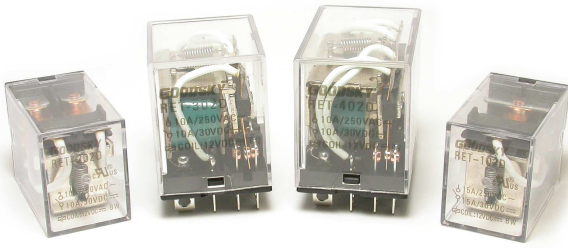


## Main Feature



1. 1 Pole to 4-Poles versions available with switching current at 15A (1 Pole) and 10A (2-4 Poles).
2. Printed Circuit Board Terminal, Plug-in Terminal and Flanged Case are designed for easy mounting.
3. Both AC and DC coil available.
4. Low coil power consumption with high response time.
5. High reliability and long life with better vibration and shock resistance.
6. 1/3 HP on RET 2 Poles series is certified by UL.
7. Touch Button and LED version available.

## Contact Rating

| Load Type                  | RET-1P     | RET-2P        | RET-3P     | RET-4P     |
|----------------------------|------------|---------------|------------|------------|
| Rated Load (Resistive)     | 15A 250VAC | 10A 250VAC    | 10A 250VAC | 10A 250VAC |
|                            | 15A 30VDC  | 10A 30VDC     | 10A 30VDC  | 10A 30VDC  |
| Contact Capacity           | -          | 1/3 HP 250VAC | -          | -          |
| Rated Carrying Current     | 15A        | 10A           | 10A        | 10A        |
| Max. Allowable Voltage     | AC 250V    | AC 250V       | AC 250V    | AC 250V    |
|                            | DC 110V    | DC 110V       | DC 110V    | DC 110V    |
| Max. Allowable Current     | 15A        | 10A           | 10A        | 10A        |
| Max. Allowable Power Force | 1,700VA    | 1,100VA       | 1,100VA    | 1,100VA    |
|                            | 360W       | 240W          | 240W       | 240W       |
| Contact Material           | Ag Alloy   | Ag Alloy      | Ag Alloy   | Ag Alloy   |
| Contact Form               | SPDT, SPST | DPDT, DPST    | 3PDT, 3PST | 4PDT, 4PST |

## Application

Vending Machine, Cooking Appliances, Office Machine, Domestic Appliances, Control Equipment, etc.

## Performance (at Initial Value)

- Contact Resistance ..... 100 mΩ Max. @1A,6VDC
- Operate Time..... 25 mSec. Max.
- Release Time ..... 25 mSec. Max.
- Dielectric Strength:
  - Between Coil & Contact..... 1,500VAC at 50/60 Hz for one minute
  - Between Contacts ..... 1,000VAC at 50/60 Hz for one minute
- Surge Strength..... 3,000V (between Coil & Contact 1.2x50μSec.)
- Insulation Resistance ..... 100 MegaΩ Min. at 500VDC
- Max. On/Off Switching:
  - Electrical..... 6 Cycles per Minute
  - Mechanical ..... 300 Cycles per Minute
- Temperature Range..... -25~+55°C
- Humidity Range..... 45~85% RH.
- Coil Temperature Rise..... 60°C Max.

- Vibration:
  - Endurance..... 10 to 55 Hz dual amplitude width 1.5mm
  - Error Operation ..... 10 to 55 Hz dual amplitude width 1.5mm
- Shock:
  - Endurance ..... 1,000 m/S<sup>2</sup>
  - Error Operation ..... 100 m/S<sup>2</sup>
- Life Expectancy:
  - Mechanical ..... 10<sup>7</sup> Operations at No Load condition
  - Electrical ..... 10<sup>5</sup> Operations at Rated Resistive Load
- Weight.....
  - 1-2P :About 35 g
  - 3P :About 53.2g
  - 4P :About 66.5g

