

## Specifications

### Coil Ratings

| Rated voltage |       | Rated current* |         | Coil resistance | Coil inductance (H) (ref. value) |             | Must operate voltage | Must release voltage | Max. voltage | Power consumption (approx.) |
|---------------|-------|----------------|---------|-----------------|----------------------------------|-------------|----------------------|----------------------|--------------|-----------------------------|
|               |       | 50 Hz          | 60 Hz   |                 | Armature OFF                     | Armature ON |                      |                      |              |                             |
| AC            | 24 V  | 43.5 mA        | 37.4 mA | 253 Ω           | 0.81                             | 1.55        | 80% max.             | 30% max.             | 110%         | 0.9 VA at 60 Hz             |
|               | 110 V | 9.5 mA         | 8.2 mA  | 5,566 Ω         | 13.33                            | 26.83       |                      |                      |              |                             |
|               | 120 V | 8.6 mA         | 7.5 mA  | 7,286 Ω         | 16.13                            | 32.46       |                      |                      |              |                             |
|               | 230 V | 4.4 mA         | 3.8 mA  | 27,172 Ω        | 72.68                            | 143.90      |                      |                      |              |                             |
|               | 240 V | 3.7 mA         | 3.2 mA  | 30,360 Ω        | 90.58                            | 182.34      |                      |                      |              |                             |

| Rated voltage |      | Rated current* |       | Coil resistance | Coil inductance (H) (ref. value) |             | Must operate voltage | Must release voltage | Max. voltage | Power consumption (approx.) |
|---------------|------|----------------|-------|-----------------|----------------------------------|-------------|----------------------|----------------------|--------------|-----------------------------|
|               |      | 50 Hz          | 60 Hz |                 | Armature OFF                     | Armature ON |                      |                      |              |                             |
| DC            | 6 V  | 87.0 mA        |       | 69 Ω            | 0.25                             | 0.48        | 70% max.             | 15% min.             | 110%         | 0.53 W                      |
|               | 12 V | 43.2 mA        |       | 278 Ω           | 0.98                             | 2.35        |                      |                      |              |                             |
|               | 24 V | 21.6 mA        |       | 1,113 Ω         | 3.60                             | 8.25        |                      |                      |              |                             |
|               | 48 V | 11.4 mA        |       | 4,220 Ω         | 15.2                             | 29.82       |                      |                      |              |                             |

- Note:**
1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/-20% for the AC rated current and ±10% for the DC coil resistance.
  2. The AC coil resistance and inductance values are reference values only (at 60 Hz).
  3. Operating characteristics were measured at a coil temperature of 23°C.
  4. The maximum voltage is the maximum possible value of the voltage that can be applied to the relay coil. It is not the maximum voltage that can be applied continuously.

### Contact Ratings

| Number of poles                  | 1 pole                             |   | 2 poles                          |   |
|----------------------------------|------------------------------------|---|----------------------------------|---|
|                                  | 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) |
| Rated load                       | 10 A at 250 VAC;<br>10 A at 30 VDC | 7.5 A at 250 VAC;<br>5 A at 30 VDC      | 5 A at 250 VAC;<br>5 A at 30 VDC | 2 A at 250 VAC; 3 A at 30 VDC           |
| Rated carry current              | 10 A                               |   | 5 A                              |   |
| Max. switching voltage           | 440 VAC, 125 VDC                   |   | 380 VAC, 125 VDC                 |   |
| Max. switching current           | 10 A                               |   | 5 A                              |   |
| Max. switching power             | 2,500 VA,<br>300 W                 | 1,875 VA,<br>150 W                      | 1,250 VA,<br>150 W               | 500 VA,<br>90 W                         |
| Failure rate (reference value) * | 100 mA at 5 VDC                    |   | 10 mA at 5 VDC                   |   |

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

\* This value was measured at a switching frequency of 120 operations per minute.

