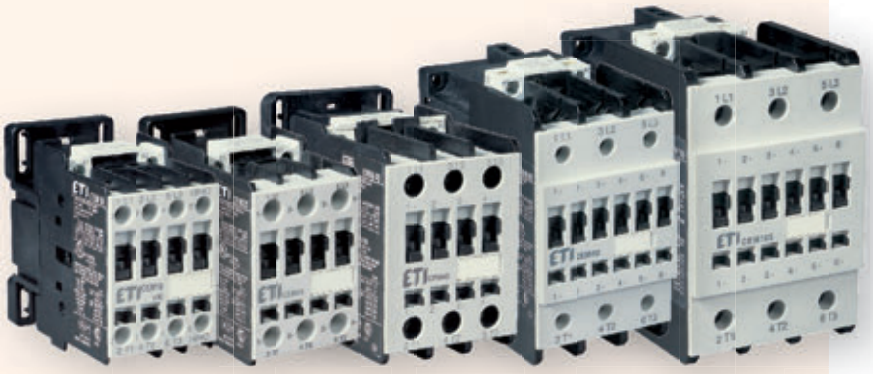
Application

Contactors are used to remotely control and protect (in combination with overload relays) electric motors and other electric loads with nominal power up to 160kW (at 400V AC3 duty).

Advantages

- Mounting on DIN rail and mounting plates
- High technical performance
- Low power loss (current heat loss)
- Protection against direct contact from front (IEC 536) IP20
- Wide range of accessories
- Surge suppressor (as option)
- Control voltage 24VAC, 48VAC, 110VAC, 230VAC, 400VAC

IE3 CONFORM




**Ordering:**

CEM9.01-230V-50/60Hz

I(AC3)[A] — Coil voltage

Nr. of NO — Nr. of NC - Number and type of auxiliary contacts

## Advantages


→ Surge supressors can be mounted as close as possible to source (coil).

→ The possibility of replacing the coil to other rated voltage. (AC coil compatible only with AC contactor. DC coil compatible only with DC contactor)

→ Lateral (side mounting) of auxiliary contacts.


→ Front mounted auxiliary contacts

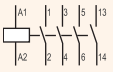
→ Mechanical interlock can lock two different size contactors

→ Special designed terminals provide reliable contact with cables.

→ Up to CEM105 possible to mount on DIN rail TH35 or directly on panel.

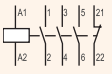
→ Overload relay (bimetal) can be mounted directly on contactor or on DIN rail TH35 by using an adapter

**Motor contactor CEM9.10; 25A(AC1); 9A; 4kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM9.10-24V-50/60Hz | 004642120 |  | 295 | 1 |
| CEM9.10-48V-50/60Hz | 004642121 | | 295 | 1 |
| CEM9.10-110V-50/60Hz | 004642122 | | 295 | 1 |
| CEM9.10-230V-50/60Hz | 004642123 | | 295 | 1 |
| CEM9.10-400V-50/60Hz | 004642124 | | 295 | 1 |
| CEM9.10-24V DC | 004642220 | | 510 | 1 |
| CEM9.10-220V DC | 004642221 | | 510 | 1 |

* Auxiliary contact 1NO integrated

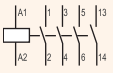
**Motor contactor CEM9.01; 25A(AC1); 9A; 4kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM9.01-24V-50/60Hz | 004642110 |  | 295 | 1 |
| CEM9.01-48V-50/60Hz | 004642111 | | 295 | 1 |
| CEM9.01-110V-50/60Hz | 004642112 | | 295 | 1 |
| CEM9.01-230V-50/60Hz | 004642113 | | 295 | 1 |
| CEM9.01-400V-50/60Hz | 004642114 | | 295 | 1 |
| CEM9.01-24V DC | 004642210 | | 510 | 1 |
| CEM9.01-220V DC | 004642211 | | 510 | 1 |

* Auxiliary contact 1NC integrated

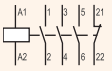
For auxiliary contact blocks, see page 230

