finder
SWITCH TO THE FUTURE

66
SERIES

# Power relays 30 A

- Power generators
- Industrial washing machines
- Burners, boilers and furnaces
- Industrial furnaces and ovens
- Air conditioners
- Hoists and cranes
- Back-up generators
- Industrial motors



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**2 Pole Changeover (DPDT)**
**30 A Power relay**

**Type 66.22**
- PCB connections & mount

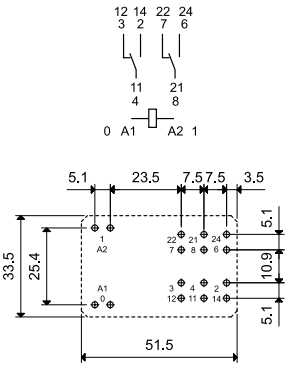
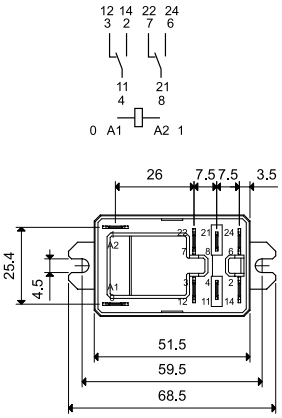
**Type 66.82**
- Faston 250 connections and Flange mount

- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- AC coils & DC coils
- Cadmium Free option available
- **ATEX** compliant (EX nC) option available*
- **HazLoc** Class I Div. 2 Group A, B, C, D - T4 - T5 - T6 option available*

* Characteristics page 8, 9

*FOR UL RATINGS SEE:*
*"General technical information" page* V

For outline drawing see page 10

| | | **66.22** | **66.82** |
|---|---|---|---|
| | |  |  |
| | | • 30 A rated contacts<br>• PCB mount - bifurcated terminals | • 30 A rated contacts<br>• Flange mount<br>• Faston 250 connections |
| | |  |  |
| | | Copper side view | |
| **Contact specification** | | | |
| Contact configuration | | 2 CO (DPDT) | 2 CO (DPDT) |
| Rated current/Maximum peak current | A | 30/50 (NO) - 10/20 (NC) | 30/50 (NO) - 10/20 (NC) |
| Rated voltage/ Maximum switching voltage | V AC | 250/440 | 250/440 |
| Rated load AC1 | VA | 7500 (NO) - 2500 (NC) | 7500 (NO) - 2500 (NC) |
| Rated load AC15 (230 V AC) | VA | 1200 (NO) | 1200 (NO) |
| Single phase motor rating (230 V AC) | kW | 1.5 (NO) | 1.5 (NO) |
| Breaking capacity DC1: 30/110/220 V | A | 25/0.7/0.3 (NO) | 25/0.7/0.3 (NO) |
| Minimum switching load | mW (V/mA) | 1000 (10/10) | 1000 (10/10) |
| Standard contact material | | AgCdO | AgCdO |
| **Coil specification** | | | |
| Nominal voltage ($U_N$) | V AC (50/60 Hz) | 6 - 12 - 24 - 110/115 - 120/125 - 230 - 240 | |
| | V DC | 6 - 9 - 12 - 24 - 110 - 125 | |
| Rated power AC/DC | VA (50 Hz)/W | 3.6/1.7 | 3.6/1.7 |
| Operating range | AC | (0.8…1.1)$U_N$ | (0.8…1.1)$U_N$ |
| | DC | (0.8…1.1)$U_N$ | (0.8…1.1)$U_N$ |
| Holding voltage | AC/DC | 0.8 $U_N$ / 0.5 $U_N$ | 0.8 $U_N$ / 0.5 $U_N$ |
| Must drop-out voltage | AC/DC | 0.2 $U_N$ / 0.1 $U_N$ | 0.2 $U_N$ / 0.1 $U_N$ |
| **Technical data** | | | |
| Mechanical life AC/DC | cycles | $10 \cdot 10^6$ | $10 \cdot 10^6$ |
| Electrical life at rated load AC1 | cycles | $100 \cdot 10^3$ | $100 \cdot 10^3$ |
| Operate/release time | ms | 8/15 | 8/15 |
| Insulation between coil and contacts (1.2/50 µs) | kV | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts | V AC | 1500 | 1500 |
| Ambient temperature range | °C | –40…+70 | –40…+70 |
| Environmental protection | | RT II | RT II |
| **Approvals** (according to type) | | | |