## Characteristics

| Item                     | 1 pole   | 2 poles   |
|--------------------------|--|---|
| Contact configuration    | SPDT   |   |
| Contact structure        | Single   |   |
| Contact resistance       | 100 mΩ max.  |   |
| Operate (set) time       | 15 ms max.   |   |
| Release (reset) time     | AC: 10 ms max.; DC: 5 ms max.<br>(w/built-in diode: 20 ms max.)  | AC: 15 ms max.; DC: 10 ms max.<br>(w/built-in diode: 20 ms max.)  |
| Max. operating frequency | Mechanical: 18,000 operations/hr<br>Electrical: 1,800 operations/hr (under rated load)   |   |
| Insulation resistance    | 1,000 MΩ min. (at 500 VDC)   |   |
| Dielectric strength *    | 5,000 VAC, 50/60 Hz for 1 min between coil and contacts;<br>1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity  | 5,000 VAC, 50/60 Hz for 1 min between coil and contacts;<br>3,000 VAC, 50/60 Hz for 1 min between contacts of different polarity<br>1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity |
| Vibration resistance     | Destruction: 10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)<br>Malfunction: 10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)                           |   |
| Shock resistance         | Destruction: 1,000 m/s <sup>2</sup><br>Malfunction: 200 m/s <sup>2</sup> when energized; 100 m/s <sup>2</sup> when not energized   |   |
| Endurance                | Mechanical: AC coil: 10,000,000 operations min.;<br>DC coil: 20,000,000 operations min. (at 18,000 operations/hr)<br>Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load) |   |
| Ambient temperature      | Operating: -40°C to 70°C (with no icing or condensation)   |   |
| Ambient humidity         | Operating: 5% to 85%   |   |
| Weight                   | Approx. 20 g   |   |

Note: Values in the above table are the initial values.

\*These values are relay only. Please refer to the "Products Related to Common Sockets and DIN Tracks Data Sheet" for connecting sockets.

## Approved Standards

### UL 508 (File No. E41643)

| Model       | Contact form | Coil ratings                 | Contact ratings   | Operations            |
|-------------|--------------|------------------------------|---|-----------------------|
| G2R-1-S (S) | SPDT         | 5 to 110 VDC<br>6 to 240 VAC | 10 A, 30 VDC (resistive)<br>10 A, 250 VAC (general use) | 100 × 10 <sup>3</sup> |
|             |              |                              | TV-3 (NO contact only)                                  | 25 × 10 <sup>3</sup>  |
| G2R-2-S (S) | DPDT         | 5 to 110 VDC<br>6 to 240 VAC | 5 A, 30 VDC (resistive)<br>5 A, 250 VAC (general use)   | 100 × 10 <sup>3</sup> |
|             |              |                              | TV-3 (NO contact only)                                  | 25 × 10 <sup>3</sup>  |

### CSA 22.2 No.0, No.14

#### (File No. LR31928)

| Model       | Contact form | Coil ratings                 | Contact ratings   | Operations            |
|-------------|--------------|------------------------------|---|-----------------------|
| G2R-1-S (S) | SPDT         | 5 to 110 VDC<br>6 to 240 VAC | 10 A, 30 VDC (resistive)<br>10 A, 250 VAC (general use) | 100 × 10 <sup>3</sup> |
|             |              |                              | TV-3 (NO contact only)                                  | 25 × 10 <sup>3</sup>  |
| G2R-2-S (S) | DPDT         | 5 to 110 VDC<br>6 to 240 VAC | 5 A, 30 VDC (resistive)<br>5 A, 250 VAC (general use)   | 100 × 10 <sup>3</sup> |
|             |              |                              | TV-3 (NO contact only)                                  | 25 × 10 <sup>3</sup>  |

### IEC/VDE (Certificate No. 40015012 EN 61810-1)

| Contact form | Coil ratings                                       | Contact ratings  | Operations            |
|--------------|--|--|-----------------------|
| 1 pole       | 6, 12, 24, 48 VDC<br>24, 110, 120, 230,<br>240 VAC | 5 A, 440 VAC (cosφ = 1.0)<br>10 A, 250 VAC (cosφ = 1.0)<br>10 A, 30 VDC (0 ms) | 100 × 10 <sup>3</sup> |
| 2 poles      | 6, 12, 24, 48 VDC<br>24, 110, 120, 230,<br>240 VAC | 5 A, 250 VAC (cosφ = 1.0)<br>5 A, 30 VDC (0 ms)                                | 100 × 10 <sup>3</sup> |

### LR

| Number of poles | Coil ratings                 | Contact ratings  | Operations            |
|-----------------|------------------------------|--|-----------------------|
| 1 pole          | 5 to 110 VDC<br>6 to 240 VDC | 10 A, 250 VAC (general use)<br>7.5 A, 250 VAC (PF0.4)<br>10 A, 30 VDC (resistive)<br>5A, 30VDC (L/R=7ms) | 100 × 10 <sup>3</sup> |
| 2 poles         | 5 to 110 VDC<br>6 to 240 VDC | 5 A, 250 VAC (general use)<br>2 A, 250 VAC (PF0.4)<br>5 A, 30 VDC (resistive)<br>3A, 30VDC (L/R=7ms)     | 100 × 10 <sup>3</sup> |