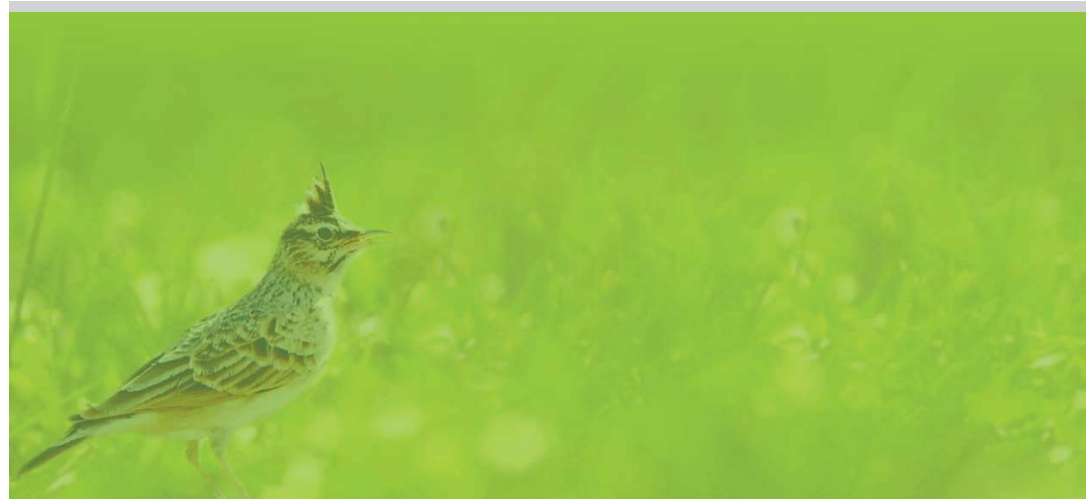
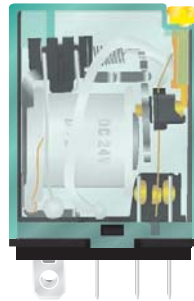


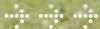
# ZY/DY series Miniature Power Relay

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**APT** 

ZY/DY series miniature power relay



## ZY/DY series miniature power relay

Model explanation **01**

ZY series miniature power relay **02 -- 13**

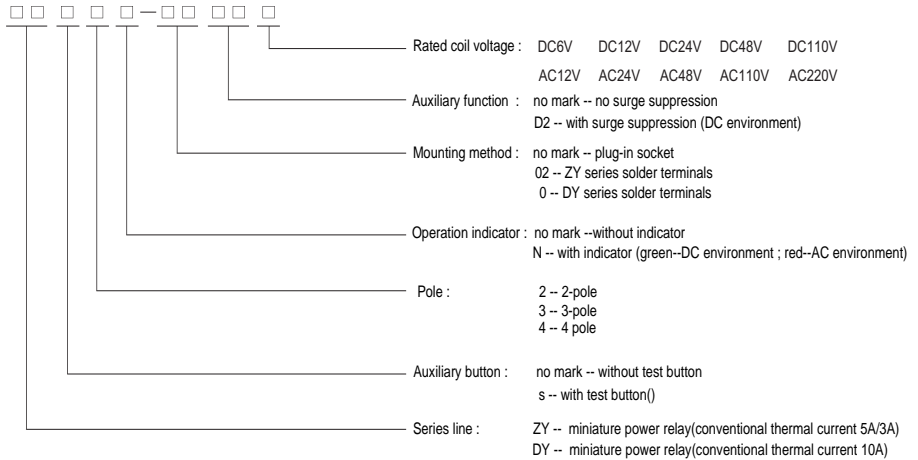
DY series miniature power relay **14 -- 21**

Model reference **22**



# ZY/DY series miniature power relay

## Ordering information



## ZY series miniature power relay

### ZY2 (2-pole)



ZY2  
Standard Model



SYF08A  
Back-connecting socket



SYF08A - E  
Back-connecting socket



SYF08A - F  
Back-connecting socket



SKB08 - E  
Back-connecting socket



ZYS2  
Relay with test button



SYF08A1  
Back-connecting socket



SYF08A1 - E  
Back-connecting socket

| Type                              | Model  | Rated voltage  |
|-----------------------------------|--------|--|
| Standard model                    | ZY2    | DC: 6V、12V、24V、48V、110V<br>AC: 12V、24V、48V、110V、220V |
| Relay with test button            | ZYS2   |  |
| Relay with solder terminals       | ZY2-02 |  |
| Relay with operation indicator    | ZY2N   |  |
| Relay with surge suppression (DC) | ZY2-D2 |  |

For example : ZYS2N - 02D2DC12V means -----

2-pole ,solder terminals, with test button , operation indicator and surge suppression , rated voltage is DC12V