**Motor contactor CEM12.10; 25A(AC1); 12A; 5.5kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM12.10-24V-50/60Hz | 004643120 |  | 295 | 1 |
| CEM12.10-48V-50/60Hz | 004643121 | | 295 | 1 |
| CEM12.10-110V-50/60Hz | 004643122 | | 295 | 1 |
| CEM12.10-230V-50/60Hz | 004643123 | | 295 | 1 |
| CEM12.10-400V-50/60Hz | 004643124 | | 295 | 1 |
| CEM12.10-24V DC | 004643220 | | 510 | 1 |
| CEM12.10-220V DC | 004643221 | | 510 | 1 |

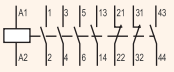
* Auxiliary contact 1NO integrated

**Motor contactor CEM12.01; 25A(AC1); 12A; 5.5kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM12.01-24V-50/60Hz | 004643110 |  | 295 | 1 |
| CEM12.01-48V-50/60Hz | 004643111 | | 295 | 1 |
| CEM12.01-110V-50/60Hz | 004643112 | | 295 | 1 |
| CEM12.01-230V-50/60Hz | 004643113 | | 295 | 1 |
| CEM12.01-400V-50/60Hz | 004643114 | | 295 | 1 |
| CEM12.01-24V DC | 004643210 | | 510 | 1 |
| CEM12.01-220V DC | 004643211 | | 510 | 1 |

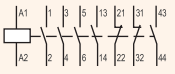
* Auxiliary contact 1NC integrated

**Motor contactor CEM180.22(E); 225A(AC1); 180A; 90kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM180.22-24V-50/60Hz | 004655140 |  | 3900 | 1 |
| CEM180.22--48V-50/60Hz | 004655141 | | | |
| CEM180.22--110V-50/60Hz | 004655142 | | | |
| CEM180.22--230V-50/60Hz | 004655143 | | | |
| CEM180.22--400V-50/60Hz | 004655144 | | | |
| CEM180E.22-28V AC/DC ** | 004646029 | | | |
| CEM180E.22-130V AC/DC ** | 004646026 | | | |
| CEM180E.22-250V AC/DC ** | 004646027 | | | |
| CEM180E.22-415V AC/DC ** | 004646028 | | | |

* Integrated auxiliary contacts: two side mounted auxiliary contact blocks 2 X (1NO + 1 NC)
**28V AC/DC (24...28V), 130V AC/DC (110...130V), 250V AC/DC (208...250V), 415V AC/DC (360...415V)
Surge suppressor is already integrated

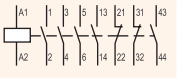
**Motor contactor CEM250.22(E); 350A(AC1); 250A; 132kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM250.22-24V-50/60Hz | 004656140 |  | 6000 | 1 |
| CEM250.22--48V-50/60Hz | 004656141 | | | |
| CEM250.22--110V-50/60Hz | 004656142 | | | |
| CEM250.22--230V-50/60Hz | 004656143 | | | |
| CEM250.22--400V-50/60Hz | 004656144 | | | |
| CEM250E.22-28V AC/DC ** | 004646030 | | | |
| CEM250E.22-130V AC/DC ** | 004646031 | | | |
| CEM250E.22-250V AC/DC ** | 004646032 | | | |
| CEM250E.22-415V AC/DC ** | 004646033 | | | |

* Integrated auxiliary contacts: two side mounted auxiliary contact blocks 2 X (1NO + 1 NC)
**28V AC/DC (24...28V), 130V AC/DC (110...130V), 250V AC/DC (208...250V), 415V AC/DC (360...415V)
Surge suppressor is already integrated
** Range of operating voltages is shown in the technical part of catalogue

For auxiliary contact blocks, see page 230

**Motor contactor CEM300.22(E), 410A(AC1), 300A, 160kW(AC3)***

| Type | Code No. | Wiring diagram | Weight [g] | Packaging [pcs] |
|---|---|---|---|---|
| CEM300E.22-28V AC/DC | 004656300 |  | 6900 | 1 |
| CEM300E.22-50V AC/DC | 004656301 | | | |
| CEM300E.22-72V AC/DC | 004656302 | | | |
| CEM300E.22-130V AC/DC | 004656303 | | | |
| CEM300E.22-250V AC/DC | 004656304 | | | |
| CEM300E.22-415V AC/DC | 004656305 | | | |

