

## 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

## 66.22



- 30 A rated contacts
- PCB mount - bifurcated terminals

## 66.82

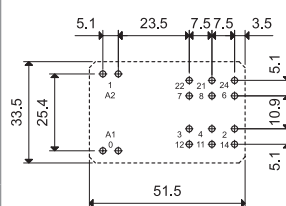
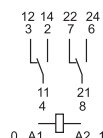


- 30 A rated contacts
- Flange mount
- Faston 250 connections

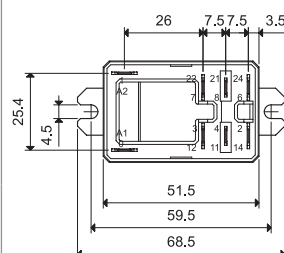
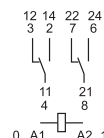
For outline drawing see page 7

FOR UL RATINGS SEE:

"General technical information" page V



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 - 12 - 24 - 110 - 125	
Rated power AC/DC	VA (50 Hz)/W	3.6/1.7	3.6/1.7
Operating range	AC	$(0.8 \dots 1.1) U_N$	
	DC	$(0.8 \dots 1.1) U_N$	
Holding voltage	AC/DC	$0.8 U_N / 0.5 U_N$	
Must drop-out voltage	AC/DC	$0.2 U_N / 0.1 U_N$	

### 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 $\mu$ s)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1500	1500
Ambient temperature range	$^{\circ}$ C	-40...+70	-40...+70
Environmental protection		RT II	RT II

### Approvals (according to type)



**2 Pole NO (DPST-NO)****30 A Power relay****Type 66.22-x300**

- PCB mount

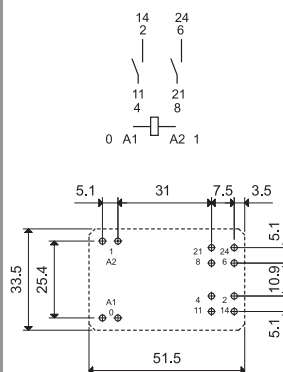
**Type 66.82-x300**

- 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

**66.22-x30x**

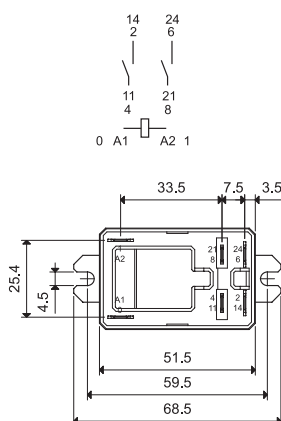
- 30 A rated contacts
- PCB mount - bifurcated terminals



Copper side view

**66.82-x30x**

- 30 A rated contacts
- Flange mount
- Faston 250 connections



For outline drawing see page 7

FOR UL RATINGS SEE:

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**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 - 12 - 24 - 110 - 125	
Rated power AC/DC	VA (50 Hz)/W	3.6/1.7	3.6/1.7
Operating range	AC	$(0.8 \dots 1.1) U_N$	$(0.8 \dots 1.1) U_N$
	DC	$(0.8 \dots 1.1) U_N$	$(0.8 \dots 1.1) U_N$
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 $\mu$ s)	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), $\geq 1.5$ mm contact gap 30 A Power relay

### Type 66.22-x600

- PCB mount

### Type 66.22-x600S

- PCB mount, 5 mm gap between PCB and relay base

### Type 66.82-x600

- Faston 250 connections and Flange mount

- $\geq 1.5$  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

For outline drawing see page 7

For UL RATINGS SEE:

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### Contact specification

Contact configuration

Rated current/Maximum peak current A

Rated voltage/

Maximum switching voltage V AC

Rated load AC1 VA

Rated load AC15 (230 V AC) VA

Single phase motor rating (230 V AC) kW

Breaking capacity DC1: 30/110/220 V A

Minimum switching load mW (V/mA)

