

## RY/RM Series — General Purpose Miniature Relays

Key features of the RY series include:

- Compact miniature size saves space
- 2PDT and 4PDT models, available with bifurcated crossbar contacts, ensure reliable low-current switching for dry circuit applications
- Choice of plug-in/solder or PCB type terminals
- Options include check button for test operation and indicator lights
- DIN rail, surface, panel, and PCB type sockets available for a wide range of mounting applications



E

Relays

Specifications

|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contact Material                                   | RY2, RY4: Silver (Ag), gold-plated<br>RY22, RY42: Ag-Pd alloy<br>RM: Silver (Ag)                                                                                                                                                                                                                                                                                                                                                                                  |
| Contact Resistance                                 | RY2, RY4: 50mΩ maximum<br>RY22, RY42: 100mΩ maximum<br>RM: 30mΩ maximum                                                                                                                                                                                                                                                                                                                                                                                           |
| Minimum Applicable Load                            | RY2, RY4: 5V DC, 10mA/24V DC, 5mA<br>RM2: 24VDC/10mA, 5VDC/20mA (reference value)<br>Bifurcated contacts: RY22, RY42: 1V DC, 100μA (reference value)                                                                                                                                                                                                                                                                                                              |
| Operating Time                                     | 20ms maximum                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Release Time                                       | 20ms maximum                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Maximum Continuous Applied Voltage (AC/DC) at 20°C | 110% of the rated voltage                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Minimum Operating Voltage (AC/DC) at 20°C          | 80% of the rated voltage                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Drop-Out Voltage (AC)                              | 30% or more of the rated voltage                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Drop-Out Voltage (DC)                              | 10% or more of the rated voltage                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Power Consumption                                  | RY2, RY22: DC: approximately 0.8W<br>AC: approximately 1.1VA (50Hz), 1VA (60Hz)<br>RY4, RY42, RM2: DC: approximately 0.9W<br>AC: approximately 1.4VA (50Hz), 1.2VA (60Hz)                                                                                                                                                                                                                                                                                         |
| Insulation Resistance                              | 100MΩ minimum (measured with 500V DC megger)                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Dielectric Strength                                | RY2, RY22: Between live and dead parts: 1,500V AC, 1 minute; Between contact and coil: 1,500V AC, 1 minute; Between contacts of different poles: 1,500V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute<br>RY4, RY42, RM2: Between live and dead parts: 2,000V AC, 1 minute; Between contact and coil: 2,000V AC, 1 minute; Between contacts of different poles: 2,000V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute |
| Frequency Response                                 | 1,800 operations/hour                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Temperature Rise                                   | Coil: 85°C maximum<br>Contact: 65°C maximum                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Vibration Resistance                               | 0 to 6G (55Hz maximum)                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Shock Resistance                                   | RY2, RY22: 100N (approximately 10G)<br>RY4, RY42, RM2: 200N (approximately 20G)                                                                                                                                                                                                                                                                                                                                                                                   |
| Life Expectancy                                    | Electrical<br>RY2, RY4: over 200,000 operations (120V, 3A)<br>RY22, RY42: over 200,000 operations (120V AC, 1A)<br>RM2: over 500,00 operations (240V AC, 5A)                                                                                                                                                                                                                                                                                                      |
|                                                    | Mechanical<br>over 50,000,000 operations                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Operating Temperature                              | -30 to +70°C                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Weight                                             | DPDT: 23g; 4PDT: 34g (approximately)                                                                                                                                                                                                                                                                                                                                                                                                                              |



UL Recognized  
File No. E55996



CSA Certified  
File No. LR35144



File No. B020813332452



## Ordering Information

Order standard voltages for fastest delivery. Allow extra delivery time for non-standard voltages.

Basic Part No.

RY4S-U

Coil Voltage:

AC110-120V

## Part Numbers

### Part Numbers: RY/RM Series with Options

| Termination                     | Contact Configuration         | Basic Part No. | Indicator Light | Check Button | Indicator Light and Check Button | Top Bracket |
|---------------------------------|-------------------------------|----------------|-----------------|--------------|----------------------------------|-------------|
| S<br>Solder/plug-in             | DPDT small footprint          | RY2S-U         | RY2S-UL         | RY2S-UC      | RY2S-ULC                         | RY2S-UT     |
|                                 | DPDT<br>(bifurcated contacts) | RY22S-U        | RY22S-UL        | —            | —                                | RY22S-UT    |
|                                 | DPDT wide footprint           | RM2S-U         | RM2S-UL         | RM2S-UC      | RM2S-ULC                         | RM2S-UT     |
|                                 | 4PDT                          | RY4S-U         | RY4S-UL         | RY4S-UC      | RY4S-ULC                         | RY4S-UT     |
|                                 | 4PDT<br>(bifurcated contacts) | RY42S-U        | RY42S-UL        | RY42S-UC     | RY42S-ULC                        | RY42S-UT    |
| V<br>PCB 0.031"<br>(0.8mm) wide | DPDT small footprint          | RY2V-U         | RY2V-UL         | RY2V-UC      | RY2V-ULC                         | —           |
|                                 | DPDT<br>(bifurcated contacts) | RY22V-U        | RY22V-UL        | —            | —                                | —           |
|                                 | DPDT wide footprint           | RM2V-U         | RM2V-UL         | RM2V-UC      | RM2V-ULC                         | —           |
|                                 | 4PDT                          | RY4V-U         | RY4V-UL         | RY4V-UC      | RY4V-ULC                         | —           |
|                                 | 4PDT<br>(bifurcated contacts) | RY42V-U        | RY42V-UL        | RY42V-UC     | RY42V-ULC                        | —           |

