

78 Series Electromechanical Relay Selection Guide



| Specification | 781 Series | 782 Series | 783 Series | 784 Series |
|---------------------------|--|--|--|--|
| Coil Voltages | 120VAC, 240VAC, 12VAC, 12VDC, 24VAC, 24VDC | 120VAC, 240VAC, 12VAC, 12VDC, 24VAC, 24VDC | 120VAC, 240VAC, 12VAC, 12VDC, 24VAC, 24VDC | 120VAC, 240VAC, 12VAC, 12VDC, 24VAC, 24VDC |
| Configuration | SPDT | DPDT | 3PDT | 4PDT |
| Contact Rating | 15A | 15A | 15A | 15A |
| Base Socket | 5 pin spade terminal | 8 pin spade terminal | 11 pin spade terminal | 14 pin spade terminal |
| Agency Approvals | UL Recognized (E191059), CE, IEC Std 947-4-1 and 947-5-1, CSA 244610 | UL Recognized (E191059), CE, IEC Std 947-4-1 and 947-5-1, CSA 244610 | UL Recognized (E191059), CE, IEC Std 947-4-1 and 947-5-1, CSA 244610 | UL Recognized (E191059), CE, CSA 244610 |
| Prices starting at | \$4.50 | \$5.50 | \$5.75 | \$7.25 |



These ice cube style relays are power relays designed for applications demanding high power control in various factory machines and control panels. They are ideal for electrical control panels requiring stable and reliable relays.

Features

- Small package design
- Silver alloy gold flashed contact
- High open contact dielectric strength (up to 2500V rms)
- High reliability and long life
- High vibration and shock resistance
- LED indicator on all models, so you can easily see if the relay is working properly without using a voltmeter
- Flag indicator shows relay status in manual or powered condition
- A pushbutton allows manual operation of the relay without the need for power to the coil
- Lock-Down door, when activated, holds pushbutton and contacts in the “operate” position, allowing circuits to be analyzed.
- SPDT, DPDT, 3PDT and 4PDT models
- Finger grip cover allows easier removal of relays from sockets than conventional relays
- I.D. tag/write labels for identifying relays in multi-relay circuits

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NOTE: Not recommended for low current switching. Find contacts' Minimum Switching Requirement on following page. For low current switching, please see the QM4N1 and QM4X1 series.

| Part Number | Price | Coil Voltage | Configuration | Dimensions | Relay Socket Part Number | Price | Dimensions |
|--------------------|--------|--------------|---------------|------------|--------------------------|--------|------------|
| 781-1C-12D | \$4.75 | 12VDC | SPDT | Figure 1 | 781-1C-SKT | \$4.00 | Figure 5 |
| 781-1C-12A | \$4.75 | 12VAC | | | | | |
| 781-1C-24D | \$4.50 | 24VDC | | | | | |
| 781-1C-24A | \$4.75 | 24VAC | | | | | |
| 781-1C-120A | \$4.75 | 120VAC | | | | | |
| 781-1C-240A | \$5.25 | 240VAC | | | | | |
| 782-2C-12D | \$5.50 | 12VDC | DPDT | Figure 2 | 782-2C-SKT | \$4.00 | Figure 6 |
| 782-2C-12A | \$5.50 | 12VAC | | | | | |
| 782-2C-24D | \$5.50 | 24VDC | | | | | |
| 782-2C-24A | \$5.75 | 24VAC | | | | | |
| 782-2C-120A | \$5.75 | 120VAC | | | | | |
| 782-2C-240A | \$6.25 | 240VAC | | | | | |
| 783-3C-12D | \$5.75 | 12VDC | 3PDT | Figure 3 | 783-3C-SKT | \$4.50 | Figure 7 |
| 783-3C-12A | \$7.75 | 12VAC | | | | | |
| 783-3C-24D | \$8.25 | 24VDC | | | | | |
| 783-3C-24A | \$8.25 | 24VAC | | | | | |
| 783-3C-120A | \$8.25 | 120VAC | | | | | |
| 783-3C-240A | \$8.25 | 240VAC | | | | | |
| 784-4C-12D | \$7.25 | 12VDC | 4PDT | Figure 4 | 784-4C-SKT-1 | \$4.75 | Figure 8 |
| 784-4C-12A | \$9.50 | 12VAC | | | | | |
| 784-4C-24D | \$7.50 | 24VDC | | | | | |
| 784-4C-24A | \$7.50 | 24VAC | | | | | |
| 784-4C-120A | \$7.50 | 120VAC | | | | | |
| 784-4C-240A | \$7.50 | 240VAC | | | | | |