A

**2 Pole NO (DPST-NO)**
**30 A Power relay**

**Type 66.22-x30x**
- PCB mount

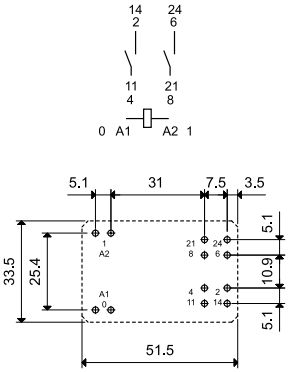
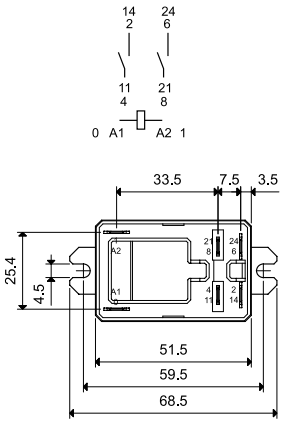
**Type 66.82-x30x**
- Faston 250 connections and Flange mount

- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- AC coils & DC coils
- Cadmium Free option available
- **ATEX** compliant (EX nC) option available*
- **HazLoc** Class I Div. 2 Group A, B, C, D - T4 - T5 - T6 option available*

* Characteristics page 8, 9

*For UL ratings see:*
*"General technical information" page* V

For outline drawing see page 10

| | | **66.22-x30x** | **66.82-x30x** |
|---|---|---|---|
| | |  |  |
| | | • 30 A rated contacts<br>• PCB mount - bifurcated terminals | • 30 A rated contacts<br>• Flange mount<br>• Faston 250 connections |
| | |  Copper side view |  |
| **Contact specification** | | | |
| Contact configuration | | 2 NO (DPST-NO) | 2 NO (DPST-NO) |
| Rated current/Maximum peak current | A | 30/50 | 30/50 |
| Rated voltage/ Maximum switching voltage | V AC | 250/440 | 250/440 |
| Rated load AC1 | VA | 7500 | 7500 |
| Rated load AC15 (230 V AC) | VA | 1200 | 1200 |
| Single phase motor rating (230 V AC) | kW | 1.5 | 1.5 |
| Breaking capacity DC1: 30/110/220 V | A | 25/0.7/0.3 | 25/0.7/0.3 |
| Minimum switching load | mW (V/mA) | 1000 (10/10) | 1000 (10/10) |
| Standard contact material | | AgCdO | AgCdO |
| **Coil specification** | | | |
| Nominal voltage ($U_N$) | V AC (50/60 Hz) | 6 - 12 - 24 - 110/115 - 120/125 - 230 - 240 | |
| | V DC | 6 - 9 - 12 - 24 - 110 - 125 | |
| Rated power AC/DC | VA (50 Hz)/W | 3.6/1.7 | 3.6/1.7 |
| Operating range | AC | $(0.8…1.1)U_N$ | $(0.8…1.1)U_N$ |
| | DC | $(0.8…1.1)U_N$ | $(0.8…1.1)U_N$ |
| Holding voltage | AC/DC | 0.8 $U_N$ / 0.5 $U_N$ | 0.8 $U_N$ / 0.5 $U_N$ |
| Must drop-out voltage | AC/DC | 0.2 $U_N$ / 0.1 $U_N$ | 0.2 $U_N$ / 0.1 $U_N$ |
| **Technical data** | | | |
| Mechanical life AC/DC | cycles | $10 \cdot 10^6$ | $10 \cdot 10^6$ |
| Electrical life at rated load AC1 | cycles | $100 \cdot 10^3$ | $100 \cdot 10^3$ |
| Operate/release time | ms | 8/10 | 8/10 |
| Insulation between coil and contacts (1.2/50 µs) | kV | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts | V AC | 1500 | 1500 |
| Ambient temperature range | °C | –40…+70 | –40…+70 |
| Environmental protection | | RT II | RT II |
| **Approvals** (according to type) | | | |