## Safety Standard & File Number

- UL & C-UL (1-pole & 2-pole).....E141060

## Coil Specification (at 20°C)

| Coil Sensitivity            | Coil Voltage Code | Nominal Voltage (VAC/VDC) | Nominal Current (mA) |       | Coil Resistance ( $\Omega \pm 10\%$ ) | Power Consumption                 |                | Pull-In Voltage (VDC) | Drop-Out Voltage (VDC) | Max.Allowable Voltage (VDC) |
|-----------------------------|-------------------|---------------------------|----------------------|-------|---------------------------------------|-----------------------------------|----------------|-----------------------|------------------------|-----------------------------|
|                             |                   |                           | 50 Hz                | 60 Hz |                                       | 50Hz                              | 60Hz           |                       |                        |                             |
|                             |                   |                           |                      |       |                                       |                                   |                |                       |                        |                             |
| RET<br>1-P & 2-P<br>AC Coil | 01                | 6                         | 282.7                | 214.3 | 10                                    | 1.7VA                             | 1.29VA         | 80%<br>Maximum        | 30%<br>Minimum         | 110%                        |
|                             | 02                | 12                        | 106.2                | 94.9  | 40                                    | 1.27VA                            | 1.14VA         |                       |                        |                             |
|                             | 03                | 24                        | 52.8                 | 45.5  | 160                                   | 1.27VA                            | 1.09VA         |                       |                        |                             |
|                             | 04                | 48                        | 23.7                 | 20.0  | 600                                   | 1.1VA                             | 0.96VA         |                       |                        |                             |
|                             | 05                | 110                       | 12.5                 | 10.3  | 3,400                                 | 1.37VA                            | 1.13VA         |                       |                        |                             |
|                             | 06                | 120                       | 16.8                 | 14.3  | 3,400                                 | 2.01VA                            | 1.72VA         |                       |                        |                             |
|                             | 07                | 220                       | 6.2                  | 5.1   | 13,600                                | 1.36VA                            | 1.12VA         |                       |                        |                             |
|                             | 08                | 240                       | 7.2                  | 5.9   | 13,600                                | 1.74VA                            | 1.41VA         |                       |                        |                             |
|                             | 09                | 230                       | 7.0                  | 5.7   | 13,600                                | 1.61VA                            | 1.31VA         |                       |                        |                             |
| RET<br>3-P<br>AC Coil       | 01                | 6                         | 310                  | 270   | 6.7                                   | Abt.<br>1.6 to 2.0VA<br>(60 Hz)   | 80%<br>Maximum | 30%<br>Minimum        | 110%                   |                             |
|                             | 02                | 12                        | 159                  | 134   | 24                                    |                                   |                |                       |                        |                             |
|                             | 03                | 24                        | 80                   | 67    | 100                                   |                                   |                |                       |                        |                             |
|                             | 04                | 48                        | 38                   | 33    | 410                                   |                                   |                |                       |                        |                             |
|                             | 05                | 110                       | 16                   | 13.7  | 2,300                                 |                                   |                |                       |                        |                             |
|                             | 06                | 120                       | 15.4                 | 13.2  | 2,300                                 |                                   |                |                       |                        |                             |
|                             | 07/08             | 220/240                   | 10                   | 8.5   | 8,650                                 |                                   |                |                       |                        |                             |
| RET<br>4-P<br>AC Coil       | 01                | 6                         | 386                  | 330   | 5                                     | Abt.<br>1.95 to 2.5 VA<br>(60 Hz) | 80%<br>Maximum | 30%<br>Minimum        | 110%                   |                             |
|                             | 02                | 12                        | 199                  | 170   | 20                                    |                                   |                |                       |                        |                             |
|                             | 03                | 24                        | 93.6                 | 80    | 78                                    |                                   |                |                       |                        |                             |
|                             | 04                | 48                        | 46.8                 | 40    | 350                                   |                                   |                |                       |                        |                             |
|                             | 05                | 110                       | 25.5                 | 21.8  | 1,600                                 |                                   |                |                       |                        |                             |
|                             | 06                | 120                       | 24.5                 | 21    | 1,600                                 |                                   |                |                       |                        |                             |
|                             | 07/08             | 220/240                   | 13.1                 | 11.2  | 6,700                                 |                                   |                |                       |                        |                             |
| RET<br>1-P & 2-P<br>DC Coil | 01                | 6                         | 150                  |       | 40                                    | Abt. 0.9 W                        | 80%<br>Maximum | 10%<br>Minimum        | 110%                   |                             |
|                             | 02                | 12                        | 75                   |       | 160                                   |                                   |                |                       |                        |                             |
|                             | 03                | 24                        | 36.9                 |       | 650                                   |                                   |                |                       |                        |                             |
|                             | 04                | 48                        | 18.5                 |       | 2,600                                 |                                   |                |                       |                        |                             |
|                             | 05                | 110                       | 10                   |       | 11,000                                |                                   |                |                       |                        |                             |
|                             | 06                | 120                       | 10                   |       | 11,000                                |                                   |                |                       |                        |                             |
|                             | 10                | 60                        | 15                   |       | 4,000                                 |                                   |                |                       |                        |                             |
| RET<br>3-P<br>DC Coil       | 01                | 6                         | 234                  | 25.7  |                                       | Abt. 1.4 W                        | 80%<br>Maximum | 10%<br>Minimum        | 110%                   |                             |
|                             | 02                | 12                        | 112                  | 107   |                                       |                                   |                |                       |                        |                             |
|                             | 03                | 24                        | 58.6                 | 410   |                                       |                                   |                |                       |                        |                             |
|                             | 04                | 48                        | 28.2                 | 1,700 |                                       |                                   |                |                       |                        |                             |
|                             | 05                | 110                       | 13                   | 8,500 |                                       |                                   |                |                       |                        |                             |
|                             | 06                | 120                       | 14.1                 | 8,500 |                                       |                                   |                |                       |                        |                             |
| RET<br>4-P<br>DC Coil       | 01                | 6                         | 240                  | 25    |                                       | Abt. 1.5 W                        | 80%<br>Maximum | 10%<br>Minimum        | 110%                   |                             |
|                             | 02                | 12                        | 120                  | 100   |                                       |                                   |                |                       |                        |                             |
|                             | 03                | 24                        | 69                   | 350   |                                       |                                   |                |                       |                        |                             |
|                             | 04                | 48                        | 30                   | 1,600 |                                       |                                   |                |                       |                        |                             |
|                             | 05                | 110                       | 15.9                 | 6,900 |                                       |                                   |                |                       |                        |                             |
|                             | 06                | 120                       | 17.4                 | 6,900 |                                       |                                   |                |                       |                        |                             |