* Integrated auxiliary contacts: two side mounted auxiliary contact blocks 2 X (1NO + 1 NC)
**28V AC/DC (24...28V), 130V AC/DC (110...130V), 250V AC/DC (208...250V), 415V AC/DC (360...415V)
Surge suppressor is already integrated

# Motor contactor CEM

## Contactors CEM up to 132 kW Technical Data

| type | | CEM 9 | CEM 12 | CEM 18 | CEM 25 | CEM 32 | CEM 40 | CEM 50 | CEM 65 | CEM 80 | CEM 95 | CEM 105 | CEM 112E | CEM 150E | CEM 180E | CEM 250E | CEM 300E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Standards** | | IEC/EN 60 947, DIN VDE 0660 | | | | | | | | | | | | | | | |
| Rated insulation voltage Ui (V) to IEC/EN 60 947, DIN VDE 0660 | | 1000 V | | | | | | | | | | | | | | | |
| Rated impulse withstand voltage Uimp | | 6 kV | | | | | | 8 kV | | | | | | | | | |
| Rated operational frequency | | 25 - 400 Hz | | | | | | | | | | | | | | | |
| Degree of protection | | Protection against direct contact from the front when actuated by a perpendicular test finger (IEC 536) | | | | | | | | | | | | | | | |
| Main circuits | | IP20 | | | | IP10 | | | | | | | IP00 | | | | |
| Control circuits and auxiliary contacts | | IP20 | | | | | | | | | | | | | | | |
| Ambient temperature Operating temperature | | -25 ... +55 °C | | | | | | | | | | | | | | | |
| Storage temperature | | -55 ... +80 °C | | | | | | | | | | | | | | | |
| **Altitude** | | | | | | | | | | | | | | | | | |
| Normal values<br>90 % Ie/80 % Ue<br>80 % Ie/75 % Ue | | ≤ 3000 m<br>3000 ... 4000 m<br>4000 ... 5000 m | | | | | | | | | | | | | | | |
| Overvoltage category/Pollution degree | | III/3 | | | | | | | | | | | | | | | |
| Climatic proofing | | IEC 68-2 | | | | | | | | | | | | | | | |
| **Main circuits** | | | | | | | | | | | | | | | | | |
| Number of poles | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Rated operation voltage Ue | | 690 V | | | | | | 1000V | | | | | | | | | |
| **Conv. thermal current Ith at ≤ 55°C** | | | | | | | | | | | | | | | | | |
| Rated operational current Ie/AC-1 | | 25 A | 25 A | 32 A | 45 A | 60 A | 60 A | 90 A | 110 A | 110 A | 140 A | 140 A | 180 A | 225 A | 225 A | 350A | 410A |
| **AC-3 Duty** | | | | | | | | | | | | | | | | | |
| Rated operational power | | | | | | | | | | | | | | | | | |
| 230 V kW | | 2,2 | 3 | 4 | 6,5 | 9 | 11 | 15 | 18,5 | 22 | 25 | 30 | 30 | 45 | 55 | 75 | 90 |
| **400 V kW** | | **4** | **5,5** | **7,5** | **11** | **15** | **18,5** | **22** | **30** | **37** | **45** | **55** | **55** | **75** | **90** | **132** | **160** |
| 415-440 V kW | | 4,5 | 5,5 | 9 | 12,5 | 15 | 22 | 30 | 37 | 45 | 55 | 55 | 55 | 90 | 110 | 150 | 185 |
| 500 V kW | | 5,5 | 7,5 | 10 | 15 | 18,5 | 25 | 30 | 40 | 45 | 55 | 65 | 75 | 90 | 110 | 160 | 200 |