**2 Pole NO (DPST-NO), ≥ 1.5 mm contact gap**
**30 A Power relay**

**Type 66.22-x60x**
- PCB mount

**Type 66.22-x60xS**
- PCB mount, 5 mm gap between PCB and relay base

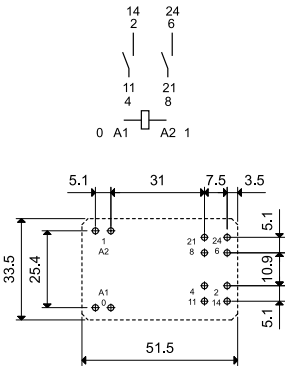
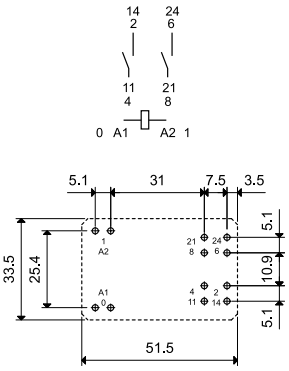
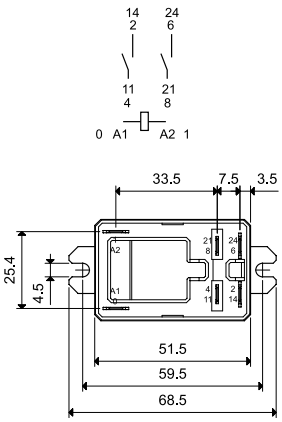
**Type 66.82-x60x**
- Faston 250 connections and Flange mount

- ≥ 1.5 mm contact gap (according to VDE 0126-1-1 for solar inverter applications)
- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- Wash tight version (RT III) available
- DC coils
- Cadmium Free option available
- **ATEX** compliant (EX nC) option available*
- **HazLoc** Class I Div. 2 Group A, B, C, D - T4 - T5 - T6 option available*

* Characteristics page 8, 9

*For UL ratings see:*
*"General technical information" page* V

For outline drawing see page 10

| | 66.22-x60x | 66.22-x60xS | 66.82-x60x |
|---|---|---|---|
| |  |  |  |
| | • PCB mount - bifurcated terminals | • PCB mount - bifurcated terminals<br>• 5 mm gap between PCB and relay base | • Flange mount<br>• Faston 250 connections |
| |  |  |  |
| | Copper side view | Copper side view | |
| **Contact specification** | | | |
| Contact configuration | 2 NO (DPST-NO) | 2 NO (DPST-NO) | 2 NO (DPST-NO) |
| Rated current/Maximum peak current A | 30/50 | 30/50 | 30/50 |
| Rated voltage/ Maximum switching voltage V AC | 250/440 | 250/440 | 250/440 |
| Rated load AC1 VA | 7500 | 7500 | 7500 |
| Rated load AC15 (230 V AC) VA | 1200 | 1200 | 1200 |
| Single phase motor rating (230 V AC) kW | 1.5 | 1.5 | 1.5 |
| Breaking capacity DC1: 30/110/220 V A | 25/1.2/0.5 | 25/1.2/0.5 | 25/1.2/0.5 |
| Minimum switching load mW (V/mA) | 1000 (10/10) | 1000 (10/10) | 1000 (10/10) |
| Standard contact material | AgCdO | AgCdO | AgCdO |
| **Coil specification** | | | |
| Nominal voltage ($U_N$) V AC (50/60 Hz) | — | | |
| V DC | 6 - 9 - 12 - 24 - 110 - 125 | | |
| Rated power AC/DC VA (50 Hz)/W | —/1.7 | —/1.7 | —/1.7 |
| Operating range AC | — | — | — |
| DC | (0.8…1.1)$U_N$ | (0.7…1.1)$U_N$ | (0.8…1.1)$U_N$ |
| Holding voltage AC/DC | —/0.5 $U_N$ | —/0.5 $U_N$ | —/0.5 $U_N$ |
| Must drop-out voltage AC/DC | —/0.1 $U_N$ | —/0.1 $U_N$ | —/0.1 $U_N$ |
| **Technical data** | | | |
| Mechanical life cycles | $10 \cdot 10^6$ | $10 \cdot 10^6$ | $10 \cdot 10^6$ |
| Electrical life at rated load AC1 cycles | $100 \cdot 10^3$ | $100 \cdot 10^3$ | $100 \cdot 10^3$ |
| Operate/release time ms | 15/4 | 15/4 | 15/4 |
| Insulation between coil and contacts (1.2/50 µs) kV | 6 (8 mm) | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts V AC | 2500 | 2500 | 2500 |
| Ambient temperature range °C | –40…+70 | –40…+70 | –40…+70 |
| Environmental protection | RT II | RT II | RT II |
| **Approvals** (according to type) | | | |

## Ordering information

A

Example: 66 series relay, Faston 250 (6.3x0.8 mm) with top flange mount, 2 CO (DPDT) 30 A contacts, 24 V DC coil.

| 6 6 | . | 8 | 2 | . | 9 | . | 0 2 4 | . | A 0 | B 0 | C 0 | D 0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Series**