**E**

Relays

## Ratings

### Coil Ratings

| Rated Voltage (V) |        | Rated Current ±15% at 20°C |                      |                |                      | Coil Resistance<br>±10% at 20°C |                      | Coil Inrush<br>(60Hz) |                      | Coil Inductance |                      |               |                      |
|-------------------|--------|----------------------------|----------------------|----------------|----------------------|---------------------------------|----------------------|-----------------------|----------------------|-----------------|----------------------|---------------|----------------------|
|                   |        | 60Hz                       |                      | 50Hz           |                      |                                 |                      |                       |                      | Energizing      |                      | De-Energizing |                      |
| AC                |        | RY2,<br>RY22               | RM2,<br>RY4,<br>RY42 | RY2,<br>RY22   | RM2,<br>RY4,<br>RY42 | RY2,<br>RY22                    | RM2,<br>RY4,<br>RY42 | RY2,<br>RY22          | RM2,<br>RY4,<br>RY42 | RY2,<br>RY22    | RM2,<br>RY4,<br>RY42 | RY2,<br>RY22  | RM2,<br>RY4,<br>RY42 |
|                   | 6V     | 150mA                      | 200mA                | 170mA          | 240mA                | 18.8Ω                           | 9.4Ω                 | 250mA                 | 340mA                | 0.09H           | 0.08H                | 0.06H         | 0.04H                |
|                   | 12V    | 75mA                       | 100mA                | 86mA           | 121mA                | 76.8Ω                           | 39.3Ω                | 120mA                 | 170mA                | 0.37H           | 0.30H                | 0.22H         | 0.16H                |
|                   | 24V    | 37mA                       | 50mA                 | 42mA           | 60.5mA               | 300Ω                            | 153Ω                 | 56mA                  | 85mA                 | 1.5H            | 1.2H                 | .9H           | 0.63H                |
|                   | 120V*  | 7.5mA                      | 11mA                 | 8.6mA          | 13.1mA               | 7,680Ω                          | 4,170Ω               | 12mA                  | 16mA                 | 37H             | 33H                  | 22H           | 15H                  |
|                   | 240V † | 3.2mA                      | 5.5mA                | 3.7mA          | 6.6mA                | 31,200Ω                         | 15,210Ω              | 7mA                   | 8mA                  | 130H            | 130H                 | 77H           | 62H                  |
| DC                |        | RY2, RY22                  |                      | RM2, RY4, RY42 |                      | RY2,<br>RY22                    | RM2,<br>RY4,<br>RY42 | N/A                   |                      |                 |                      |               |                      |
|                   | 6V     | 128mA                      |                      | 150mA          |                      | 47Ω                             | 40Ω                  |                       |                      |                 |                      |               |                      |
|                   | 12V    | 64mA                       |                      | 75mA           |                      | 188Ω                            | 160Ω                 |                       |                      |                 |                      |               |                      |
|                   | 24V    | 32mA                       |                      | 36.9mA         |                      | 750Ω                            | 650Ω                 |                       |                      |                 |                      |               |                      |
|                   | 48V    | 18mA                       |                      | 18.5mA         |                      | 2,660Ω                          | 2,600Ω               |                       |                      |                 |                      |               |                      |
|                   | 110V‡  | —                          |                      | 9.1mA          |                      | —                               | 12,100Ω              |                       |                      |                 |                      |               |                      |



\* For RY4/RY42/RM2 relays = AC110/120V AC.

† For RY4/RY42/RM2 relays = 220/240V AC.

‡ For RY4/RY42/RM2 relays = 100/110V DC.

### Contact Ratings (gold plated) RY4, RY2

| Voltage | Contact | Resistive |     | Inductive |      |
|---------|---------|-----------|-----|-----------|------|
|         |         | UL        | CSA | UL        | CSA  |
| 30V DC  | DPDT    | 3A        | 3A  | 3A        | 1.5A |
|         | 4PDT    | 5A        | 5A  | 5A        | 1.5A |
| 100V DC | DPDT    | 0.2A      | —   | 0.2A      | 0.2A |
|         | 4PDT    | 0.2A      | —   | 0.2A      | 0.2A |
| 120V AC | DPDT    | 3A        | 3A  | 1.5A      | 1.5A |
|         | 4PDT    | 5A        | 5A  | 5A        | 5A   |
| 240V AC | DPDT    | 3A        | 3A  | 0.8A      | 0.8A |
|         | 4PDT    | 5A        | 5A  | 5A        | 5A   |

### Contact Ratings (bifurcated) RY42, RY22

| Voltage | Resistive UL/CSA | Inductive UL/CSA |
|---------|------------------|------------------|
| 30V DC  | 1A               | 0.5A             |
| 120V AC | 1A               | 0.5A             |
| 240V AC | 0.8A             | 0.4A             |

### Contact Ratings RM2

| Voltage | Resistive |      |     | Inductive |      |      |
|---------|-----------|------|-----|-----------|------|------|
|         | Nominal   | UL   | CSA | Nominal   | UL   | CSA  |
| 30V DC  | 5A        | 5A   | 5A  | 2.5A      | —    | 2.5A |
| 110V DC | 0.4A      | 0.4A | —   | 0.4A      | —    | 0.4A |
| 120V AC | 5A        | 5A   | 5A  | 2.5A      | 2.5A | 2.5A |
| 240V AC | 5A        | 5A   | 5A  | 2A        | 2A   | 2A   |