Standard contact material

### Coil specification

Nominal voltage ( $U_N$ ) V AC (50/60 Hz)

V DC

Rated power AC/DC VA (50 Hz)/W

Operating range AC

DC

Holding voltage AC/DC

Must drop-out voltage AC/DC

### Technical data

Mechanical life cycles

Electrical life at rated load AC1 cycles

Operate/release time ms

Insulation between coil and contacts (1.2/50  $\mu$ s) kV

Dielectric strength between open contacts V AC

Ambient temperature range  $^{\circ}$ C

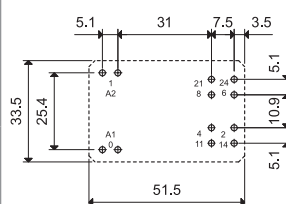
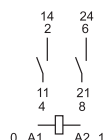
Environmental protection

Approvals (according to type)

## 66.22-x60x



- PCB mount - bifurcated terminals

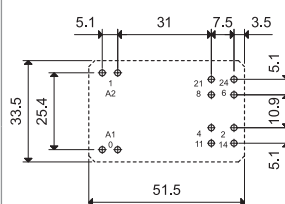
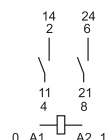


Copper side view

## 66.22-x60xS



- PCB mount - bifurcated terminals
- 5 mm gap between PCB and relay base

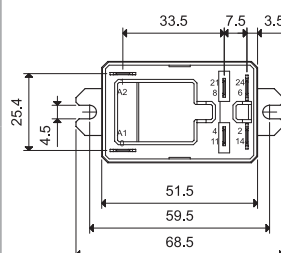
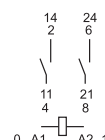


Copper side view

## 66.82-x60x



- Flange mount
- Faston 250 connections



## Ordering information

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

A

6 6 . 8 2 . 9 . 0 2 4 . 0 0 0 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

**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	<b>0 - 1</b>	<b>0 - 3</b>	<b>0</b>	<b>0 - 1</b>
	DC	<b>0 - 1</b>	<b>6</b>	<b>0</b>	<b>0 - 1</b>
66.22...S	DC	<b>0 - 1</b>	<b>6</b>	<b>0</b>	<b>0 - 1 - 3</b>
66.82	AC-DC	<b>0 - 1</b>	<b>0 - 3</b>	<b>0</b>	<b>0 - 1 - 3</b>
	DC	<b>0 - 1</b>	<b>6</b>	<b>0</b>	<b>0 - 1 - 3</b>

## A: Contact material

0 = Standard AgCdO

1 = AgNi

## B: Contact circuit

0 = CO (nPDT)

3 = NO (nPST)

6 = NO (nPST),  $\geq 1.5$  mm  
contact gap

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

## D: Special versions

0 = Standard

1 = Wash tight (RT III)

3 = ATEX compliant (Ex nC)