**Type**
2 = PCB
8 = Faston 250 (6.3 x 0.8 mm) with top flange mount

**No. of poles**
2 = 2 pole 30 A (versions 0, 1)
2 = 2 pole 25 A (version 3)

**Coil version**
8 = AC (50/60 Hz)
9 = DC

**Coil voltage**
See coil specifications

**A: Contact material**
0 = Standard AgCdO
1 = AgNi

**B: Contact circuit**
0 = CO (nPDT)
3 = NO (nPST)
6 = NO (nPST), ≥ 1.5 mm contact gap

**C: Options**
0 = None

**D: Special versions**
0 = Standard
1 = Wash tight (RT III)
3 = Atex (Ex nC) and HazLoc Class I Div. 2 compliant

S = PCB version with 5 mm gap between PCB and relay base (only 66.22 and Atex/HazLoc versions)

**Selecting features and options: only combinations in the same row are possible.**
Preferred selections for best availability are shown in **bold.**

| Type | Coil version | A | B | C | D |
|---|---|---|---|---|---|
| 66.22 | AC-DC | **0** - 1 | **0** - 3 | **0** | 0 - **1** |
| | DC | **0** - 1 | **6** | **0** | 0 - **1** |
| 66.22….S | DC | **0** - 1 | **6** | **0** | 0 - **1** - 3 |
| 66.82 | AC-DC | **0** - 1 | **0** - 3 | **0** | **0** - 1 - 3 |
| | DC | **0** - 1 | **6** | **0** | **0** - 1 - 3 |

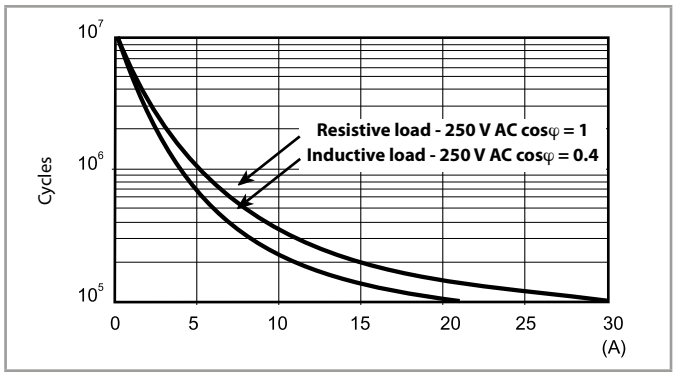
## Technical data

| | | | | |
|---|---|---|---|---|
| **Insulation according to EN 61810-1** | | | | |
| Nominal voltage of supply system | | V AC | 230/400 | |
| Rated insulation voltage | | V AC | 400 | |
| Pollution degree | | | 3 | |
| **Insulation between coil and contact set** | | | | |
| Type of insulation | | | Reinforced (8 mm) | |
| Overvoltage category | | | III | |
| Rated impulse voltage | | kV (1.2/50 µs) | 6 | |
| Dielectric strength | | V AC | 4000 | |
| **Insulation between adjacent contacts** | | | | |
| Type of insulation | | | Basic | |
| Overvoltage category | | | III | |
| Rated impulse voltage | | kV (1.2/50 µs) | 4 | |
| Dielectric strength | | V AC | 2500 | |
| **Insulation between open contacts** | | | **2 CO** | **2 NO, ≥ 1.5 mm (x60x version)** |
| Type of disconnection | | | Micro-disconnection | Full-disconnection* |
| Overvoltage category | | | — | II |
| Rated impulse voltage | | kV (1.2/50 µs) | — | 2.5 |
| Dielectric strength | | V AC/kV (1.2/50 µs) | 1500/2 | 2500/2.5 |
| **Insulation between coil terminals** | | | | |
| Rated impulse voltage (surge) differential mode (according to EN 61000-4-5) | | kV (1.2/50 µs) | 4 | |
| **Other data** | | | | |
| Bounce time: NO/NC | | ms | 7/10 | |
| Vibration resistance (10…150)Hz: NO/NC | | g | 20/19 | |
| Shock resistance | | g | 20 | |
| Power lost to the environment | without contact current | W | 2.3 | |
| | with rated current | W | 5 | |
| Recommended distance between relays mounted on PCB | | mm | ≥ 10 | |

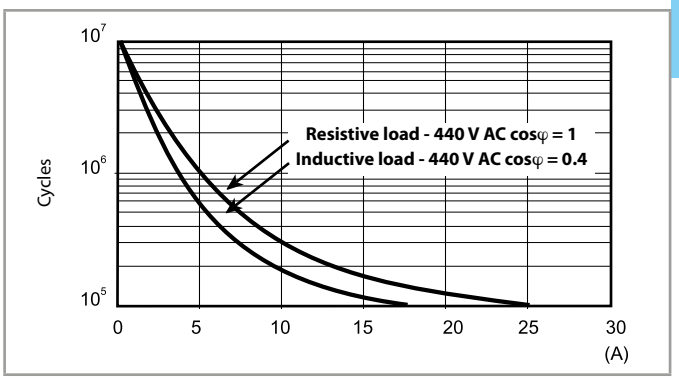
* Only in applications where over voltage category II is permitted. In applications of over voltage category III: Micro-disconnection.