# ZY/DY series miniature power relay

## ZY3 (3-pole)



ZY3  
Standard Model



SYF11A  
Back-connecting socket



SYF11A - E  
Back-connecting socket



ZYS3  
Relay with test button



SYF11A1  
Back-connecting socket



SYF11A1 - E  
Back-connecting socket

| Type                              | Model  | Rated voltage  |
|-----------------------------------|--------|--|
| Standard model                    | ZY3    | DC: 6V、12V、24V、48V、110V<br>AC: 12V、24V、48V、110V、220V |
| Relay with test button            | ZYS3   |  |
| Relay with solder terminals       | ZY3-02 |  |
| Relay with operation indicator    | ZY3N   |  |
| Relay with surge suppression (DC) | ZY3-D2 |  |

For example : ZYS3N - 02D2DC12V means -----

3-pole ,solder terminals, with test button , operation indicator and surge suppression , rated voltage is DC12V

## ZY4 (4-pole)



ZY4  
Standard Model



SYF14A  
Back-connecting socket



SYF14A - E  
Back-connecting socket



SKB14 - E  
Back-connecting socket



ZYS 4  
Relay with test button



SYF14A1  
Back-connecting socket



SYF14A1 - E  
Back-connecting socket

| Type                              | Model  | Rated voltage  |
|-----------------------------------|--------|--|
| Standard model                    | ZY4    | DC: 6V, 12V, 24V, 48V, 110V<br>AC: 12V, 24V, 48V, 110V, 220V |
| Relay with test button            | ZYS4   |  |
| Relay with solder terminals       | ZY4-02 |  |
| Relay with operation indicator    | ZY4N   |  |
| Relay with surge suppression (DC) | ZY4-D2 |  |

For example : ZYS4N - 02D2DC12V means -----

4-pole , solder terminals, with test button , operation indicator and surge suppression , rated voltage is DC12V

## ZY/DY series miniature power relay

### Technical data

#### (1) Basic technical data

|   |                         | ZY2/ZYS2   | ZY3/ZYS3 | ZY4/ZYS4 |
|---|-------------------------|--|----------|----------|
| Conventional thermal current            |                         | 5A   |          | 3A       |
| Rated thermal voltage                   |                         | 250V AC, 125V DC   |          |          |
| Max coil voltage                        |                         | 110% of rated voltage  |          |          |
| Operate time                            |                         | < 20ms   |          |          |
| Release time                            |                         | < 20ms   |          |          |
| Transfer time (contact)                 |                         | > 0.15ms   |          |          |
| Contact resistance                      |                         | < 50mΩ   |          |          |
| Max contact voltage                     |                         | 250V AC, 125V DC   |          |          |
| Insulation resistance                   |                         | > 100MΩ  |          |          |
| Power-frequency<br>withstand<br>voltage | Between opened contacts | AC1100V, 50Hz, 1min  |          |          |
|   | pole to pole            | AC2200V, 50Hz, 1min  |          |          |
|   | contact to coil         | AC2200V, 50Hz, 1min  |          |          |
|   | contact/coil-ground     | AC1800V, 50Hz, 1min  |          |          |
| Operating frequency                     |                         | < 30 operations / minute   |          |          |
| Vibration resistance                    |                         | 10 -- 55Hz 1.0mm double amplitude, 1min                                  |          |          |
| Shock resistance                        |                         | 200m/s <sup>2</sup>  |          |          |
| Electrical life                         |                         | 2 × 10 <sup>5</sup> operations   |          |          |
| Mechanical life                         |                         | AC : 2 × 10 <sup>6</sup> operations ; DC : 5 × 10 <sup>7</sup> operation |          |          |
| Weight                                  |                         | Approx 38g   |          |          |

## (2) Coil ratings

| Rated voltage | Pick-up voltage | Release voltage | Coil current as contacts pick-up | Power consumption |
|---------------|-----------------|-----------------|----------------------------------|-------------------|
| DC 6V         | ≤4.5V           | ≥0.6V           | ≤200mA                           |                   |
| DC 12V        | ≤9V             | ≥1.2V           | ≤100mA                           |                   |
| DC 24V        | ≤18V            | ≥2.4V           | ≤50mA                            | Approx 0.9W       |
| DC 48V        | ≤36V            | ≥4.8V           | ≤25mA                            |                   |
| DC 110V       | ≤82.5V          | ≥11V            | ≤10.9mA                          |                   |
| AC 12V        | ≤9.6V           | ≥3.6V           | ≤134mA                           |                   |
| AC 24V        | ≤19.2V          | ≥7.2V           | ≤67mA                            |                   |
| AC 48V        | ≤38.4V          | ≥14.4V          | ≤33.5mA                          | Approx 1.2VA      |
| AC 110V       | ≤88V            | ≥33V            | ≤14.6mA                          |                   |
| AC 220V       | ≤176V           | ≥66V            | ≤7.3mA                           |                   |

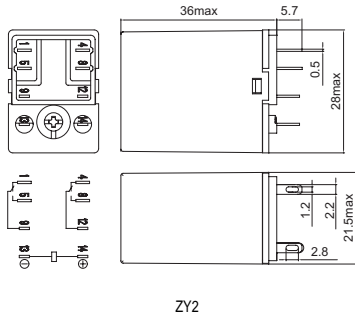
- Remark : 1. Above technical data are measured at a surrounding temperature of 25 °C .  
 2.. AC coil resistance and impedance are provided as reference values (at 50Hz)  
 3. Other rated voltage will be manufactured upon request.

