

## Socket Hold-down Clip Pairing

| Relay type                                                                                                            | Poles | Front-connecting sockets<br>(rail-/screw-mounted) |        | Back-connecting sockets    |        |               |        |
|-----------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------------|--------|----------------------------|--------|---------------|--------|
|                                                                                                                       |       |                                                   |        | Solder/wire-wrap terminals |        | PCB terminals |        |
|                                                                                                                       |       | Socket                                            | Clip   | Socket                     | Clip   | Socket        | Clip   |
| Standard, bifurcated contacts, operation indicator, built-in diode, high-capacity, high-sensitivity, or high-humidity | 1, 2  | PYF08A-N,<br>PYF08A-E,<br>PYF08A                  | PYC-A1 | PY08(QN)                   | PYC-P  | PY08(QN)      | PYC-P  |
|                                                                                                                       | 3     | PYF11A                                            |        | PY11(QN)                   |        | PY11(QN)      |        |
|                                                                                                                       | 4     | PYF14A-N,<br>PYF14A-E,<br>PYF14A                  |        | PY14(QN)                   |        | PY14(QN)      |        |
| MY2N-D4                                                                                                               | 4     | PYF14A-N,<br>PYF14A-E,<br>PYF14A                  | Y92H-3 | PY14(QN)                   | PYC-1  | PY08(QN)      | PYC-1  |
| Test button                                                                                                           | 1, 2  | PYF08A-N,<br>PYF08A-E,<br>PYF08A                  | PYC-A1 | PY08(QN)                   | PYC-P2 | PY08(QN)      | PYC-P2 |
|                                                                                                                       | 3     | PYF11A                                            |        | PY11(QN)                   |        | PY11(QN)      |        |
|                                                                                                                       | 4     | PYF14A-N,<br>PYF14A-E,<br>PYF14A                  |        | PY14(QN)                   |        | PY14(QN)      |        |
| CR circuit                                                                                                            | 1, 2  | PYF08A-N,<br>PYF08A-E,<br>PYF08A                  | Y92H-3 | PY08(QN)                   | PYC-1  | PY08(QN)      | PYC-1  |
|                                                                                                                       | 3     | PYF11A                                            |        | PY11(QN)                   |        | PY11(QN)      |        |
|                                                                                                                       | 4     | PYF14A-N,<br>PYF14A-E,<br>PYF14A                  |        | PY14(QN)                   |        | PY14(QN)      |        |

## Specifications

## ■ Coil Ratings

| Rated voltage |           | Rated current |            | Coil resistance | Inductance<br>(reference value) |          | Must operate | Must release | Max. voltage | Power consum.<br>(Approx.)  |
|---------------|-----------|---------------|------------|-----------------|---------------------------------|----------|--------------|--------------|--------------|-----------------------------|
|               |           | 50 Hz         | 60 Hz      |                 | Arm. OFF                        | Arm. ON  |              |              |              |                             |
| AC            | 6 V       | 214.1 mA      | 183 mA     | 12.2 Ω          | 0.04 H                          | 0.08 H   | 80%<br>max.  | 30%<br>min.  | 110%         | 1.0 to<br>1.2 VA<br>(60 Hz) |
|               | 12 V      | 106.5 mA      | 91 mA      | 46 Ω            | 0.17 H                          | 0.33 H   |              |              |              |                             |
|               | 24 V      | 53.8 mA       | 46 mA      | 180 Ω           | 0.69 H                          | 1.30 H   |              |              |              |                             |
|               | 50 V      | 25.7 mA       | 22 mA      | 788 Ω           | 3.22 H                          | 5.66 H   |              |              |              |                             |
|               | 100/110 V | 11.7/12.9 mA  | 10/11 mA   | 3,750 Ω         | 14.54 H                         | 24.6 H   |              |              |              | 0.9 to<br>1.1 VA<br>(60 Hz) |
|               | 110/120 V | 9.9/10.8 mA   | 8.4/9.2 mA | 4,430 Ω         | 19.20 H                         | 32.1 H   |              |              |              |                             |
|               | 200/220 V | 6.2/6.8 mA    | 5.3/5.8 mA | 12,950 Ω        | 54.75 H                         | 94.07 H  |              |              |              |                             |
|               | 220/240 V | 4.8/5.3 mA    | 4.2/4.6 mA | 18,790 Ω        | 83.50 H                         | 136.40 H |              |              |              |                             |
| DC            | 6 V       | 150 mA        |            | 40 Ω            | 0.17 H                          | 0.33 H   |              | 10%<br>min.  |              | 0.9 W                       |
|               | 12 V      | 75 mA         |            | 160 Ω           | 0.73 H                          | 1.37 H   |              |              |              |                             |
|               | 24 V      | 36.9 mA       |            | 650 Ω           | 3.20 H                          | 5.72 H   |              |              |              |                             |
|               | 48 V      | 18.5 mA       |            | 2,600 Ω         | 10.60 H                         | 21.00 H  |              |              |              |                             |
|               | 100/110 V | 9.1/10 mA     |            | 11,000 Ω        | 45.60 H                         | 86.20 H  |              |              |              |                             |

