

# 750R Series Electromechanical Relay Selection Guide

## Overview

750R series relays are general purpose relays designed for a wide range of applications, from power to sequence controls in various factory machines and control panels. They are ideal for electrical control panels requiring stable and reliable relays.



## Features

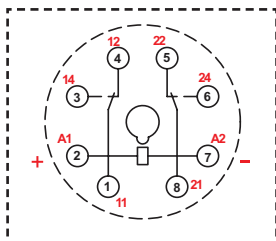
- Octal base design
- Silver alloy, gold flashed contacts
- High open contact dielectric strength (1500 Vrms)
- High reliability and long life
- High vibration and shock resistance
- Flag indicator shows relay status in manual or powered condition
- LED indicator on all models, so you can easily see if relay is working properly without using a voltmeter
- A pushbutton allows manual operation of the relay without the need for power to the coil
- I.D. tag/write label for identifying relays in multi-relay circuits

| 750R Series Relays           |         |                     |              |               |                |           |                            |        |                     |
|------------------------------|---------|---------------------|--------------|---------------|----------------|-----------|----------------------------|--------|---------------------|
| Part Number                  | Price   | Drawing Link        | Coil Voltage | Configuration | Contact Rating | Terminals | Relay Socket Part Number   | Price  | Drawing Link        |
| <a href="#">750R-2C-12D</a>  | \$9.00  | <a href="#">PDF</a> | 12VDC        | DPDT          | 10A            | 8-pin     | <a href="#">750-2C-SKT</a> | \$4.75 | <a href="#">PDF</a> |
| <a href="#">750R-2C-12A</a>  | \$11.00 | <a href="#">PDF</a> | 12VAC        |               |                |           |                            |        |                     |
| <a href="#">750R-2C-24D</a>  | \$9.00  | <a href="#">PDF</a> | 24VDC        |               |                |           |                            |        |                     |
| <a href="#">750R-2C-24A</a>  | \$9.25  | <a href="#">PDF</a> | 24VAC        |               |                |           |                            |        |                     |
| <a href="#">750R-2C-120A</a> | \$9.25  | <a href="#">PDF</a> | 120VAC       |               |                |           |                            |        |                     |
| <a href="#">750R-2C-240A</a> | \$10.00 | <a href="#">PDF</a> | 240VAC       | 3PDT          | 10A            | 11-pin    | <a href="#">750-3C-SKT</a> | \$5.25 | <a href="#">PDF</a> |
| <a href="#">750R-3C-12D</a>  | \$10.50 | <a href="#">PDF</a> | 12VDC        |               |                |           |                            |        |                     |
| <a href="#">750R-3C-24D</a>  | \$10.50 | <a href="#">PDF</a> | 24VDC        |               |                |           |                            |        |                     |
| <a href="#">750R-3C-24A</a>  | \$11.00 | <a href="#">PDF</a> | 24VAC        |               |                |           |                            |        |                     |
| <a href="#">750R-3C-120A</a> | \$11.00 | <a href="#">PDF</a> | 120VAC       |               |                |           |                            |        |                     |
| <a href="#">750R-3C-240A</a> | \$11.00 | <a href="#">PDF</a> | 240VAC       |               |                |           |                            |        |                     |

Note: Order socket separately. [750-2C-SKT/750-3C-SKT](#) socket torque 9 lb-in/ 1.0 N·m