## (3) Max contact capacity

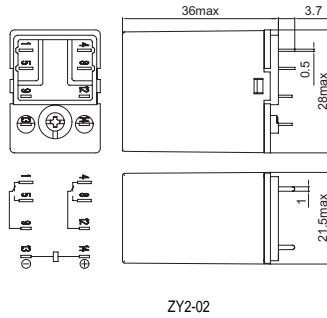
| Model             | Resistive load | Lagging load |
|-------------------|----------------|--------------|
| ZY2/ZYS2/ZY3/ZYS3 | DC110V, 0.3A   | DC110V, 0.2A |
|                   | DC30V, 5A      | DC30V, 1A    |
|                   | AC240V, 5A     | AC240V, 1A   |
| ZY4/ZYS4          | DC110V, 0.3A   | DC110V, 0.2A |
|                   | DC30V, 3A      | DC30V, 0.5A  |
|                   | AC240V, 3A     | AC240V, 0.5A |

# ZY/DY series miniature power relay

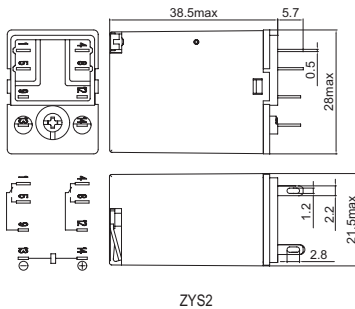
## Outline dimension / Internal connections