# RET

## Ordering Information

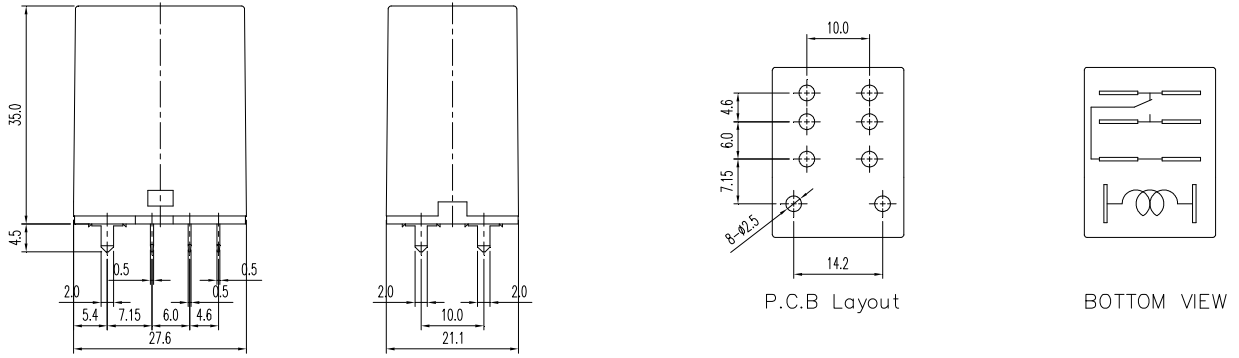
|         |    |   |   |   |   |   |   |                        |   |
|---------|----|---|---|---|---|---|---|------------------------|---|
| RET - 2 | 01 | D | M | P | F | L | T |                        |   |
|         |    |   |   |   |   |   |   | <b>Touch Button:</b>   | <b>Nil:</b> Standard Relay<br><b>T:</b> With Touch Button Selection   |
|         |    |   |   |   |   |   |   | <b>LED:</b>            | <b>Nil:</b> Standard Relay<br><b>L:</b> With LED Selection (Use Polarity LED)<br><b>Z:</b> Coil Parallel with Diode & the Positive Pole<br>“+” On #8(RET-1P,RET-2P) 、#11(RET-3P) 、#14(RET-4P)<br><b>Y:</b> Coil Parallel with Diode & the Negative Pole<br>“-” On #8(RET-1P,RET-2P) 、#11(RET-3P) 、#14(RET-4P)<br><b>X:</b> Coil Parallel with Diode + LED & the Positive Pole<br>“+” On #8(RET-1P,RET-2P) 、#11(RET-3P) 、#14(RET-4P)<br><b>V:</b> Coil Parallel with Diode + LED & the Negative Pole<br>“-” On #8(RET-1P,RET-2P) 、#11(RET-3P) 、#14(RET-4P) |
|         |    |   |   |   |   |   |   | <b>Case Type:</b>      | <b>Nil:</b> Standard Square Shape<br><b>F:</b> Flanged Case   |
|         |    |   |   |   |   |   |   | <b>Terminal Type:</b>  | <b>Nil:</b> Solder Lug Terminal<br><b>P:</b> PC Board Terminal  |
|         |    |   |   |   |   |   |   | <b>Contact Form:</b>   | <b>Nil:</b> Form C<br><b>M:</b> Form A<br><b>B:</b> Form B  |
|         |    |   |   |   |   |   |   | <b>Coil Type:</b>      | <b>D:</b> Standard DC<br><b>A:</b> Standard AC  |
|         |    |   |   |   |   |   |   | <b>Coil Code:</b>      | <b>01:</b> 6V, <b>02:</b> 12V, <b>03:</b> 24V, <b>04:</b> 48V, <b>05:</b> 110V,<br><b>06:</b> 120V, <b>07:</b> 220V, <b>08:</b> 240V, <b>09:</b> 230V, <b>10:</b> 60V   |
|         |    |   |   |   |   |   |   | <b>Number of Pole:</b> | <b>1:</b> 1 Pole<br><b>2:</b> 2 Poles<br><b>3:</b> 3 Poles<br><b>4:</b> 4 Poles   |
|         |    |   |   |   |   |   |   | <b>Type:</b>           | <b>RET</b>  |