## Contact specification

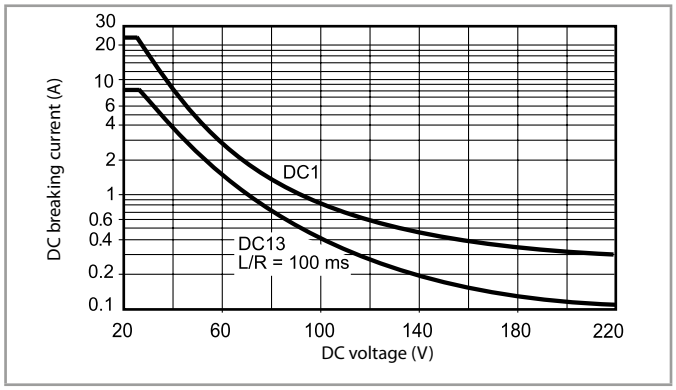
**F 66 - Electrical life (AC) v contact current**
250 V (normally open contact)



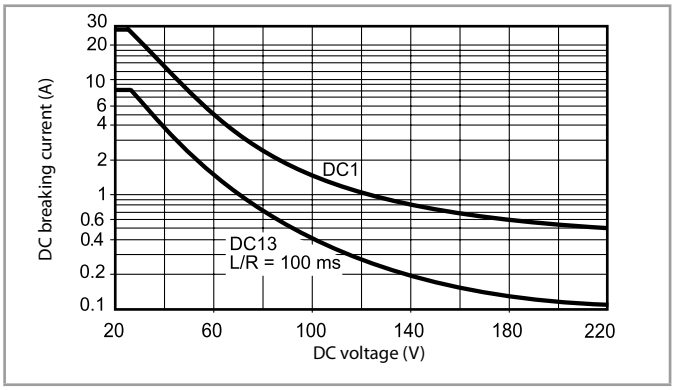

**F 66 - Electrical life (AC) v contact current**
440 V (normally open contact)




**H 66 - Maximum DC breaking capacity**




**H 66 - Maximum DC breaking capacity, x60x versions (> 1.5 mm contact gap)**




- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ 100 · $10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
  Note: the release time for the load will be increased.

## Coil specifications

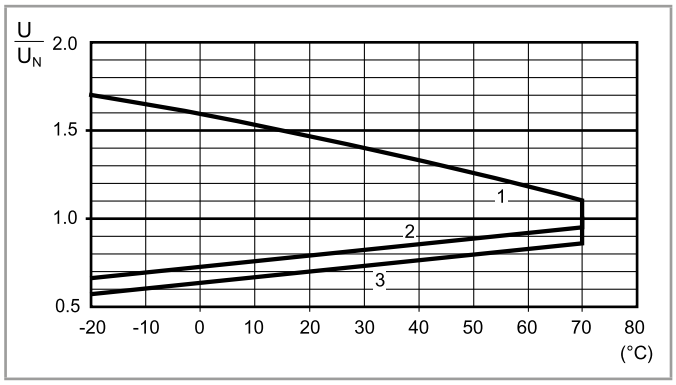
**DC coil data**

| Nominal voltage | Coil code | Operating range | | Resistance | Rated coil Consumption |
|---|---|---|---|---|---|
| $U_N$ | | $U_{min}$ | $U_{max}$ | R | I at $U_N$ |
| V | | V | V | Ω | mA |
| 6 | **9**.006 | 4.8 | 6.6 | 21 | 283 |
| 9 | **9**.009 | 7.2 | 9.9 | 45 | 200 |
| 12 | **9**.012 | 9.6 | 13.2 | 85 | 141 |
| 24 | **9**.024 | 19.2 | 26.4 | 340 | 70.5 |
| 110 | **9**.110 | 88 | 121 | 7000 | 15.7 |
| 125 | **9**.125 | 100 | 138 | 9200 | 13.6 |