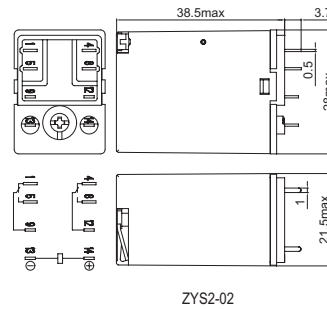
ZY2



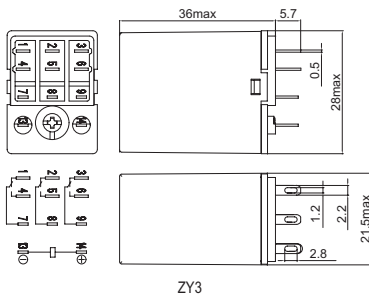
ZY2-02



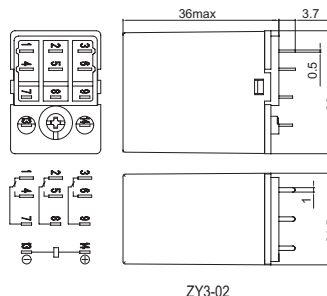
ZYS2



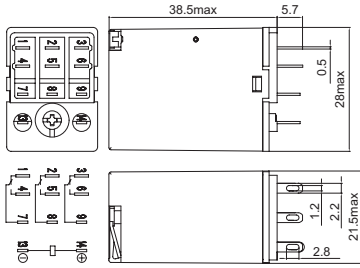
ZYS2-02



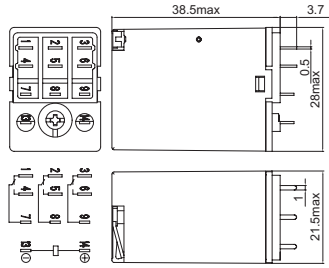
ZY3



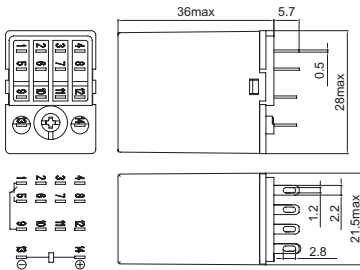
ZY3-02



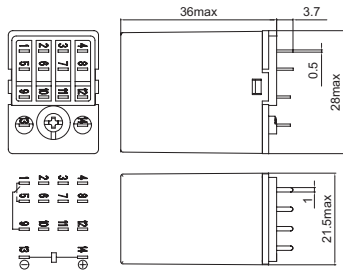
ZYS3



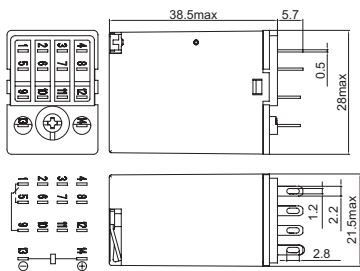
ZYS3-02



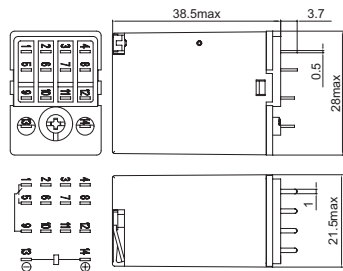
ZY4



ZY4-02

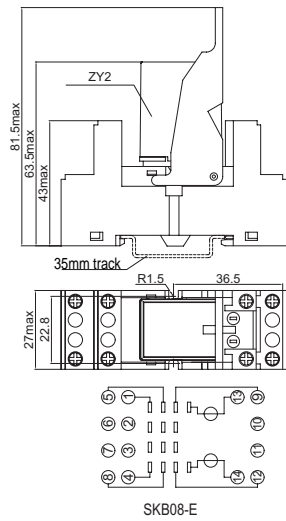
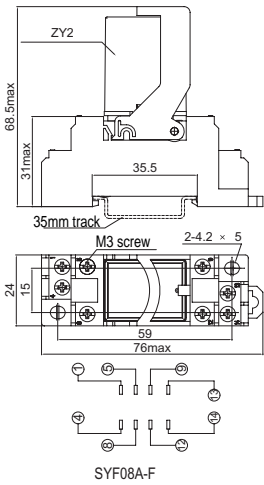
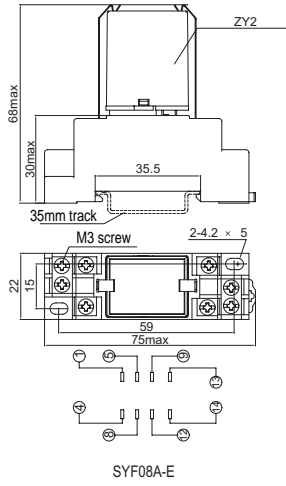
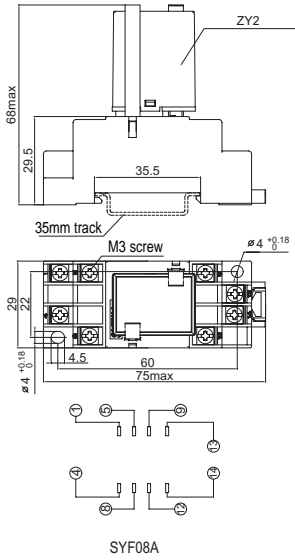


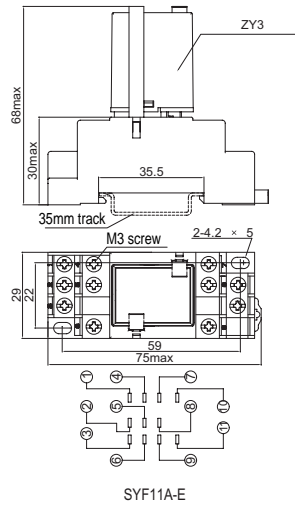
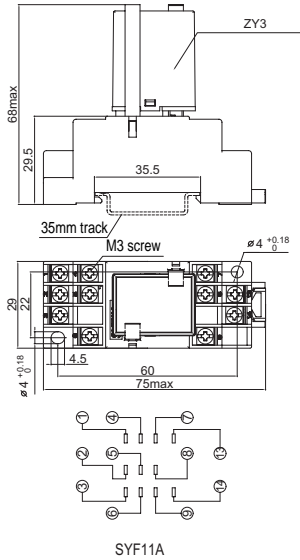
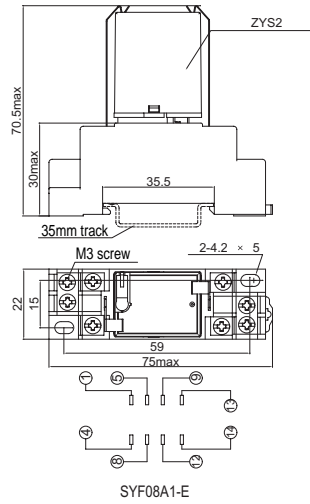
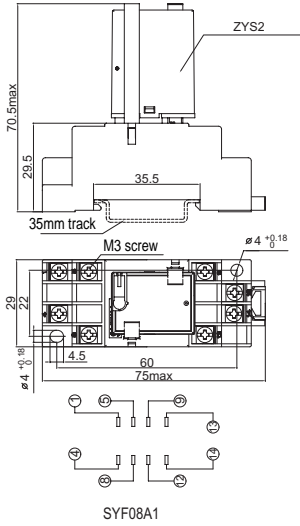
ZYS4



