

# Specifications

## ■ Coil Ratings

|    | Rated voltage  | Rated current | Coil resistance | Must-operate voltage      | Must-release voltage      | Max. voltage          | Power consumption     |
|----|----------------|---------------|-----------------|---------------------------|---------------------------|-----------------------|-----------------------|
| AC | 24 VAC         | 75 mA         | ---             | 75% max. of rated voltage | 15% min. of rated voltage | 110% of rated voltage | Approx. 1.8 to 2.6 VA |
|    | 50 VAC         | 36 mA         | ---             |                           |                           |                       |                       |
|    | 100 to 120 VAC | 18 to 21.6 mA | ---             |                           |                           |                       |                       |
|    | 200 to 240 VDC | 9 to 10.8 mA  | ---             |                           |                           |                       |                       |
| DC | 12 VDC         | 167 mA        | 72 Ω            |                           | 10% min. of rated voltage |                       | Approx. 2.0 W         |
|    | 24 VDC         | 83 mA         | 288 Ω           |                           |                           |                       |                       |
|    | 48 VDC         | 42 mA         | 1,150 Ω         |                           |                           |                       |                       |
|    | 100 VDC        | 20 mA         | 5,000 Ω         |                           |                           |                       |                       |

- Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/–20% for AC rated current and ±15% for DC coil resistance. (The values given for AC rated current apply at 50 Hz or 60 Hz.)  
 2. Performance characteristic data are measured at a coil temperature of 23°C.  
 3. The maximum voltage is one that is applicable to the Relay coil at 23°C.

## ■ Contact Ratings

| Item                   | Resistive load ( $\cos \phi = 1$ )   | Inductive load ( $\cos \phi = 0.4$ ) | Resistive load                          |
|------------------------|--|--------------------------------------|---|
| Contact mechanism      | Double break   |                                      |   |
| Contact material       | Ag alloy   |                                      |   |
| Rated load             | NO: 25 A at 220 VAC (24 A at 230 VAC)<br>NC: 8 A at 220 VAC (7.5 A at 230 VAC) |                                      | NO: 25 A at 30 VDC<br>NC: 8 A at 30 VDC |
| Rated carry current    | NO: 25 A (1 A)<br>NC: 8 A (1 A)  |                                      |   |
| Max. switching voltage | 250 VAC  |                                      | 125 VDC                                 |
| Max. switching current | NO: 25 A (1 A)<br>NC: 8 A (1 A)  |                                      |   |

**Note:** The values in parentheses indicate values for a bifurcated contact.

## ■ Characteristics

|                                    |   |
|------------------------------------|---|
| Contact resistance (see note 2)    | 100 mΩ max.   |
| Operate time (see note 3)          | 50 ms max.  |
| Release time (see note 3)          | 50 ms max.  |
| Max. operating frequency           | Mechanical: 1,800 operations/hr<br>Electrical: 1,800 operations/hr  |
| Insulation resistance (see note 4) | 1,000 MΩ min. (at 500 VDC)  |
| Dielectric strength                | 4,000 VAC, 50/60 Hz for 1 min between coil and contacts<br>4,000 VAC, 50/60 Hz for 1 min between contacts of different polarity<br>2,000 VAC, 50/60 Hz for 1 min between contacts of same polarity  |
| Impulse withstand voltage          | 10,000 V between coil and contact (with 1.2 x 50 μs impulse wave)   |
| Vibration resistance               | Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)<br>Malfunction: NO:10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)<br>NC:10 to 26 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: NO:100 m/s <sup>2</sup><br>NC:20 m/s <sup>2</sup>   |
| Endurance                          | Mechanical: 1,000,000 operations min. (at 1,800 operations/hr)<br>Electrical: 100,000 operations min. (at 1,800 operations/hr) (see note 5)   |
| Error rate (see note 6)            | 100 mA at 24 VDC (bifurcated contact: 24 VDC 10 mA)   |
| Ambient temperature                | Operating: –25°C to 60°C (with no icing or condensation)  |
| Ambient humidity                   | Operating: 5% to 85%  |
| Weight                             | PCB terminal: approx. 140 g<br>Screw terminal: approx. 165 g<br>Quick-connect terminal: approx. 140 g   |

- Note:**
1. The above values are all initial values.
  2. The contact resistance was measured with 1 A at 5 VDC using the voltage drop method.
  3. The operate and the release times were measured with the rated voltage imposed with any contact bounce ignored at an ambient temperature of 23°C.
  4. The insulation resistance was measured with a 500-VDC megger applied to the same places as those used for checking the dielectric strength.
  5. The electrical endurance was measured at an ambient temperature of 23°C.
  6. This value was measured at a switching frequency of 60 operations per minute.

## ■ Approved Standards

The G7J satisfies the following international standards. Approval for some international markings and symbols are still pending, however, and information on them will be added when they are approved.

### UL (File No. E41643)

### CSA (File No. LR35535)

| Coil ratings                  | Contact ratings |                              | Number of test operations |
|-------------------------------|-----------------|------------------------------|---------------------------|
| 24 to 265 VAC<br>6 to 110 VDC | NO contact      | 25 A 277 VAC, Resistive      | 30,000                    |
|                               |                 | 25 A 120 VAC, General Use    |                           |
|                               |                 | 25 A 277 VAC, General Use    |                           |
|                               |                 | 25 A 240 VAC, General Use    | 100,000                   |
|                               |                 | 1.5 kW 120 VAC, Tungsten     | 6,000                     |
|                               |                 | 1.5 hp 120 VAC               | 1,000                     |
|                               |                 | 3 hp 240/265/277 VAC         | 30,000                    |
|                               |                 | 3-phase 3 hp 240/265/277 VAC |                           |
|                               |                 | 3-phase 5 hp 240/265/277 VAC |                           |
|                               |                 | 20FLA/120LRA 120 VAC         | 25,000                    |
|                               |                 | 17FLA/102LRA 277 VAC         |                           |
|                               |                 | TV-10 120 VAC                |                           |
|                               |                 | 25 A 30 VDC, Resistive       | 30,000                    |
|                               |                 | *1 A 277 VAC, General Use    | 6,000                     |
|                               | NC contact      | 8 A 277 VAC, Resistive       | 30,000                    |
|                               |                 | 8 A 120 VAC, General Use     |                           |
|                               |                 | 8 A 277 VAC, General Use     |                           |
|                               |                 | 8 A 30 VDC, Resistive        |                           |
|                               |                 | *1 A 277 VAC, General Use    | 6,000                     |

**Note:** \*These ratings are bifurcated contact ratings.

### Reference

UL approval: UL508 for industrial control devices

CSA approval: CSA C22.2 No. 14 for industrial control devices

### VDE (File No. 5381UG)

| Model             | Coil ratings                       | Contact ratings               |                              |
|-------------------|------------------------------------|-------------------------------|------------------------------|
|                   |                                    | NO contact                    | NC contact                   |
| G7J-4A-B(P) (T)   | 6, 12, 24, 48, 100 VDC             | 25 A 240 VAC $\cos\phi = 0.4$ | 8 A 240 VAC $\cos\phi = 0.4$ |
| G7J-2A2B(P) (T)   | 24, 50, 100 to 120, 200 to 240 VAC | 25 A 240 VAC $\cos\phi = 1$   | 8 A 240 VAC $\cos\phi = 1$   |
| G7J-3A1B-B(P) (T) |                                    | 25 A 30 VDC $L/R \geq 1$      | 8 A 30 VDC $L/R \geq 1$      |

**Note:** Add the suffix "-KM" to the model number when ordering.

### Reference

VDE approval: EN60255-1-00: 1997

EN60255-23: 1996