



# 199 Power Relays

## GENERAL SPECIFICATIONS



DPDT



SPDT



SPST-DM

PART NUMBERS		199AX, 199X, 199AMX <sup>1</sup> , 199MX <sup>1</sup> , 199ABX <sup>2</sup> , 199BX <sup>2</sup>	199ADX, 199DX, 199ADYX, 199DYX, 199ADB <sup>2</sup> , 199DB <sup>2</sup>	199P <sup>3,4</sup> , 199AP <sup>3,4</sup>	199ADE, 199DE, 199ADBE <sup>2</sup> , 199DBE <sup>2</sup>
<b>CONTACT CHARACTERISTICS</b>					
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			
<b>COIL CHARACTERISTICS</b>					
Voltage range		6 to 600 VAC; 6 to 250 VDC			
Operating range (% of Nominal)		85% to 110% (AC); 80% to 110% (DC) <sup>5</sup>			
Average power consumption (Maximum)		10 VA; 4 W			
Drop-out voltage threshold		10% (AC/DC)			
<b>PERFORMANCE CHARACTERISTICS</b>					
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
<b>ENVIRONMENT</b>					
Product certifications		UL, CSA, CE, RoHS			
Ambient temperature range (around the device)		-55 to +100 °C (Storage) -55 to +55 °C (Operation)			
Termination <sup>3</sup>		10 (5.3) AWG (mm <sup>2</sup> )			
Terminal tightening torque		11 to 15 in-lb (1.2 to 1.7 Nm)			
Weight		227 to 312 g (8 to 11 oz)			

<sup>1</sup> For auxiliary switch ratings, please refer to Table 1.

<sup>2</sup> For ratings with blowout magnet, please refer to Table 2.

<sup>3</sup> For UL listed installations, proper wire rating and terminations required.

<sup>4</sup> Recommended ring, fork, or box wire termination.

<sup>5</sup> 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)**

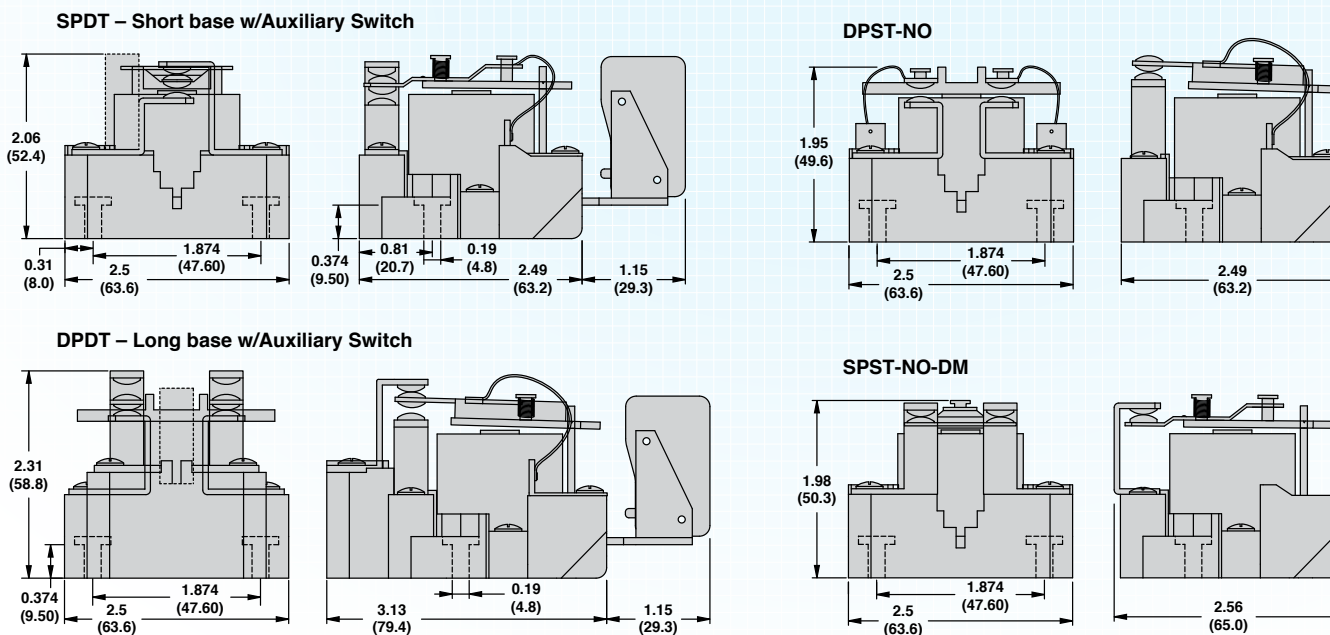
CURRENT/HORSEPOWER RATINGS	LOAD VOLTAGE	FREQUENCY	LOAD TYPE	ESTIMATED ELECTRICAL ENDURANCE	SEE NOTE(S)
<b>AC LOAD</b>					
50 A	300 V	50/60 Hz	Resistive	25,000 cycles	1, 4
40 A				50,000 cycles	2, 4
2 HP	120 to 600 V	---	Motor	50,000 cycles	3, 4
15 A	120 V		Tungsten	20,000 cycles	4, 5
A600	---	---	Pilot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

1. 50 A rating refer to models with pressure wire connectors only.
2. Resistive AC load ratings are based on a power factor of 0.85 to 1.0.
3. 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.
4. 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.
5. 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)



**RELAY WIRING DIAGRAMS**