**AC coil data**

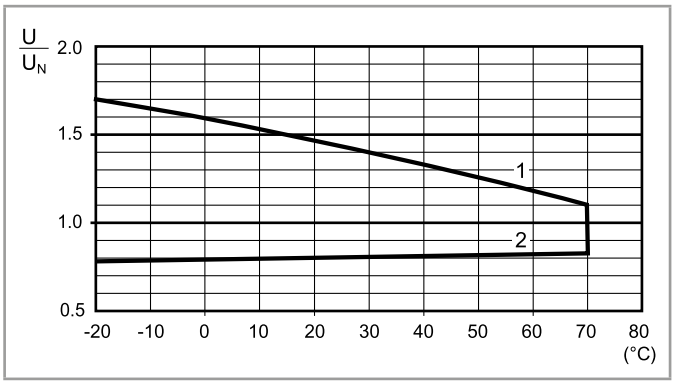
| Nominal voltage | Coil code | Operating range | | Resistance | Rated coil Consumption |
|---|---|---|---|---|---|
| $U_N$ | | $U_{min}$ | $U_{max}$ | R | I at $U_N$ (50 Hz) |
| V | | V | V | Ω | mA |
| 6 | **8**.006 | 4.8 | 6.6 | 3 | 600 |
| 12 | **8**.012 | 9.6 | 13.2 | 11 | 300 |
| 24 | **8**.024 | 19.2 | 26.4 | 50 | 150 |
| 110/115 | **8**.110 | 88 | 126 | 930 | 32.6 |
| 120/125 | **8**.120 | 96 | 137 | 1050 | 30 |
| 230 | **8**.230 | 184 | 253 | 4000 | 15.7 |
| 240 | **8**.240 | 192 | 264 | 5500 | 15 |

**R 66 - DC coil operating range v ambient temperature**




**1 -** Max. permitted coil voltage.
**2 -** Min. pick-up voltage with coil at ambient temperature.
**3 -** Min. pick-up voltage with coil at ambient temperature (66.22-x60xS)

**R 66 - AC coil operating range v ambient temperature**




**1 -** Max. permitted coil voltage.
**2 -** Min. pick-up voltage with coil at ambient temperature.

## ATEX - Electrical characteristics

A

| Contact specification ATEX | | Ex application |
|---|---|---|
| Rated current/Maximum peak current | A | 25/50 (NO) - 10/20 (NC) |
| Rated voltage/Maximum switching voltage | V AC | 250/400 |
| Rated load AC1 | VA | 6250 (NO) - 2500 (NC) |
| Rated load AC15 | VA | 1200 (NO) |
| Capacity for single phase motor (230 V AC) | kW | 1.5 (NO) |
| Breaking capacity DC1: 30/110/220 V | A | 25/0.7/0.3 (NO) |
| **Characteristics of coil** | | |
| Rated voltage ($U_N$) | V AC (50/60 Hz) | 6 - 12 - 24 - 110/115 - 120/125 - 230 - 240 |
| | V DC | 6 - 12 - 24 - 110 - 125 |
| Rated Power AC/DC | VA (50 Hz)/W | 3.6/1.7 |
| Operating range | AC/DC | (0.8…1.1)$U_N$ |
| **General characteristics** | | |
| Ambient temperature | °C | –40…+70 |

## Special condition for safe use

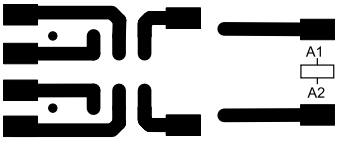
The component must be placed inside an enclosure that meets the general requirements for enclosures as per clause 6.3 of EN 60079-15.
The connections must be made in compliance with the requirements of clause 7.2.4 or 7.2.5 of EN 60079-15.

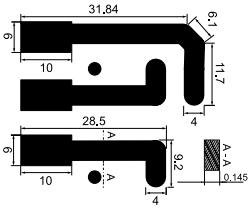
## Wiring

The cross-section of conductors connected to the terminals, must be at least 4 mm² for the Type 66.82.

## Layout pcb

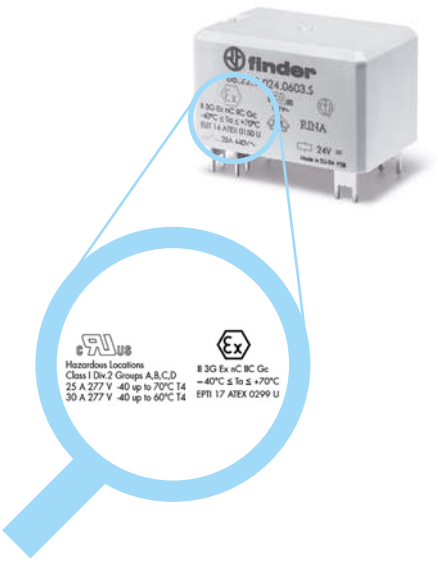
The minimum cross-section of the tracks of the printed circuit board must be 0.58 mm², while the width must be at least 4 mm for Types "66.22" and "66.22.…S".