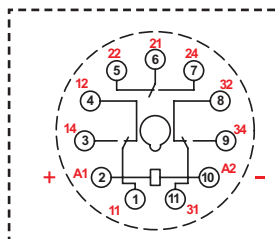
## Wiring Diagrams

**750R-2C-xxx wiring diagram**



Note: Contacts and coil shown are internal to the relay

**750R-3C-xxx wiring diagram**



Note: Contacts and coil shown are internal to the relay

Note: Red numbers indicate IEC designations

# 750R Series Electromechanical Relay Specifications

| 750R Series Specifications                |                                                                                         |                   |             |                   |                    |                    |             |             |                   |                    |                    |
|-------------------------------------------|-----------------------------------------------------------------------------------------|-------------------|-------------|-------------------|--------------------|--------------------|-------------|-------------|-------------------|--------------------|--------------------|
| Part Numbers                              | 750R-2C-12D                                                                             | 750R-2C-12A       | 750R-2C-24D | 750R-2C-24A       | 750R-2C-120A       | 750R-2C-240A       | 750R-3C-12D | 750R-3C-24D | 750R-3C-24A       | 750R-3C-120A       | 750R-3C-240A       |
| General Specifications                    |                                                                                         |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Service Life                              | Mechanical: 5 million operations, Electrical: 100,000 operations @ rated resistive load |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Operating Temperature                     | -40 to 55°C [-40 to 131°F]                                                              |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Response Time                             | 20ms                                                                                    |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Vibration Resistance                      | +/- 1mm [10 -35 Hz] and 3 g-n [35 -150 Hz]                                              |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Shock Resistance                          | 10 G's                                                                                  |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Weight g (oz)                             | 83 [2.93]                                                                               |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Environmental Protection                  | IP40                                                                                    |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| *Agency Approvals and Standards           | UL Recognized file E191059, CE, CSA Certified 2742760                                   |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Coil Specifications                       |                                                                                         |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Standard                                  | LED Indicator                                                                           |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Coil Input Voltage                        | 12VDC                                                                                   | 12VAC<br>50/60 Hz | 24VDC       | 24VAC<br>50/60 Hz | 120VAC<br>50/60 Hz | 240VAC<br>50/60 Hz | 12VDC       | 24VDC       | 24VAC<br>50/60 Hz | 120VAC<br>50/60 Hz | 240VAC<br>50/60 Hz |
| Coil Resistance                           | 120Ω                                                                                    | 16.9 Ω            | 470Ω        | 72Ω               | 1.7 kΩ             | 6.8 kΩ             | 120Ω        | 470Ω        | 72Ω               | 1.7 kΩ             | 6.8 kΩ             |
| Power Consumption                         | 3VA (60Hz) AC, 1.4 W DC                                                                 |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Dropout Voltage<br>(% of rated voltage)   | 15% AC, 10% DC                                                                          |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Pull-in Voltage                           | Max. 85% (AC), 80% (DC) of nominal voltage or less                                      |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Max. Voltage<br>(Max. continuous voltage) | 110% of the rated coil voltage                                                          |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Contact Specifications                    |                                                                                         |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Contact Type                              | DPDT                                                                                    |                   |             |                   |                    |                    | 3PDT        |             |                   |                    |                    |
| Contact Material                          | Silver alloy, gold flashed                                                              |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Minimum Switching Requirement             | 10mA @ 17VDC                                                                            |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Contact Rating                            | Refer to Contact Ratings chart                                                          |                   |             |                   |                    |                    |             |             |                   |                    |                    |
| Dielectric Strength Between Contacts      | 1500 Vrms                                                                               |                   |             |                   |                    |                    |             |             |                   |                    |                    |

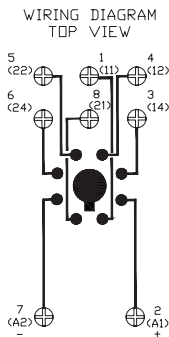
\*Note: UL listed when used with sockets **750-2C-SKT**, **750-3C-SKT**. Current limited to rating of relay or socket, whichever is less.

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)

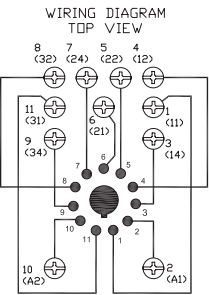
| 750R Series Rated Switching Current                                              |                                                      |
|----------------------------------------------------------------------------------|------------------------------------------------------|
| <b>UL</b>                                                                        |                                                      |
| <b>Resistive</b>                                                                 | 10A @ 277VAC, 200k cycles / 10A @ 30VDC, 200k cycles |
| <b>Motor</b>                                                                     | 1/3HP @ 120VAC, 6k cycles / 1HP @ 277VAC, 6k cycles  |
| <b>Pilot Duty</b>                                                                | B300, 6k cycles                                      |
| <b>IEC</b>                                                                       |                                                      |
| N.O.: 10A at 250VAC, N.C.: 5A at 250VAC<br>N.O.: 10A at 28VDC, N.C.: 5A at 28VDC |                                                      |

# H750 Series Socket Wiring

## Wiring Diagrams

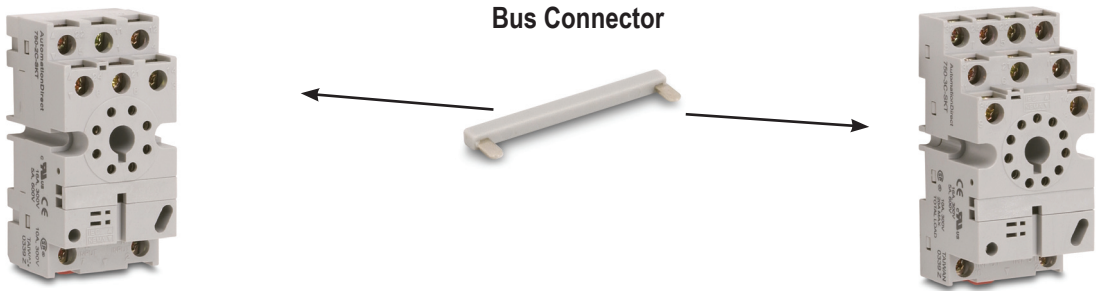


750-2C-SKT



750-3C-SKT

| H750 Series Socket |                                                              |
|--------------------|--------------------------------------------------------------|
| Specification      | Description                                                  |
| Max Screw Torque   | 9 lb·in (1.0 N·m)                                            |
| Max Wire Size      | Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm <sup>2</sup> ) |



| Accessory       |                                                                                                                                          |        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Part Number     | Description                                                                                                                              | Price  |
| <u>33-796-1</u> | Coil bus connector used to connect multiple relays in parallel. Package includes 5 pairs of bus bars to connect up to 5 relays together. | \$3.75 |