## C: Options

0 = None

## Technical data

## Insulation according to EN 61810-1

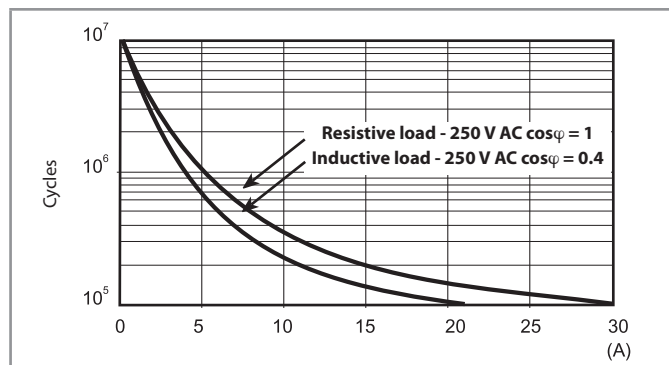
Nominal voltage of supply system	V AC	230/400
Rated insulation voltage	V AC	400
Pollution degree		3
<b>Insulation between coil and contact set</b>		
Type of insulation		Reinforced (8 mm)
Overvoltage category		III
Rated impulse voltage	kV (1.2/50 $\mu$ s)	6
Dielectric strength	V AC	4000
<b>Insulation between adjacent contacts</b>		
Type of insulation		Basic
Overvoltage category		III
Rated impulse voltage	kV (1.2/50 $\mu$ s)	4
Dielectric strength	V AC	2500
<b>Insulation between open contacts</b>		
	<b>2 CO</b>	<b>2 NO, <math>\geq 1.5</math> mm (x60x version)</b>
Type of disconnection	Micro-disconnection	Full-disconnection*
Overvoltage category	—	II
Rated impulse voltage	kV (1.2/50 $\mu$ s)	2.5
Dielectric strength	V AC/kV (1.2/50 $\mu$ s)	1500/2 2500/3
<b>Insulation between coil terminals</b>		
Rated impulse voltage (surge) differential mode (according to EN 61000-4-5)	kV(1.2/50 $\mu$ s)	4
<b>Other data</b>		
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	$\geq 10$

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

## Contact specification

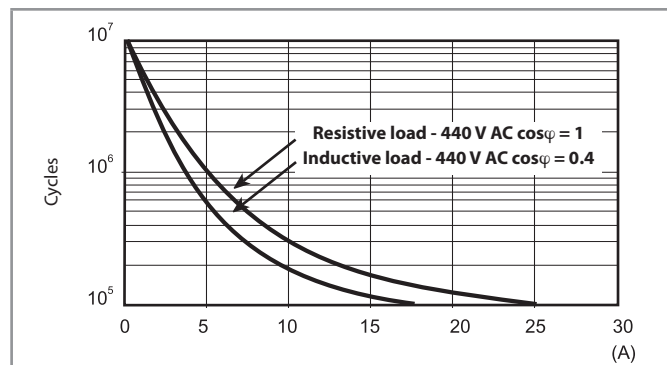
### F 66 - Electrical life (AC) v contact current

250 V (normally open contact)

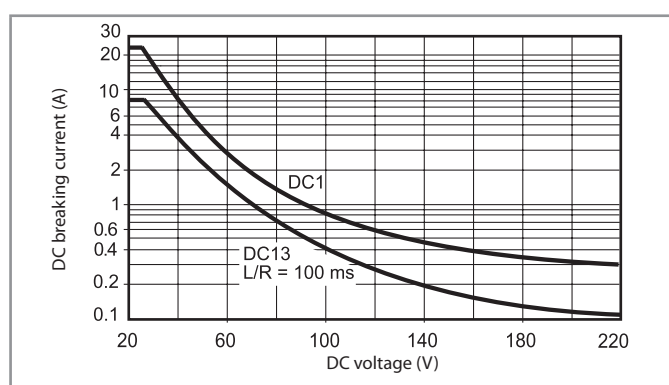


### F 66 - Electrical life (AC) v contact current

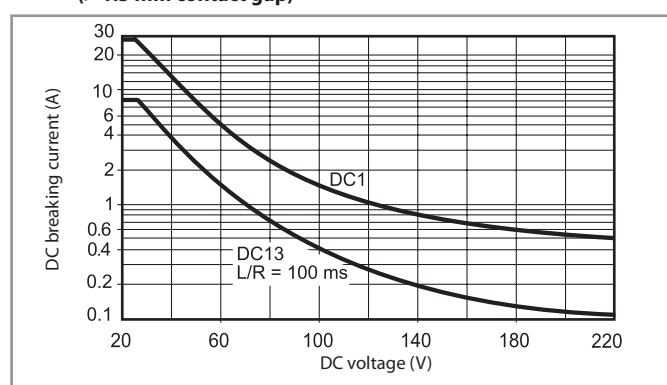
440 V (normally open contact)