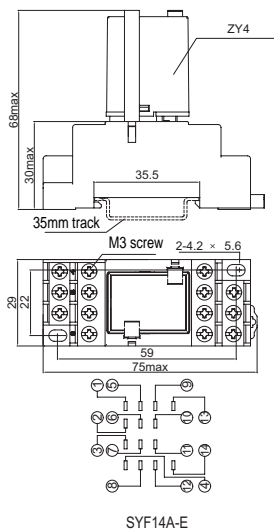
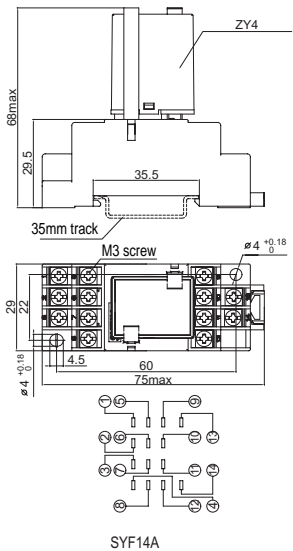
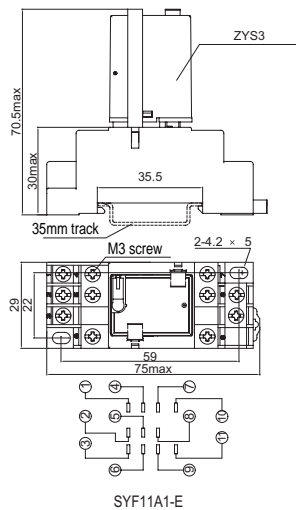
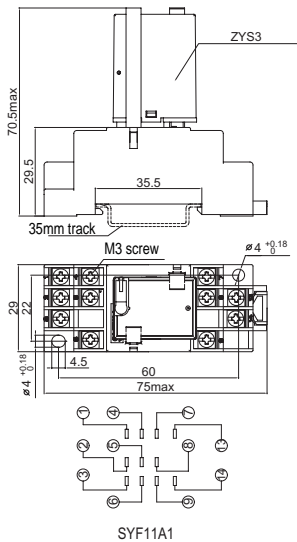
ZYS4-02

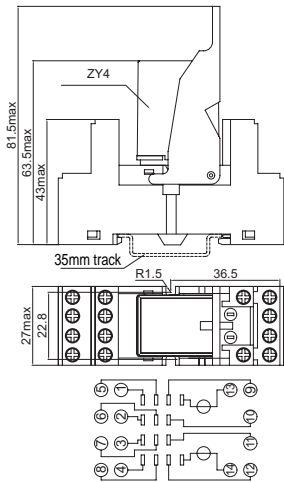
# ZY/DY series miniature power relay



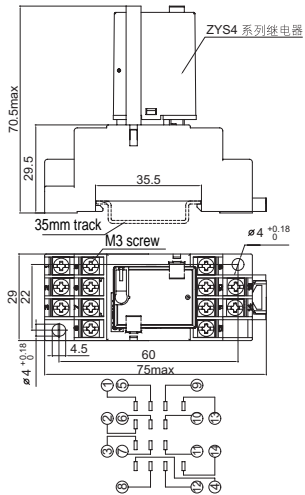


# ZY/DY series miniature power relay

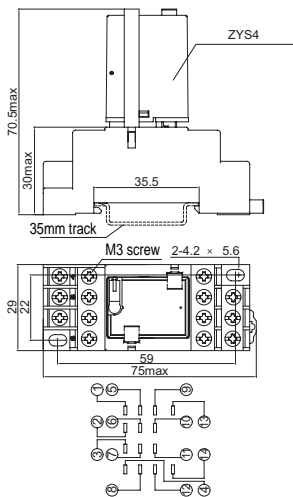




SKB14-E



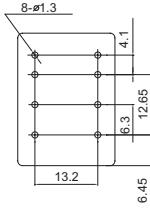
SYF14A1



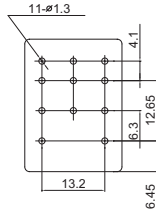
SYF14A1-E

# ZY/DY series miniature power relay

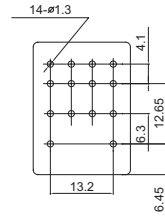
## Mounting hole



ZY2-02/ZYS2-0



ZY3-02/ZYS3-0



ZY4-02/ZYS4-0

## DY series miniature power relay

### DY2 (2-pole)



DY2  
Standard Model



STF08A  
Back-connecting socket



STF08A - E  
Back-connecting socket



DY2  
Standard Model



STF08A1  
Back-connecting socket



STF08A1 - E  
Back-connecting socket

| Type                                | Model  | Rated voltage  |
|-------------------------------------|--------|--|
| Standard model                      | DY2    | DC: 6V、12V、24V、48V、110V<br>AC: 12V、24V、48V、110V、220V |
| Relay with test button              | DYS2   |  |
| Relay with solder terminals         | DY2-0  |  |
| Relay with operation indicator      | DY2N   |  |
| Relay with surge suppression ( DC ) | DY2-D2 |  |

For example : DYS2N - 0D2DC12V means -----

2-pole , solder terminals , with test button , operation indicator and surge suppression , rated voltage is DC12V