78 Series Electromechanical Relay Specifications

| 78 Series Relay Specification Table | | | | | | | | | | | | |
|--|--|------------|------------|------------|-------------|-------------|-----------------------|------------|------------|------------|-------------|-------------|
| Part Numbers | 781-1C-12D | 781-1C-12A | 781-1C-24D | 781-1C-24A | 781-1C-120A | 781-1C-240A | 782-2C-12D | 782-2C-12A | 782-2C-24D | 782-2C-24A | 782-2C-120A | 782-2C-240A |
| General Specifications | | | | | | | | | | | | |
| *Service Life: Mechanical / Electrical Operations | Mechanical: 10,000,000 operations unpowered Electrical: 100,000 operations @ rated resistive load | | | | | | | | | | | |
| Operating Temperature | -40°C to 55°C (-40°F to 131°F) | | | | | | | | | | | |
| Response Time | 20ms | | | | | | | | | | | |
| Vibration Resistance | ± 1mm (10-35 Hz) and 3gn (35-50Hz) | | | | | | | | | | | |
| Shock Resistance | 15gn | | | | | | | | | | | |
| Weight | 26g (0.92 oz) | | | | | | 36g (1.27 oz) | | | | | |
| **Agency Approvals and Standards | UL Recognized File E191059, CE, CSA | | | | | | | | | | | |
| Environmental Protection | IP40 | | | | | | | | | | | |
| NEMA B300 Pilot Duty Rated | Yes | | | | | | | | | | | |
| Coil Specifications | | | | | | | | | | | | |
| Standard | Mechanical flag indicator, LED Indicator, lockable push to test button | | | | | | | | | | | |
| Coil Input Voltage | 12VDC | 12VAC | 24VDC | 24VAC | 120VAC | 240VAC | 12VDC | 12VAC | 24VDC | 24VAC | 120VAC | 240VAC |
| Coil Resistance | 115Ω | 44Ω | 450Ω | 177Ω | 4.43kΩ | 17.72kΩ | 177Ω | 44Ω | 640Ω | 177Ω | 4.43 kΩ | 17.72 kΩ |
| Power Consumption | 1.4 W DC, 1.9 VAC | | | | | | 1.15 W DC, 1.4 VAC | | | | | |
| Dropout Voltage (% of nominal voltage or more) | 10% | 15% | 10% | 15% | | 10% | | 15% | 10% | 15% | | |
| Pull-in Voltage (% of nominal voltage or less) | 85% | 85% | 85% | 85% | | 80% | | 85% | 80% | 85% | | |
| Max. Voltage (Max. continuous voltage) | 110% of the rated coil voltage | | | | | | | | | | | |
| Contact Specifications | | | | | | | | | | | | |
| Contact Type | SPDT | | | | | | DPDT | | | | | |
| Contact Material | Silver alloy, gold flashed | | | | | | | | | | | |
| Minimum Switching Requirement | 10mA @ 17VDC | | | | | | | | | | | |
| Max. Contact Rating | Refer to Contact Ratings charts. | | | | | | | | | | | |
| Dielectric Strength Between Contacts | Between coil contact: 2000V rms; Between poles 2000V rms; Between contacts 1500V rms | | | | | | | | | | | |

*Note: These devices are rated for 1,000 cycles when used in a motor application. (Per Table 45.1, UL 508).

**Note: UL listed when used with sockets 781-1C-SKT, 782-2C-SKT, 783-3C-SKT, 784-4C-SKT, or 784-4C-SKT-1. Current limited to rating of relay or socket, whichever is less.

| NEMA Mechanical Switching Ratings and Test Values for AC Control Circuit Contacts | | | | | | | | | | | |
|---|-------------------------------------|---------------------------------|-------|-----------|-------|-----------|-------|-----------|-------|-------------|-------|
| Contact Rating Designation | Thermal Continuous Test Current (A) | Maximum AC Current, 50/60Hz (A) | | | | | | | | Voltamperes | |
| | | 120 Volts | | 240 Volts | | 480 Volts | | 600 Volts | | | |
| | | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break |
| B300 | 5 | 30 | 3.00 | 15 | 1.50 | --- | --- | --- | --- | 3600 | 360 |

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-1.

| 781 Series Contact Ratings (current) | | | | |
|--------------------------------------|---------|-----|-----|-------------|
| Resistive | | | | *Motor Load |
| Voltage | Nominal | UL | CSA | UL |
| 28VDC | 15A | 15A | 12A | --- |
| 120VAC | 15A | 15A | 15A | 1/2Hp |
| 277VAC | 15A | 12A | 12A | 1Hp |

| 782 Series Contact Ratings (current) | | | | |
|--------------------------------------|---------|-----|-----|-------------|
| Resistive | | | | *Motor Load |
| Voltage | Nominal | UL | CSA | UL |
| 28VDC | 15A | 15A | 12A | --- |
| 120VAC | 15A | 15A | 15A | 1/2Hp |
| 277VAC | 15A | 12A | 12A | 1Hp |