| 690 V kW | | 5,5 | 7,5 | 10 | 15 | 18,5 | 30 | 33 | 45 | 45 | 55 | 65 | 80 | 80 | 132 | 200 | 200 |
| Short circuit rating | | | | | | | | | | | | | | | | | |
| max. fuse gG (A) | | 25 | 35 | 35 | 50 | 63 | 80 | 100 | 125 | 125 | 160 | 200 | 224 | 250 | 250 | 400 | 500 |
| **max. electrical operating frequency** | | | | | | | | | | | | | | | | | |
| AC-1 | Ops/h | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 600 | 600 | 600 | 600 | 600 |
| AC-3 | Ops/h | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 600 | 600 | 600 | 600 | 600 | 600 | 600 |
| AC-4 | Ops/h | 360 | 360 | 360 | 360 | 360 | 360 | 200 | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 150 |
| no load | Ops/h | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 | 5000 | 5000 | 5000 | 5000 | 5000 | 4000 | 4000 | 4000 | 4000 | 4000 |
| | | | | | | | | | | | | | | | | | |
| Mechanical life span | Ops x $10^6$ | 10 | | | | | | | | | | | | | | | |
| Electrical life span | Ops x $10^6$ | 1,6 | 1,8 | 1,2 | | | | 1,1 | | | | | 1,0 | | | | |
| **Control circuit** | | | | | | | | | | | | | | | | | |
| Rated insulation voltage | **Ui (V)** | 1000 V | | | | | | | | | | | | | | | |
| Nominal voltages | **Us 50 Hz (V)** | 24 - 690 V | | | | | | | | | | | | | | | |
| Nominal voltages | **Us 60 Hz (V)** | 24 - 690 V | | | | | | | | | | | | | | | |
| Nominal voltages | **Us DC (V)** | 12 - 440 V | | | | | | | | | | | | | | | |
| **Pick-up and drop-out values** | | | | | | | | | | | | | | | | | |
| Pick-up x | **Us (V)** | 0,8 - 1,1 | | | | 0,8 - 1,1 | | 0,8 - 1,1 | | | | | 0,8 - 1,1 | | | | |
| Drop-out x | **Us (V)** | 0,35 - 0,55 | | | | 0,4 - 0,6 | | 0,4 - 0,6 | | | | | 0,3 - 0,5 | | | | |
| **Power consumption of the coil** | **50/60 Hz** | | | | | | | | | | | | | | | | |
| Pick-up | **(VA)** | 70 | | | | 98 | | 255 | | | | | 213 | 214 | 229 | | |
| | **(cos φ)** | 0,85 | | | | 0,69 | | 0,32 | | | | | 0,71 | 0,68 | 0,73 | | |
| Sealing | **(VA)** | 4...7,2 | | | | 6,6...12,3 | | 13,1...19,1 | | | | | 14,8 | 14,5 | 14,1 | | |
| | **(cos φ)** | 0,28 | | | | 0,34 | | 0,54 | | | | | 0,26 | 0,27 | 0,26 | | |
| **Power consumption of the coil, DC coils** | | | | | | | | | | | | | | | | | |
| Pick-up | (W) | 3,8...7,5 | | | | 240 | | 340 | | | | | 166 | 154 | 171 | | |
| Sealing | (W) | 3,8...7,5 | | | | 6 | | 6,5 | | | | | 2,4 | 2,4 | 2,5 | | |
| **Power dissipations** | | | | | | | | | | | | | | | | | |
| PD per pole @ $I_e$ AC-3 | (W) | 0,2 | 0,3 | 0,8 | 1 | 1,3 | 1,5 | 2,1 | 3,6 | 5,5 | 6,9 | 8,4 | 6,2 | 11,1 | 13,8 | 17,9 | 25,7 |
| PD of coils, AC coils | (W) | 2,0 | 2,0 | 2,0 | 2,0 | 4,2 | 4,2 | 10,3 | 10,3 | 10,3 | 10,3 | 10,3 | 3,9 | 3,9 | 3,9 | 3,7 | 3,7 |
| PD of coils, DC coils | (W) | 7,5 | 7,5 | 7,5 | 7,5 | 6 | 6 | 6,5 | 6,5 | 6,5 | 6,5 | 6,5 | 2,4 | 2,4 | 2,4 | 2,5 | 2,5 |