## Markings - ATEX versions - ATEX, II 3G Ex nC IIC Gc

| MARKING | |
|---|---|
| Specific marking of explosion protection | |
| **II**<br>Component for surface plant (different from mines) | |
| **3**<br>Category 3: normal level of protection | |
| GAS | **G**<br>Explosive atmosphere due to presence of combustible gas vapour or mist |
| | **Ex nC**<br>Sealed device (type of protection for category 3G) |
| | **IIC**<br>Gas group |
| | **Gc**<br>Equipment Protection Level |
| **–40 °C ≤ Ta ≤ +70 °C**<br>Ambient temperature | |
| **EPTI 17 ATEX 0299 U**<br>EPTI: laboratory which issues the CE type certificate<br>17: year of issue of certificate<br>0299: number of CE type certificate<br>U: ATEX component | |






II-2020, www.findernet.com

## Markings - Hazardous Location Class I Div. 2 Goups A, B, C, D - T4 - T5 - T6 and other data

| HazLoc Class I Div. 2 Group A, B, C, D - T4 - T5 - T6 | Meaning |
|---|---|
| Class I | Areas in which flammable gases and vapours may be present |
| Div. 2 | Low probability to find ignitable concentration of hazards because are typically present in containers or closed systems from which can escape through their accidental rupture or breakdown |
| Group A, B, C, D | Kind of combustible, flammable gases and vapours can be in the atmosphere. |

| Permissible Surface temperature | | |
|---|---|---|
| T4 | 135 °C | 275 °F |
| T5 | 100 °C | 212 °F |
| T6 | 85 °C | 185 °F |

| Model | T4 | | | | |
|---|---|---|---|---|---|
| | Type of load | Voltage | Current/Power | Temperature °C | Note |
| 66.22 | DC General Use Res Heating | 30 V | 25 A | –40…+70 | only 66.xx.9.x6x3 |
| 66.22/66.82 | AC Motor Starting, Discharge Lamps Break All lines | 240 V | 2 Hp | –40…+70 | 12FLA/69 LRA |
| | | 120 V | 1 Hp | — | 16FLA/96 LRA |
| | | 120 V | 1/2 Hp | — | 9.8FLA/58.8 LRA |

| Model | T5 | | | | |
|---|---|---|---|---|---|
| | Type of load | Voltage | Current/Power | Temperature °C | Note |
| 66.22.x.xxx.xxx3 x | DC General Use Res Heating | 30 V | 30 A | –40…+60 | only 66.xx.9.x6x3 |
| | AC Motor Starting, Discharge Lamps Break All lines | 240 V | 2 Hp | –40…+60 | 12FLA/69 LRA |
| | | 120 V | 1 Hp | | 16FLA/96 LRA |
| | | 120 V | 1/2 Hp | | 9.8FLA/58.8 LRA |
| | T6 | | | | |
| | Type of load | Voltage | Current | Temperature °C | — |
| | AC General Use | 277 V | 10 A (NC) | –40…+70 | — |

| Model | T5 | | | | |
|---|---|---|---|---|---|
| | Type of load | Voltage | Current/Power | Temperature °C | Note |
| 66.82.x.xxx.xxx3 x | AC General Use | 277 V | 25 (NO) | –40…+40 | — |
| | DC General Use | 30 V | 30 A | –40…+60 | only 66.xx.9.x6x3 |
| | AC Motor Starting, Discharge Lamps Break All lines | 240 V | 2 Hp | –40…+60 | 12FLA/69 LRA |
| | | 120 V | 1 Hp | | 16FLA/96 LRA |
| | | 120 V | 1/2 Hp | | 9.8FLA/58.8 LRA |
| | T6 | | | | |
| | Type of load | Voltage | Current | Temperature °C | — |
| | AC General Use | 277 V | 10 A (NC) | –40…+70 | — |