## Classification

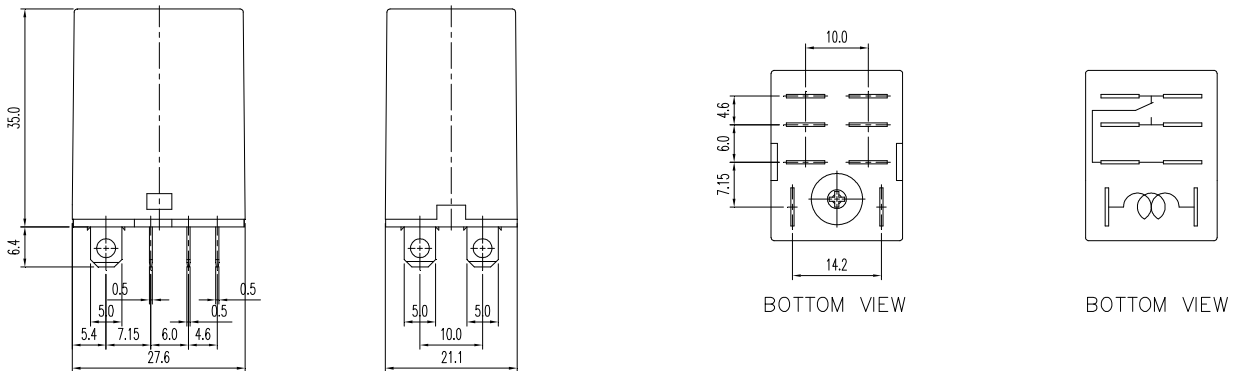
| Model           | RET   |              |   |              |   |              |   |              |
|-----------------|---|--------------|---|--------------|---|--------------|---|--------------|
|                 | AC  |              |   |              | DC  |              |   |              |
| Coil Type       |   |              |   |              |   |              |   |              |
| Number Of Poles | 1C / 1A / 1B  | 2C / 2A / 2B | 3C / 3A / 3B                            | 4C / 4A / 4B | 1C / 1A / 1B  | 2C / 2A / 2B | 3C / 3A / 3B                            | 4C / 4A / 4B |
| Contact Form    | RET-1/2□□A/AM/AB  |              | RET-3/4□□A/AM/AB                        |              | RET-1/2□□A/AM/AB  |              | RET-3/4□□A/AM/AB                        |              |
| Terminal Type   | RET-1/2□□A/AM/AB<br>RET-1/2□□AP/AMP/ABP   |              | RET-3/4□□A/AM/AB<br>RET-3/4□□AP/AMP/ABP |              | RET-1/2□□A/AM/AB<br>RET-1/2□□AP/AMP/ABP   |              | RET-3/4□□A/AM/AB<br>RET-3/4□□AP/AMP/ABP |              |
| Case Type       | RET-1/2□□A/AM/AB<br>RET-1/2□□AF/AMF/ABF   |              | NIL                                     |              | RET-1/2□□D/DM/DB<br>RET-1/2□□DF/DMF/DBF   |              | NIL                                     |              |
| LED             | RET-1/2□□AL/AML/ABL<br>RET-1/2□□APL/AMPL/ABPL<br>RET-1/2□□AFL/AMFL/ABFL   |              | NIL                                     |              | RET-1/2□□DL/DML/DBL<br>RET-1/2□□DPL/DMPL/BPL<br>RET-1/2□□DFL/DMFL/DBFL  |              | NIL                                     |              |
| Touch Button    | RET-1/2□□AT/AMT/ABT<br>RET-1/2□□<br>APLT/AMPLT/ABPLT<br>RET-1/2□□ALT/AMLT/ABLT<br>RET-1/2□□<br>AFLT/AMFLT/ABFLT |              | NIL                                     |              | RET-1/2□□DT/DMT/DBT<br>RET-1/2□□<br>DPLT/DMPLT/DBPLT<br>RET-1/2□□DLT/DMLT/DBLT<br>RET-1/2□□<br>DFLT/DMFLT/DBFLT |              | NIL                                     |              |