# ZY/DY series miniature power relay

## DY3 (3-pole)



DY3  
Standard Model



STF11A  
Back-connecting socket

## DY4 (4-pole)



DY4  
Standard Model



STF14A  
Back-connecting socket

| Type                                | Model  | Rated voltage                 |
|-------------------------------------|--------|-------------------------------|
| Standard model                      | DY3    | DC: 6V、12V、<br>24V、48V、110V   |
| Relay with solder terminals         | DY3-0  |                               |
| Relay with operation indicator      | DY3N   | AC: 12V、24V、<br>48V、110V、220V |
| Relay with surge suppression ( DC ) | DY3-D2 |                               |

For example : DY3N - 0D2DC12V means -----  
3-pole , solder terminals, with operation indicator and surge  
suppression, rated voltage is DC12V

| Type                                | Model  | Rated voltage                 |
|-------------------------------------|--------|-------------------------------|
| Standard model                      | DY4    | DC: 6V、12V、<br>24V、48V、110V   |
| Relay with solder terminals         | DY4-0  |                               |
| Relay with operation indicator      | DY4N   | AC: 12V、24V、<br>48V、110V、220V |
| Relay with surge suppression ( DC ) | DY4-D2 |                               |

For example : DY4N - 0D2DC12V means -----  
4-pole , solder terminals, with operation indicator and surge  
suppression, rated voltage is DC12V

## Technical data

### (1) Basic technical data

|                                   |                         | DY2/DYS2   | DY3        | DY4        |
|-----------------------------------|-------------------------|--|------------|------------|
| Conventional thermal current      |                         | 10A  |            |            |
| Rated thermal voltage             |                         | 250V AC, 125V DC   |            |            |
| Max coil voltage                  |                         | 110% of rated voltage  |            |            |
| Operate time                      |                         | < 20ms   |            |            |
| Release time                      |                         | < 20ms   |            |            |
| Transfer time (contact)           |                         | > 0.15ms   |            |            |
| Contact resistance                |                         | < 50m Ω  |            |            |
| Max contact voltage               |                         | 250V AC, 125V DC   |            |            |
| Insulation resistance             |                         | > 100M Ω   |            |            |
| Power-frequency withstand voltage | Between opened contacts | AC1100V, 50Hz, 1min  |            |            |
|                                   | pole to pole            | AC2200V, 50Hz, 1min  |            |            |
|                                   | contact to coil         | AC2200V, 50Hz, 1min  |            |            |
|                                   | contact/coil-ground     | AC1800V, 50Hz, 1min  |            |            |
| Operating frequency               |                         | < 30 operations / minute   |            |            |
| Vibration resistance              |                         | 1.0mm double amplitude, 1min   |            |            |
| Shock resistance                  |                         | 200m/s <sup>2</sup>  |            |            |
| Electrical life                   |                         | 2 × 10 <sup>6</sup> operations   |            |            |
| Mechanical life                   |                         | AC : 2 × 10 <sup>7</sup> operations ; DC : 5 × 10 <sup>7</sup> operation |            |            |
| Weight                            |                         | Approx 38g   | Approx 50g | Approx 70g |

## ZY/DY series miniature power relay

### (2) Coil ratings

| Rated voltage | Pick-up voltage | Release voltage | Coil current as contact pick-up |          |         | Power consumption |       |        |
|---------------|-----------------|-----------------|---------------------------------|----------|---------|-------------------|-------|--------|
|               |                 |                 | DY2/DYS2                        | DY3      | DY4     | DY2/DYS2          | DY3   | DY4    |
| DC 6V         | < 4.5V          | > 0.6V          | < 200mA                         | < 275mA  | < 290mA | 约0.9W             | 约1.4W | 约1.5W  |
| DC 12V        | < 9V            | > 1.2V          | < 100mA                         | < 140mA  | < 145mA |                   |       |        |
| DC 24V        | < 18V           | > 2.4V          | < 50mA                          | < 70mA   | < 80mA  |                   |       |        |
| DC 48V        | < 36V           | > 4.8V          | < 25mA                          | < 35mA   | < 36mA  |                   |       |        |
| DC 110V       | < 82.5V         | > 11V           | < 10.9mA                        | < 16mA   | < 18mA  |                   |       |        |
| AC 12V        | < 9.6V          | > 3.6V          | < 134mA                         | < 190mA  | < 230mA | 约1.2VA            | 约2VA  | 约2.5VA |
| AC 24V        | < 19.2V         | > 7.2V          | < 67mA                          | < 94mA   | < 115mA |                   |       |        |
| AC 48V        | < 38.4V         | > 14.4V         | < 33.5mA                        | < 47mA   | < 58mA  |                   |       |        |
| AC 110V       | < 88V           | > 33V           | < 14.6mA                        | < 18.5mA | < 30mA  |                   |       |        |
| AC 220V       | < 176V          | > 66V           | < 7.3mA                         | < 11.5mA | < 15mA  |                   |       |        |

Remark : 1. Above technical data are measured at a surrounding temperature of 25 °C.

