

199 Power Relays

GENERAL SPECIFICATIONS



DPDT



SPDT



SPST-DM

| PART NUMBERS | | 199AX, 199X, 199AMX ¹ , 199MX ¹ , 199ABX ² , 199BX ² | 199ADX, 199DX, 199ADYX, 199DYX, 199ADB ³ X ² , 199DBX ² | 199P ^{3,4} , 199AP ^{3,4} | 199ADE, 199DE, 199ADBE ² , 199DBE ² |
|---|--------------------------|--|--|--|--|
| CONTACT CHARACTERISTICS | | | | | |
| Number and type of contacts | | SPST, SPDT, DPST, DPDT | SPST-DM, SPST-DB | DPDT, SPDT | SPST-DM |
| Contact material | | AgSnO | | | |
| Thermal (carrying) current rating | | 40 A | | 50 A | |
| Maximum switching voltage | | 600 V(rms) | | | |
| Rated Switching current at voltage | Resistive | 40 A at 300 VAC; 5 A at 480 VAC; 5 A at 600 VAC; 40 A at 28 VDC | 40 A at 300 VAC; 12 A at 480 VAC; 10 A at 600 VAC; 40 A at 28 VDC | 50 A at 300 VAC; 5 A at 480 VAC; 5 A at 600 VAC; 50 A at 28 VDC | 50 A at 300 VAC; 12 A at 480 VAC; 10 A at 600 VAC; 50 A at 28 VDC |
| | Motor | 2 HP at 120 to 600 VAC | | | |
| | Tungsten | 15 A at 120 VAC | | | |
| | Pilot duty | A600 | | | |
| Minimum switching requirement | | 1 A at 5 VAC/VDC | | | |
| COIL CHARACTERISTICS | | | | | |
| Voltage range | | 6 to 600 VAC; 6 to 250 VDC | | | |
| Operating range (% of Nominal) | | 85% to 110% (AC); 80% to 110% (DC) ^a | | | |
| Average power consumption (Maximum) | | 10 VA; 4 W | | | |
| Drop-out voltage threshold | | 10% (AC/DC) | | | |
| PERFORMANCE CHARACTERISTICS | | | | | |
| Electrical life (IEC 60947-1) | Rated resistive load | Please refer to Table 3 | | | |
| Operating time (response time) | | 30 ms | | | |
| Dielectric strength | Between coil and contact | 2200 V | 2200 V | 2200 V | 2200 V |
| | Between poles | 2200 V | N/A | 2200 V | N/A |
| | Between open contacts | 1600 V | 2200 V | 1600 V | 2200 V |
| ENVIRONMENT | | | | | |
| Product certifications | | UL, CSA, CE, RoHS | | | |
| Ambient temperature range (around the device) | | -55 to +100 °C (Storage) | | | |
| | | -55 to +55 °C (Operation) | | | |
| Termination ³ | | 10 (5.3) AWG (mm²) | | | |
| Terminal tightening torque | | 11 to 15 in-lb (1.2 to 1.7 Nm) | | | |
| Weight | | 227 to 312 g (8 to 11 oz) | | | |

¹ For auxiliary switch ratings, please refer to Table 1.

² For ratings with blowout magnet, please refer to Table 2.

³ For UL listed installations, proper wire rating and terminations required.

⁴ Recommended ring, fork, or box wire termination.

⁵ Recommended mounting positions: horizontal or vertical (not upside down).

Table 1: Auxiliary Switch Ratings

| AUXILIARY SWITCH RATINGS | |
|---------------------------------------|---------|
| Resistive Load 120/250 VAC (50/60 Hz) | 10 A |
| Motor Load 125/250 VAC (50/60 Hz) | 0.25 HP |
| Tungsten Load 125 VAC (50/60 Hz) | 3 A |

Table 2: Additional DC Ratings with Blowout Magnets

| RELAY VOLTAGE | RATING W/BLOWOUT MAGNET |
|---------------|-------------------------|
| 110 VDC | 20 A |
| 220 VDC | 8 A |
| 325 VDC | 4 A |
| 500 VDC | 2 A |