### 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  $\geq 100 \cdot 10^3$  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

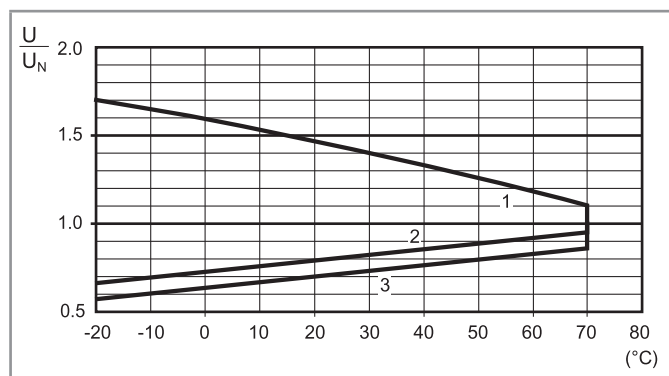
### DC coil data

Nominal voltage	Coil code	Operating range		Resistance	Rated coil Consumption
$U_N$		$U_{min}$	$U_{max}$	R	I at $U_N$
V		V	V	$\Omega$	mA
6	9.006	4.8	6.6	21	283
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

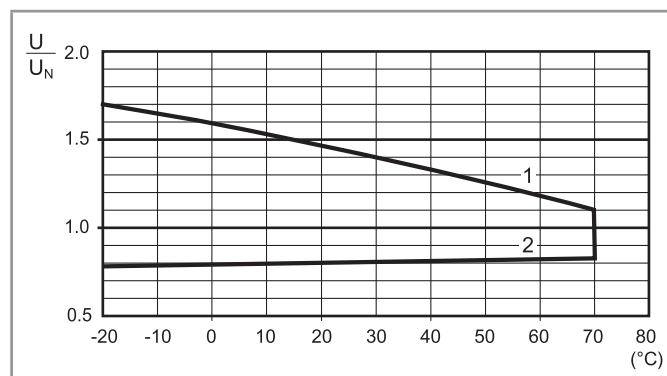
Nominal voltage	Coil code	Operating range		Resistance	Rated coil Consumption
$U_N$		$U_{min}$	$U_{max}$	R	I at $U_N$ (50 Hz)
V		V	V	$\Omega$	mA
6	8.006	4.8	6.6	3	600
12	8.012	9.6	13.2	11	300
24	8.024	19.2	26.4	50	150
110/115	8.110	88	126	930	32.6
120/125	8.120	96	137	1050	30
230	8.230	184	253	4000	15.7
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-x60x5)

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



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

## Features compliant variant ATEX, II 3G Ex nC IIC Gc

A

### MARKING



Specific marking of explosion protection

II

Component for surface plant (different from mines)

3

Category 3: normal level of protection

GAS

G

Explosive atmosphere due to presence of combustible gas vapour or mist

Ex nC

Sealed device (type of protection for category 3G)

IIC

Gas group

Gc

Equipment Protection Level

 $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ 

Ambient temperature

EUT 14 ATEX 0150 U

EUT: laboratory which issues the CE type certificate

14: year of issue of certificate

0150: number of CE type certificate

U: ATEX component



## Electrical characteristics

### Characteristics of terminals

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	$(0.8 \dots 1.1) U_N$

### General characteristics

Ambient temperature	$^{\circ}\text{C}$	$-40 \dots +70$
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## 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.

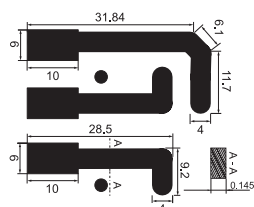
The connections must be made in compliance with the requirements of clause 7.2.4 or 7.2.5 of EN 60079-15.

## Wiring

The cross-section of conductors connected to the terminals, must be at least 4 mm<sup>2</sup> for the Type 66.82.