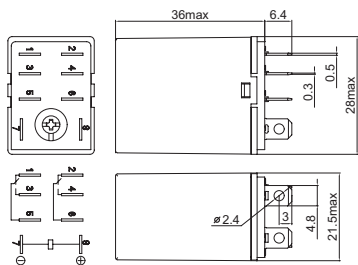
2.. AC coil resistance and impedance are provided as reference values (at 50Hz)

3. Other rated voltage will be manufactured upon request.

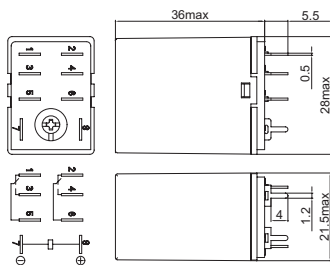
### (3) Max contact capacity

| Model               | Resistive load | Lagging load (AC-15/DC-13) |
|---------------------|----------------|----------------------------|
| DY2/DYS2<br>DY3/DY4 | DC110V, 0.5A   | DC110V, 0.3A               |
|                     | DC30V, 10A     | DC30V, 2A                  |
|                     | AC240V, 10A    | AC240V, 2A                 |

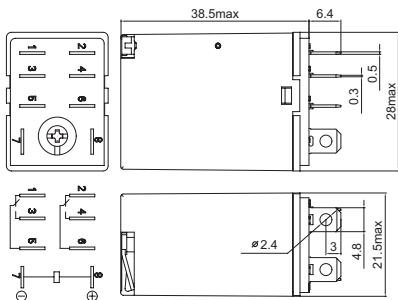
## Outline dimension / Internal connections