Table 3: Contact Ratings & Electrical Endurance (per IEC 60947-1, 60947-4-1)

| CURRENT/HORSEPOWER RATINGS | LOAD VOLTAGE | FREQUENCY | LOAD TYPE | ESTIMATED ELECTRICAL ENDURANCE | SEE NOTE(S) |
|----------------------------|--------------|-----------|------------|--------------------------------|-------------|
| AC LOAD | | | | | |
| 50 A | 300 V | 50/60 Hz | Resistive | 25,000 cycles | 1, 4 |
| 40 A | | | | 50,000 cycles | 2, 4 |
| 2 HP | 120 to 600 V | | Motor | 50,000 cycles | 3, 4 |
| 15 A | 120 V | | Tungsten | 20,000 cycles | 4, 5 |
| A600 | --- | --- | Pilot Duty | 100,000 cycles | 4 |
| DC LOAD | | | | | |
| 40 A | 28 V | DC | Resistive | 100,000 cycles | 4 |
| 20 A | 110 V | | | | |
| 8 A | 220 V | | | | |
| 4 A | 325 V | | | | |
| 2 A | 500 V | | | | |

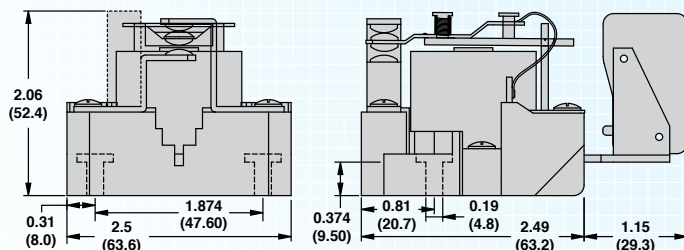
Notes:

- 50 A rating refer to models with pressure wire connectors only.
- Resistive AC load ratings are based on a power factor of 0.85 to 1.0.
- Motor horsepower ratings are based on a power factor of 0.4 to 0.5, and an initial inrush current not in excess of six times the full load current.
- All ratings are based on applying the rated nominal power to the relay coil in such a manner as to provide a "clean" make and break, and does not result in any contact chatter or multiple actuation of the contacts.
- The tungsten rating is based on cold filament inrush current not exceeding 15 times the rated steady state lamp current.

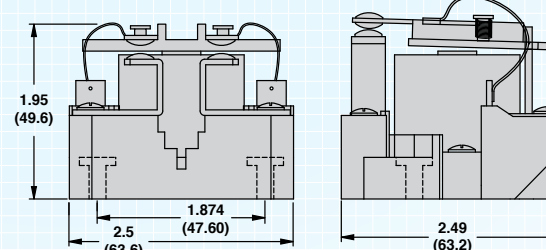
RELAY DIMENSIONS

shown in inches (millimeters)

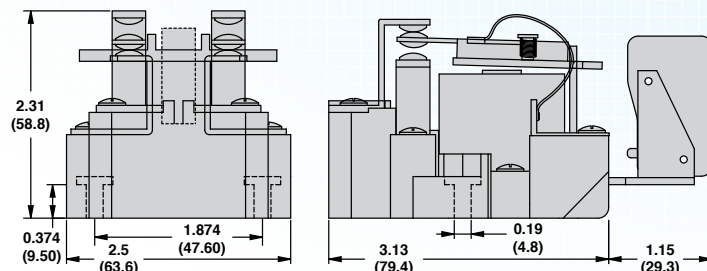
SPDT – Short base w/Auxiliary Switch



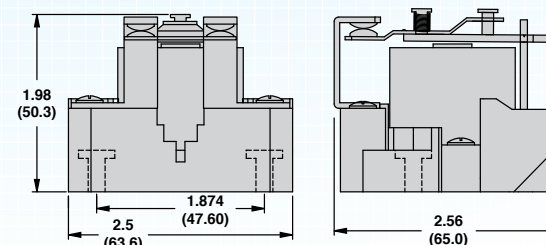
DPST-NO



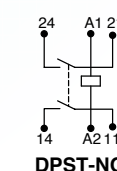
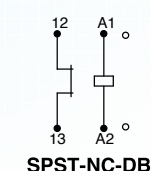
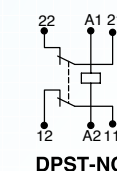
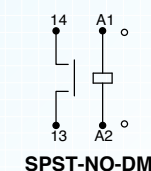
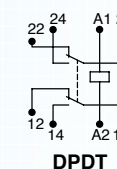
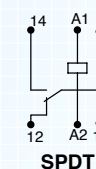
DPDT – Long base w/Auxiliary Switch



SPST-NO-DM



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