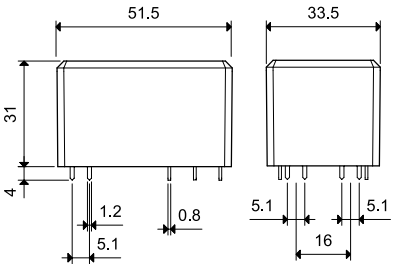
## HazLoc - Electrical characteristics

| Contact specification HazLoc | | HazLoc Class I Div. 2 T4 @ 60°C | HazLoc Class I Div. 2 T4 @ 70°C |
|---|---|---|---|
| Rated current/Maximum peak current | A | 30/50 (NO) - 10/20 (NC) | 25/50 (NO) - 10/20 (NC) |
| Rated voltage/Maximum switching voltage | V AC | 250/400 | 250/400 |
| Rated load AC1 | VA | 7500 (NO) - 2500 (NC) | 6250 (NO) - 2500 (NC) |
| Rated load AC15 | VA | 1200 (NO) | 1200 (NO) |
| Capacity for single phase motor (230 V AC) | kW | 1.5 (NO) | 1.5 (NO) |
| Breaking capacity DC1: 30/110/220 V | A | 25/0.7/0.3 (NO) | 25/0.7/0.3 (NO) |
| **Characteristics of coil** | | | |
| Rated voltage ($U_N$) | V AC (50/60 Hz) | 6 - 12 - 24 - 110/115 - 120/125 - 230 - 240 | |
| | V DC | 6 - 12 - 24 - 110 - 125 | |
| Rated Power AC/DC | VA (50 Hz)/W | 3.6/1.7 | |
| Operating range | AC/DC | (0.8…1.1)$U_N$ | |
| **General characteristics** | | | |
| Ambient temperature | °C | –40…+70 | |

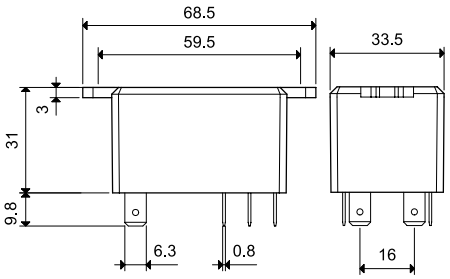
A

## Outline drawings

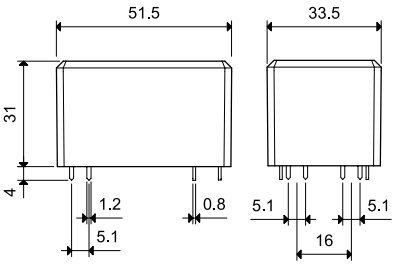
Type 66.22




Type 66.82




Type 66.22-0300

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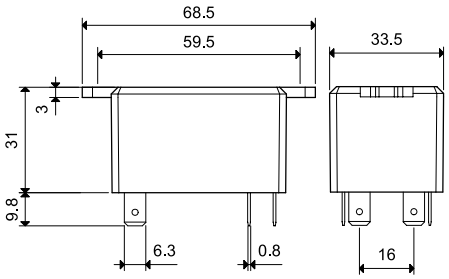


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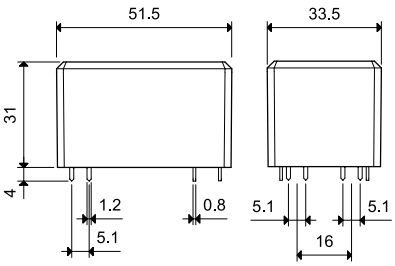
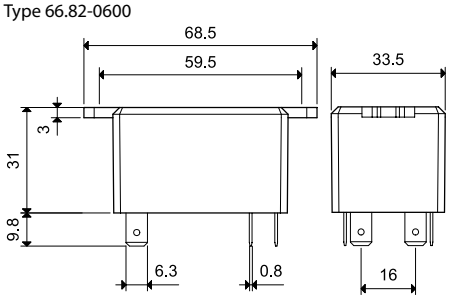
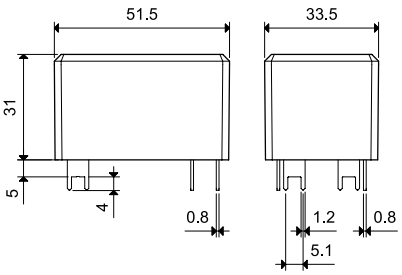



Type 66.82-0600




Type 66.22-0600S




## Accessories

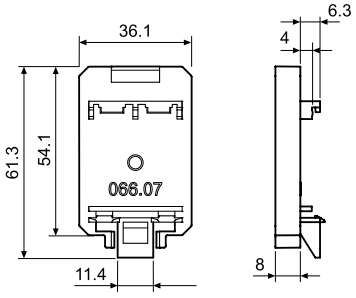


**066.07**

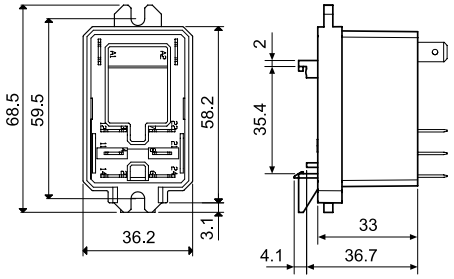


**066.07 with relay**

| | |
|---|---|
| **Top 35 mm rail (EN 60715) mount** for types 66.82.xxxx.0x00 | 066.07 |




066.07




066.07 with relay

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