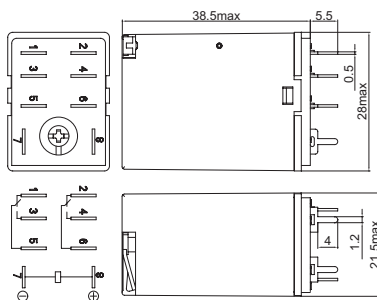
DY2



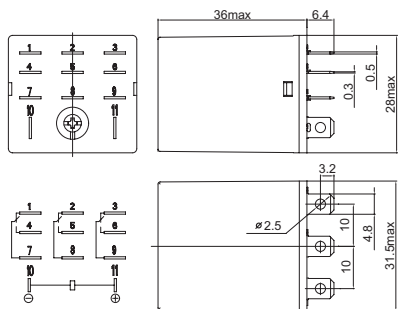
DY2-0



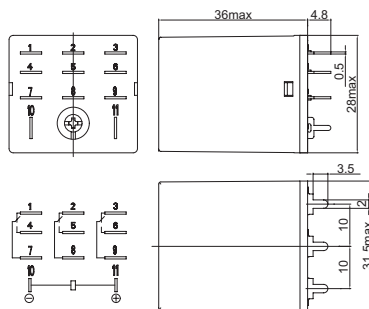
DYS2



DYS2-0

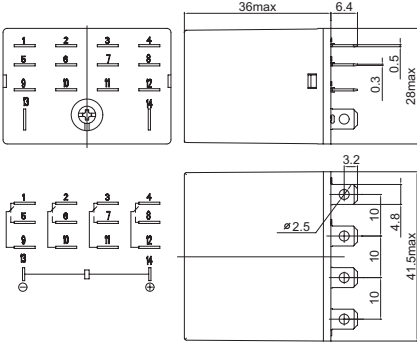


DY3

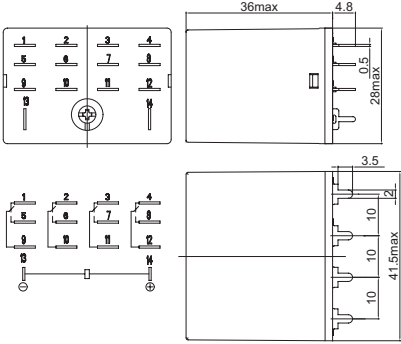


DY3-0

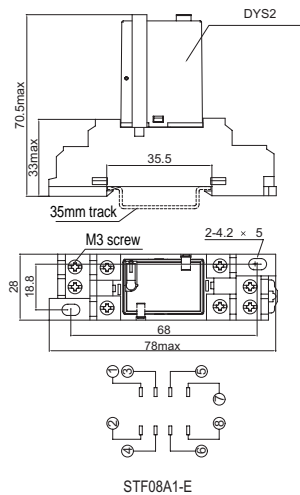
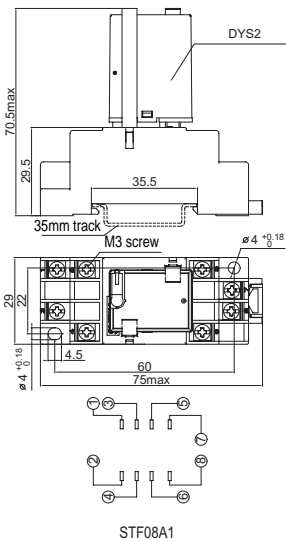
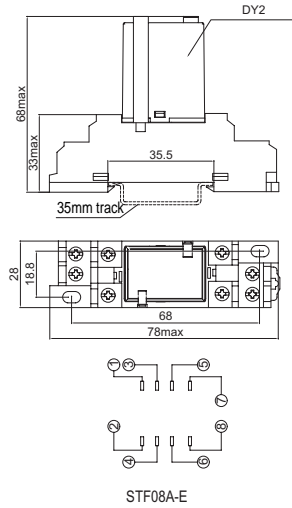
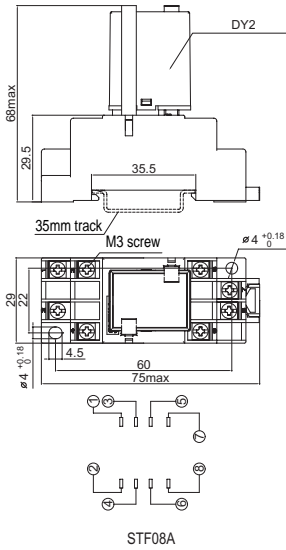
# ZY/DY series miniature power relay



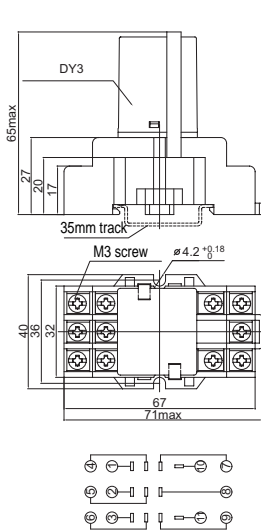
DY4



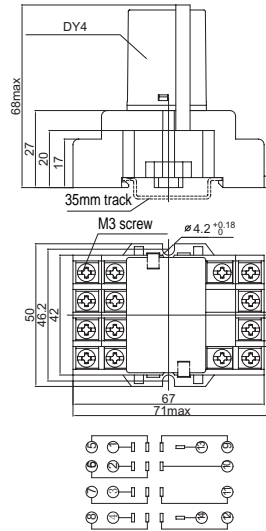
DY4-0



# ZY/DY series miniature power relay

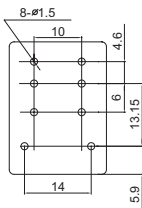


STF11A

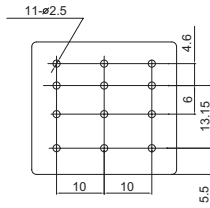


STF14A

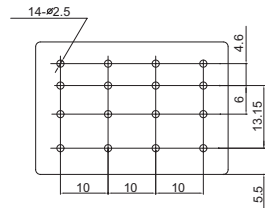
## Mounting hole



DY2-0 / DYS2-0



DY3-0



DY4-0

## Model reference

|       |       |        |       |        |       |        |
|-------|-------|--------|-------|--------|-------|--------|
| APT   | ZY2   | ZY2-02 | ZY3   | ZY3-02 | ZY4   | ZY4-02 |
| OMRON | MY2   | MY2-02 | MY3   | MY3-02 | MY4   | MY4-02 |
| FUJI  | HH52P | HH52B  | HH53P | HH53B  | HH54P | HH54B  |
| NAIS  | HC2-H | HC2-HP | HC3-H | HC3-HP | HC4-H | HC4-HP |
| idec  | RM2S  | RM2V   |       |        | RY4S  | RY4V   |
| APT   | DY2   | DY2-0  | DY3   | DY3-0  | DY4   | DY4-0  |
| OMRON | LY2   | LY2-0  | LY3   | LY3-0  | LY4   | LY4-0  |
| FUJI  | HH62P | HH62B  | HH63P | HH63B  | HH64P | HH64B  |
| NAIS  | HL2-H | HL2-HP |       |        |       |        |
| idec  | RH2B  | RH2V2  | RH3B  | RH3V2  | RH4B  | RH4V2  |





控制箱  
(Control Box)



Ø22按钮与指示灯  
(Ø22 pushbuttons & pilot lights)

Ø16按钮与指示灯  
(Ø16 pushbuttons & indicators)

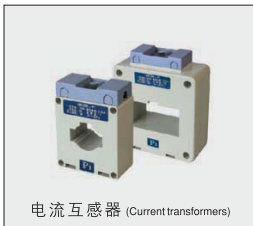


万能转换开关  
(Universal changeover switches)



微动开关  
(Micro-gap switches)

警示灯 (Tower lawps)



电流互感器 (Current transformers)



数字电测表(Apearance)