**Note:** See notes under next table on next page.

## High-sensitivity Relays

| Power supply ratings |         |                 |               |                | Input ratings      |              |              |               |
|----------------------|---------|-----------------|---------------|----------------|--------------------|--------------|--------------|---------------|
| Voltage              | Current | Coil resistance | Max. voltage* | Power consum.  | Input voltage      | Must operate | Must release | Power consum. |
|                      |         |                 |               |                | % of rated voltage |              |              |               |
| 24 VDC               | 36.9 mA | 650 W           | 110%          | Approx. 900 mW | 2 to 12 V          | 2 V max.     | 1 V min.     | 0.5 to 52 mW  |

- Note:**
1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/–20% for rated currents and ±15% for DC coil resistance.
  2. Performance characteristic data are measured at a coil temperatures of 23°C.
  3. The must operate and must release voltages for High-sensitivity Relays was measured at the rated power supply voltage.
  4. AC coil resistance and impedance are provided as reference values (at 60 Hz).
  5. Power consumption drop was measured for the above data. When driving transistors, check leakage current and connect a bleeder resistor if required.

## ■ Contact Ratings

| Item                           | Single-, double- or three-pole                                 |                                     | Four-pole and High-sensitivity                                                     |                                     | High-capacity               |                                     |
|--------------------------------|----------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------|-------------------------------------|-----------------------------|-------------------------------------|
|                                | Resistive load (cosφ = 1)                                      | Inductive load (cosφ=0.4, L/R=7 ms) | Resistive load (cosφ = 1)                                                          | Inductive load (cosφ=0.4, L/R=7 ms) | Resistive load (cosφ = 1)   | Inductive load (cosφ=0.4, L/R=7 ms) |
| <b>Rated load</b>              | 5 A, 220 VAC<br>5 A, 24 VDC                                    | 2 A, 220 VAC<br>2 A, 24 VDC         | 3 A, 220 VAC<br>3 A, 24 VDC                                                        | 0.8 A, 220 VAC)<br>1.5 A, 24 VDC    | 7 A, 220 VAC<br>7 A, 24 VDC | 3.5 A, 220 VAC<br>3.5 A, 24 VDC     |
| <b>Carry current</b>           | 5 A                                                            |                                     | 3 A                                                                                |                                     | 7 A                         |                                     |
| <b>Max. switching voltage</b>  | 250 VAC<br>125 VDC                                             |                                     | 250 VAC<br>125 VDC                                                                 |                                     | 250 VAC<br>125 VDC          |                                     |
| <b>Max. switching current</b>  | 5 A                                                            | 5 A                                 | 3 A                                                                                | 3 A                                 | 7 A                         | 7 A                                 |
| <b>Max. switching capacity</b> | 1,100 VA<br>120 W                                              | 440 VA<br>48 W                      | 660 VA<br>72 W                                                                     | 176 VA<br>36 W                      | 1,540 VA<br>168 W           | 770 VA<br>84 W                      |
| <b>Min. permissible load*</b>  | Standard type: 100 mA, 5 VDC<br>Bifurcated type: 100 μA, 1 VDC |                                     | Standard and high sensitivity types: 1 mA, 1 VDC<br>Bifurcated type: 100 μA, 1 VDC |                                     | —                           |                                     |

\*Note: P level:  $\lambda_{60} = 0.1 \times 10^{-6}$ /operation, reference value

## ■ Characteristics

| Item                                  | All relays but High-sensitivity Relays                                                                                                                                           | High-sensitivity Relays                                                     |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Contact resistance</b>             | 50 mΩ max.                                                                                                                                                                       |                                                                             |
| <b>Operate time</b>                   | 20 ms max.                                                                                                                                                                       |                                                                             |
| <b>Release time</b>                   | 20 ms max.                                                                                                                                                                       |                                                                             |
| <b>Max. operating frequency</b>       | Mechanical: 18,000 operations/hr<br>Electrical: 1,800 operations/hr (under rated load)                                                                                           |                                                                             |
| <b>Insulation resistance</b>          | 1,000 MΩ min. (at 500 VDC)                                                                                                                                                       |                                                                             |
| <b>Dielectric withstand voltage</b>   | 2,000 VAC, 50/60 Hz for 1 min (1,000 VAC between contacts of same polarity)                                                                                                      | 1,500 VAC, 50/60 Hz for 1 min (1,000 VAC between contacts of same polarity) |
| <b>Vibration resistance</b>           | Destruction: 10 to 55 Hz, 1.0-mm double amplitude<br>Malfunction: 10 to 55 Hz, 1.0-mm double amplitude                                                                           |                                                                             |
| <b>Shock resistance</b>               | Destruction: 1,000 m/s <sup>2</sup> (approx. 100G)<br>Malfunction: 200 m/s <sup>2</sup> (approx. 20G)                                                                            |                                                                             |
| <b>Life expectancy</b>                | See following table.                                                                                                                                                             |                                                                             |
| <b>Ambient operating temperature*</b> | Single- and double-pole standard, bifurcated-contact, test-button, and high-humidity relays:<br>–55°C to 70°C (with no icing)<br>All other relays: –55°C to 60°C (with no icing) |                                                                             |
| <b>Ambient operating humidity</b>     | 35% to 85%                                                                                                                                                                       |                                                                             |
| <b>Weight</b>                         | Approx. 85 g                                                                                                                                                                     |                                                                             |

**Note:** The values given above are initial values.