Dimension ( $\leq 5\text{mm} \pm 0.2\text{mm}$ ,  $> 5\text{mm} \pm 0.3\text{mm}$ , the tolerance of PCB thru hole:  $+0.1\text{mm}$ )

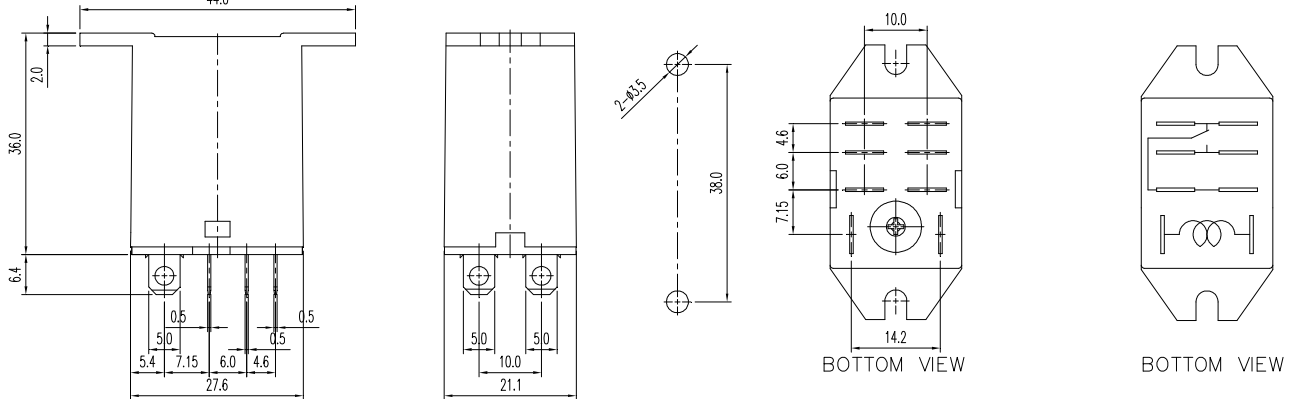
RET-1-P



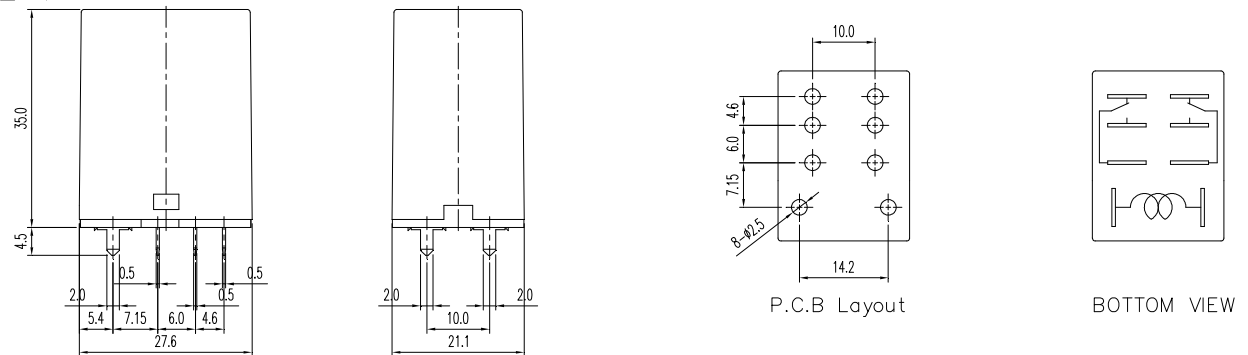
RET-1



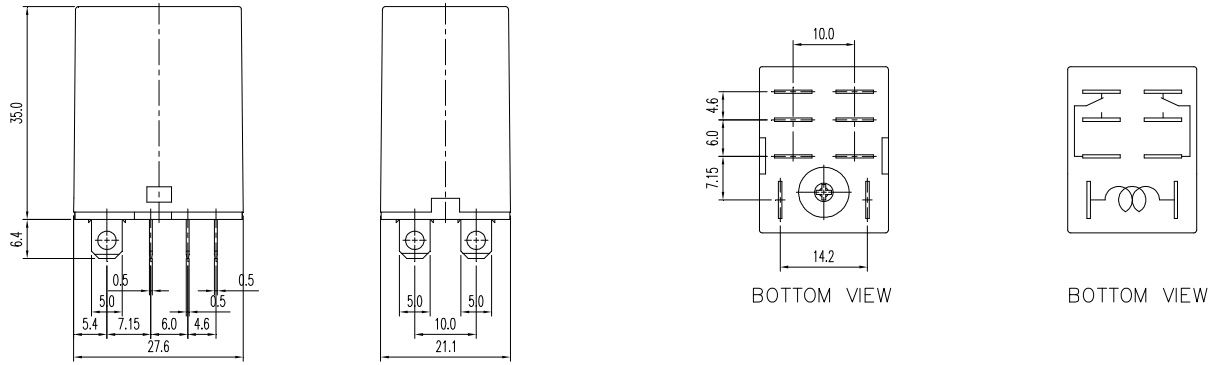
RET-1-F



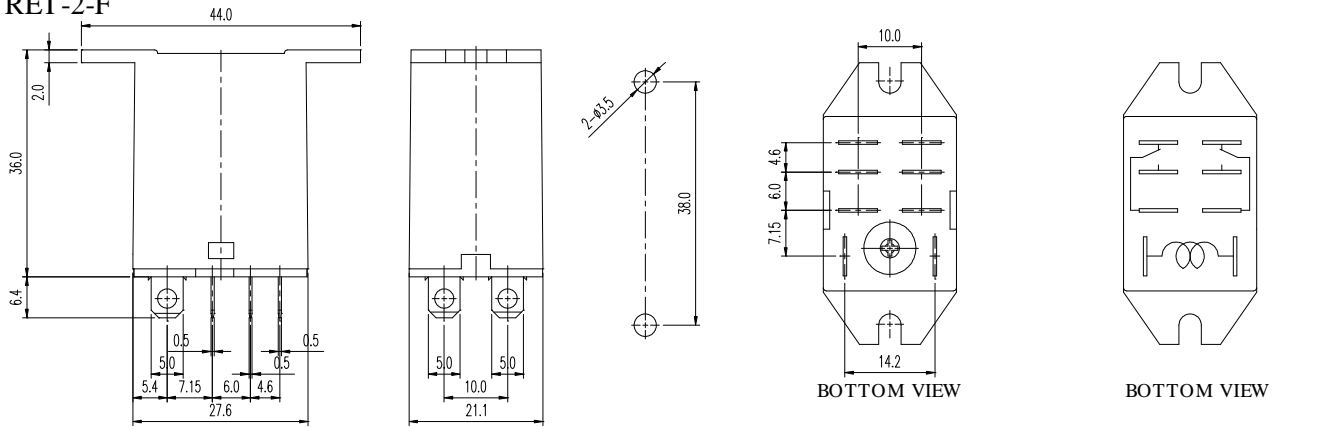
RET-2-P



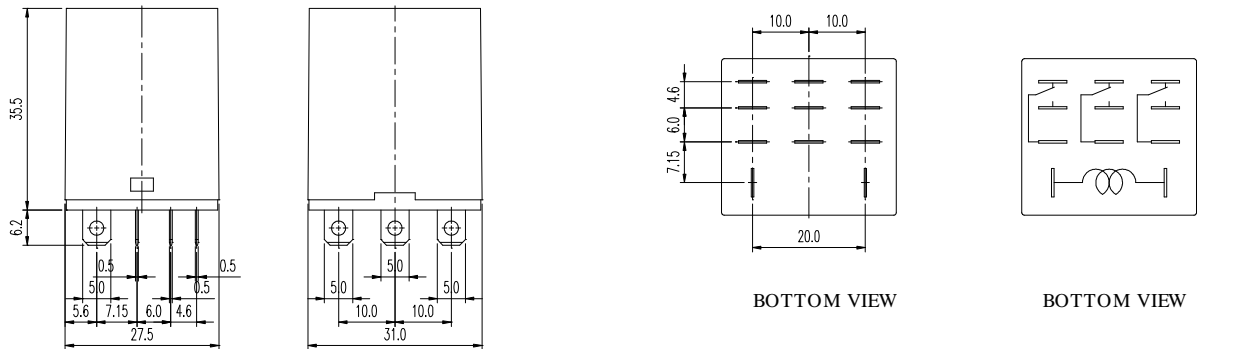
RET-2



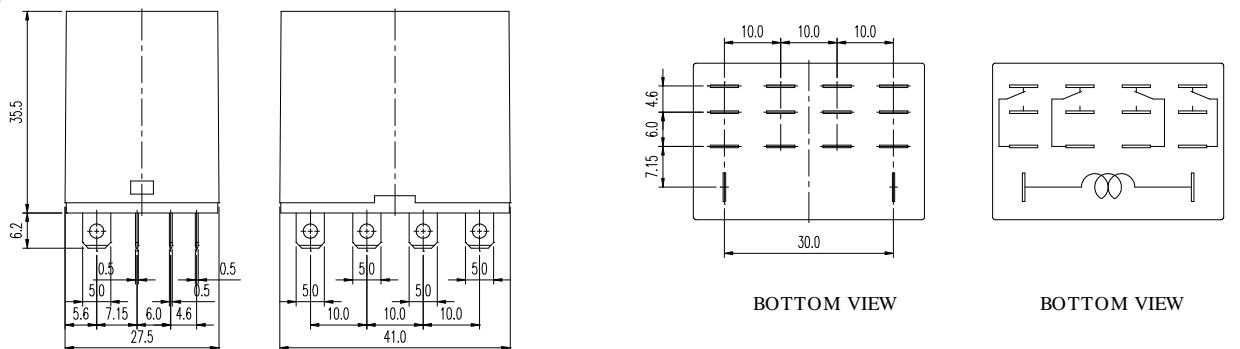
RET-2-F



RET-3



RET-4



## Accessories & Sockets

### RET-1P/2P

- PTF-08A .....See Page 175
- PTF-08AE .....See Page 175
- PT-08 .....See Page 181
- PT-08-0 .....See Page 181

### RET-4P

- PTF-14A.....See Page 175
- PTF-14AE..... See Page 175