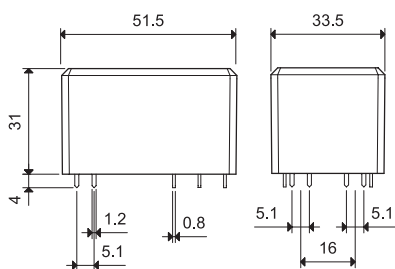
## Layout pcb

The minimum cross-section of the tracks of the printed circuit board must be 0.58 mm<sup>2</sup>, while the width must be at least 4 mm for Types "66.22" and "66.22....S".

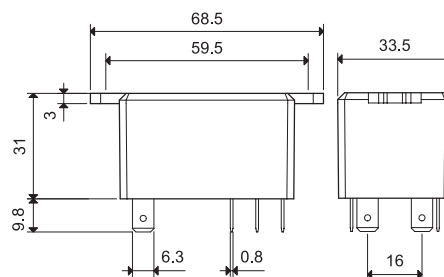


## Outline drawings

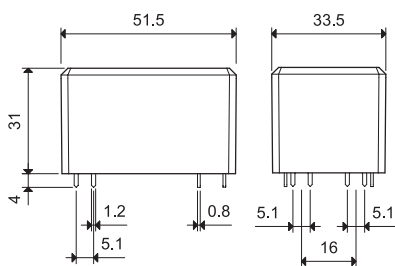
Type 66.22



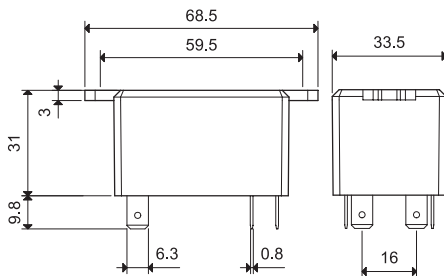
Type 66.82



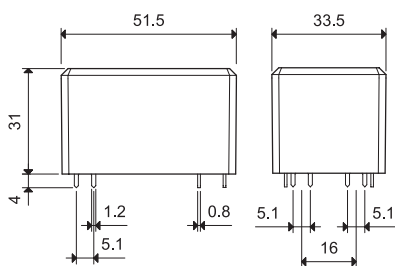
Type 66.22-0300



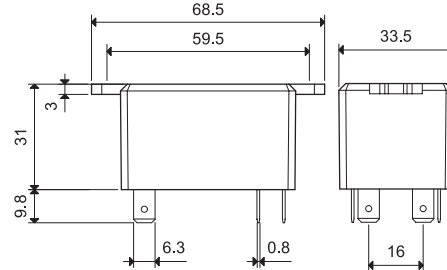
Type 66.82-0300



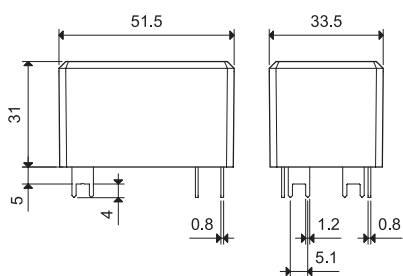
Type 66.22-0600



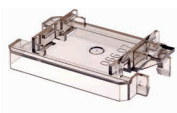
Type 66.82-0600



Type 66.22-0600S



## Accessories



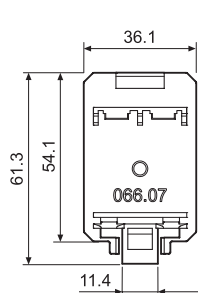
**066.07**



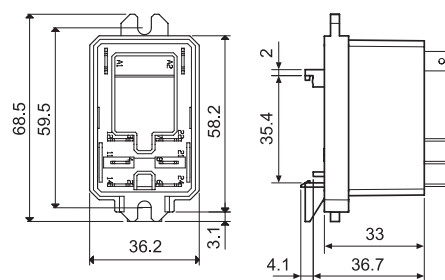
**066.07 with relay**

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

066.07



066.07



066.07 with relay