78 Series Electromechanical Relay Specifications

| 78 Series Relay Specification Table | | | | | | | | | | | | |
|--|--|------------|------------|------------|-------------|-------------|----------------------|------------|------------|------------|-------------|-------------|
| Part Numbers | 783-3C-12D | 783-3C-12A | 783-3C-24D | 783-3C-24A | 783-3C-120A | 783-3C-240A | 784-4C-12D | 784-4C-12A | 784-4C-24D | 784-4C-24A | 784-4C-120A | 784-4C-240A |
| General Specifications | | | | | | | | | | | | |
| *Service Life: Mechanical / Electrical Operations | Mechanical: 10,000,000 operations unpowered Electrical: 100,000 operations @ rated resistive load | | | | | | | | | | | |
| Operating Temperature | -40°C to 55°C (-40°F to 131°F) | | | | | | | | | | | |
| Response Time | 20ms | | | | | | | | | | | |
| Vibration Resistance | ± 1mm (10-35 Hz) and 3gn (35-100 Hz) | | | | | | | | | | | |
| Shock Resistance | 15gn | | | | | | | | | | | |
| Weight | 60g (2.12 oz) | | | | | | 80g (2.82 oz) | | | | | |
| **Agency Approvals and Standards | UL Recognized File E191059, CE, CSA | | | | | | | | | | | |
| Environmental Protection | IP40 | | | | | | | | | | | |
| NEMA B300 Pilot Duty Rated | Yes | | | | | | | | | | | |
| Coil Specifications | | | | | | | | | | | | |
| Standard | Mechanical flag indicator, LED Indicator, lockable push to test button | | | | | | | | | | | |
| Coil Input Voltage | 12VDC | 12VAC | 24VDC | 24VAC | 120VAC | 240VAC | 12VDC | 12VAC | 24VDC | 24VAC | 120VAC | 240VAC |
| Coil Resistance | 80Ω | 30Ω | 320Ω | 110Ω | 2.88 kΩ | 11.3 kΩ | 76Ω | 20Ω | 303Ω | 80Ω | 2.1 kΩ | 8kΩ |
| Power Consumption | 1.85 W DC, 2.05 VAC | | | | | | 1.5 W DC, 1.5 VAC | | | | | |
| Dropout Voltage (% of nominal voltage or more) | 10% | 15% | 10% | 15% | | 10% | | 15% | 10% | 15% | | 15% |
| Pull-in Voltage (% of nominal voltage or less) | 80% | 85% | 80% | 85% | | 80% | | 85% | 80% | 85% | | 85% |
| Max. Voltage (Max. continuous voltage) | 110% of the rated coil voltage | | | | | | | | | | | |
| Contact Specifications | | | | | | | | | | | | |
| Contact Type | 3PDT | | | | | | 4PDT | | | | | |
| Contact Material | Silver alloy, gold flashed | | | | | | | | | | | |
| Minimum Switching Requirement | 10mA @ 17VDC | | | | | | | | | | | |
| Max. Contact Rating | Refer to Contact Ratings charts. | | | | | | | | | | | |
| Dielectric Strength Between Contacts | Between coil and contacts: 2000V rms; Between poles: 2000V rms; Between contacts: 1500V rms | | | | | | | | | | | |

*Note: These devices are rated for 1,000 cycles when used in a motor application. (Per Table 45.1, UL 508).

**Note: UL listed when used with sockets 781-1C-SKT, 782-2C-SKT, 783-3C-SKT, 784-4C-SKT, or 784-4C-SKT-1. Current limited to rating of relay or socket, whichever is less.

| 783 Series Contact Ratings (current) | | | | |
|--------------------------------------|---------|-----|-------------------------------|----------------------|
| Resistive | | | | *Motor Load |
| Voltage | Nominal | UL | CSA | UL |
| 28VDC | 15A | 15A | 15A @ 28VDC 30A max total | — |
| 120VAC | 15A | — | 15A | 1/2 hp |
| 277VAC | 15A | 15A | 15A @ 150VAC 30A max total | 1hp 2hp max total |

| 784 Series Contact Ratings (current) | | | | |
|--------------------------------------|---------|-----|-------------------------------|----------------------|
| Resistive | | | | *Motor Load |
| Voltage | Nominal | UL | CSA | UL |
| 28VDC | 15A | 15A | 15A @ 28VDC 30A max total | — |
| 120VAC | 15A | — | 15A | 1/2Hp |
| 277VAC | 15A | 15A | 15A @ 150VAC 30A max total | 1hp 2hp max total |

*Note: These devices are rated for 1,000 cycles when applied to a motor application. (Per Table 46.1 UL 508)