## Wiring diagrams (Bottom view)

| RET-1P        |               |               |               |               |                        |
|---------------|---------------|---------------|---------------|---------------|------------------------|
| RET-1□D□□□□L□ | RET-1□D□□□□Z□ | RET-1□D□□□□Y□ | RET-1□D□□□□X□ | RET-1□D□□□□V□ | AC Coil Model With LED |
|               |               |               |               |               |                        |
| RET-2P        |               |               |               |               |                        |
| RET-2□D□□□□L□ | RET-2□D□□□□Z□ | RET-2□D□□□□Y□ | RET-2□D□□□□X□ | RET-2□D□□□□V□ | AC Coil Model With LED |
|               |               |               |               |               |                        |
| RET-3P        |               |               |               |               |                        |
| RET-3□D□□□□L□ | RET-3□D□□□□Z□ | RET-3□D□□□□Y□ | RET-3□D□□□□X□ | RET-3□D□□□□V□ | AC Coil Model With LED |
|               |               |               |               |               |                        |
| RET-4P        |               |               |               |               |                        |
| RET-4□D□□□□L□ | RET-4□D□□□□Z□ | RET-4□D□□□□Y□ | RET-4□D□□□□X□ | RET-4□D□□□□V□ | AC Coil Model With LED |
|               |               |               |               |               |                        |