

Specifications

Ratings

Coil Ratings

| Rated voltage | Rated current | | Coil resistance | Must operate voltage | Must release voltage | Max. voltage | Power consumption |
|---------------|---------------|---------|-----------------|----------------------|---------------------------|-----------------------|--|
| | 50 Hz | 60 Hz | | | | | |
| AC | 6 V | 443 mA | 385 mA | 3.1 Ω | 80% max. of rated voltage | 110% of rated voltage | Approx. 2.3 VA at 60 Hz Approx. 2.7 VA at 50 Hz |
| | 12 V | 221 mA | 193 mA | 13.7 Ω | | | |
| | 24 V | 110 mA | 96.3 mA | 48.4 Ω | | | |
| | 100 V | 26.6 mA | 23.1 mA | 760 Ω | | | |
| | 110 V | 24.2 mA | 21.0 mA | 932 Ω | | | |
| | 200 V | 13.3 mA | 11.6 mA | 3,160 Ω | | | |
| | 220 V | 12.1 mA | 10.5 mA | 3,550 Ω | | | |
| | 230 V | 10.0 mA | 11.5 mA | 4,250 Ω | | | |
| | 240 V | 11.0 mA | 9.6 mA | 4,480 Ω | | | |
| DC | 6 V | 224 mA | | 26.7 Ω | 15% min. of rated voltage | Approx. 1.4 W | |
| | 12 V | 112 mA | | 107 Ω | | | |
| | 24 V | 55.8 mA | | 430 Ω | | | |
| | 48 V | 28.1 mA | | 1,710 Ω | | | |
| | 100 V | 13.5 mA | | 7,390 Ω | | | |
| | 110 V | 12.3 mA | | 8,960 Ω | | | |
| | 125 V | 10.8 mA | | 11,576 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.
 2. Performance characteristic data are measured at a coil temperature of 23°C.
 3. The maximum voltage is one that is applicable instantaneously to the Relay coil at 23°C and not continuously.
 4. For DC-operated Relays with the LED indicator built-in, add an LED current of approx. 5 mA to the rated current.

Contact Ratings


| Load | Resistive load ($\cos\phi = 1$) | Inductive load ($\cos\phi = 0.4$) |
|------------------------|--------------------------------------|--|
| Contact mechanism | Single | |
| Contact material | AgSnIn | |
| Rated load | NO | 7 A, 250 VAC |
| | NC | |
| Rated carry current | 10 A | |
| Max. switching voltage | 250 VAC, 250 VDC | |
| Max. switching current | 10 A | |
| Max. switching power | NO | 2,500 VA/300 W |
| | NC | 1,250 VA/150 W |

Characteristics

| | |
|--|---|
| Contact resistance | 100 mΩ max. |
| Operate time | AC: 20 ms max. DC: 30 ms max. |
| Release time | 20 ms max. (40 ms max. for built-in Diode Relays) |
| Max. operating frequency | Mechanical: 18,000 operations/h Electrical: 1,800 operations/h (under rated load) |
| Insulation resistance | 100 MΩ min. (at 500 VDC) |
| Dielectric strength | 2,500 VAC 50/60 Hz for 1 min between coil and contacts 1,000 VAC 50/60 Hz for 1 min between contacts of same polarity and terminals of the same polarity 2,500 VAC 50/60 Hz for 1 min between current-carrying parts, non-current-carrying parts, and opposite polarity |
| Insulation method | Basic insulation |
| Impulse withstand voltage | 4.5 kV between coil and contacts (with 1.2 × 50 μs impulse wave) 3.0 kV between contacts of different polarity (with 1.2 × 50 μs impulse wave) |
| Pollution degree | 3 |
| Rated insulation voltage | 250 V |
| Vibration resistance | Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.5-mm single amplitude (1.0-mm double amplitude) |
| Shock resistance | Destruction: 1,000 m/s ² (approx. 100 G) Malfunction: 100 m/s ² (approx. 10 G) |
| Endurance | Mechanical: 5,000,000 operations min. (at 18,000 operations/h under rated load) Electrical: 100,000 operations h. (at 1,800 operations/h under rated load) |
| Failure rate P level (reference value) | 10 mA at 1 VDC |
| Ambient temperature | Operating: -40 to 60°C (with no icing or condensation) |
| Ambient humidity | Operating: 5% to 85% |
| Weight | Approx. 90 g |

Note: 1. The values given above are initial values.
2. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation
3. Ambient temperature of models with LED indicator is -25 to 60°C.

Approved Standards

UL508 (File No. E41515) 

| Coil ratings | Contact ratings | Operations |
|------------------------------|--|------------|
| 6 to 110 VDC 6 to 240 VAC | N.O. contact 10 A, 250 V AC 50/60 Hz (Resistive) 10 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use) | 100,000 |
| | N.C. contact 10 A, 250 V AC 50/60 Hz (Resistive) 10 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use) | 100,000 |

CSA Standard: CSA C22.2 No. 14 (File No. LR35535) 

| Coil ratings | Number of Poles | Contact ratings | Operations |
|------------------------------|-----------------|--|------------|
| 6 to 125 VDC 6 to 240 VAC | 2 | 10 A, 250 V AC (Resistive) 10 A, 30 V DC (Resistive) 7 A, 250 V AC (General Use) | 100,000 |
| | 3 | 10 A, 250 V AC (Resistive) Same Polarity 10 A, 30 V DC (Resistive) Same Polarity 7 A, 250 V AC (General Use) Same Polarity | 100,000 |

IEC Standard/TÜV Certification: IEC61810-1
(Certification No. R50104853) 

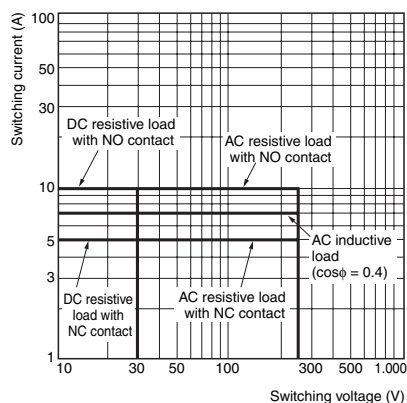
| Coil ratings | Contact ratings | Operations |
|--|--|------------|
| 6, 12, 24, 48, 100, 110 VDC 6, 12, 24, 100, 110, 200, 220, 240 VAC | N.O. contact 10 A, 250 V AC 50/60 Hz (Resistive) 10 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use) | 100,000 |
| | N.C. contact 5 A, 250 V AC 50/60 Hz (Resistive) 5 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use) | 100,000 |

Note: When Relays are mounted on the PF083A-E or PF113A-E, the maximum carrying current is 9 A.

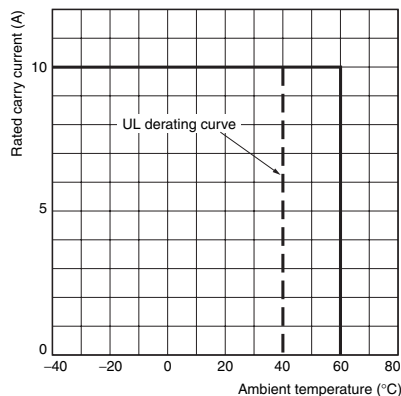
Engineering Data

Reference Data

Maximum Switching Power



Rated Carry Current vs. Ambient Rated Temperature



Note: The lower limit of the ambient operating temperature for models with built-in operation indicators is -25°C.