# Packaged M.O.V.s and Diodes

## Overview

Metal Oxide Varistors (MOV) and Diode circuits are offered as convenient plug-in modules. Plugging a module into the relay socket connects the circuit in parallel with the relay coil. No additional wiring is required.

Modules fit within the maximum dimensions of the relay and socket.

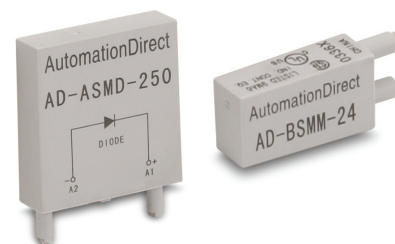
## Features

- MOVs protect by shunting potentially damaging electrical spikes away from the relay coil. Ideal for AC and DC applications.
- Diodes protect external drive circuitry from inductive voltages generated when removing coil voltage.  
Ideal for DC applications.  
Polarity sensitive.

## Application

Many PLC systems control one or more inductive load devices. These inductive loads (devices with a coil) generate transient voltages when they are de-energized with a relay contact. When a relay contact is closed it "bounces", which causes the coil to energize and de-energize until the "bouncing" stops. The transient voltage which is generated is much larger in amplitude than the supply voltage, especially with a DC supply voltage.

When switching a DC-supplied inductive load the full supply voltage is always present when the relay contact opens (or "bounces"). When switching an AC-supplied inductive load, if the voltage is not zero when the relay contact opens, there is energy stored in the inductor that is released when the voltage to the inductor is suddenly removed. This release of energy is what produces transient voltages.



When inductive load devices (motors, motor starters, interposing relays, solenoids, valves, etc.) are controlled with relay contacts, it is recommended that a surge suppression device be connected directly across the coil of the field device. If the inductive device has plug-type connectors, the suppression device can be installed on the terminal block of the relay output.

Metal oxide varistors (MOV) and diodes are devices which provide good surge and transient suppression of AC and DC powered coils.

| Protection Devices          |         |     |                                                                                   |                       |                      |                                                                                                                        |
|-----------------------------|---------|-----|-----------------------------------------------------------------------------------|-----------------------|----------------------|------------------------------------------------------------------------------------------------------------------------|
| Part Number                 | Price   | QTY | Description                                                                       | Nominal Input Voltage | Dimensions & Package | Mating Socket                                                                                                          |
| <a href="#">AD-ASMD-250</a> | \$11.00 | 5   | Protection diode module for 783, 784 and 75 series relays.                        | 6-250VDC              | Figure 1             | <a href="#">783-3C-SKT</a><br><a href="#">784-4C-SKT-1</a><br><a href="#">750-2C-SKT</a><br><a href="#">750-3C-SKT</a> |
| <a href="#">AD-ASMM-24</a>  | \$9.25  | 5   | MOV module for 783, 784 and 75 series relays that operate at 24VAC coil voltage.  | 24VAC/VDC             |                      |                                                                                                                        |
| <a href="#">AD-ASMM-120</a> | \$9.25  | 5   | MOV module for 783, 784 and 75 series relays that operate at 120VAC coil voltage. | 120VAC/VDC            |                      |                                                                                                                        |
| <a href="#">AD-ASMM-240</a> | \$9.25  | 5   | MOV module for 783, 784 and 75 series relays that operate at 240VAC coil voltage. | 240VAC/VDC            |                      |                                                                                                                        |
| <a href="#">AD-BSMD-250</a> | \$9.25  | 5   | Protection diode module for 782 series relays.                                    | 6-250VDC              | Figure 2             | <a href="#">782-2C-SKT</a>                                                                                             |
| <a href="#">AD-BSMM-24</a>  | \$9.25  | 5   | MOV module for 782 series relays that operate at 24VAC coil voltage.              | 24VAC/VDC             |                      |                                                                                                                        |
| <a href="#">AD-BSMM-120</a> | \$9.25  | 5   | MOV module for 782 series relays that operate at 120VAC coil voltage.             | 120VAC/VDC            |                      |                                                                                                                        |
| <a href="#">AD-BSMM-240</a> | \$9.25  | 5   | MOV module for 782 series relays that operate at 240VAC coil voltage.             | 240VAC/VDC            |                      |                                                                                                                        |

## Dimensions

inches [mm]

Figure 1

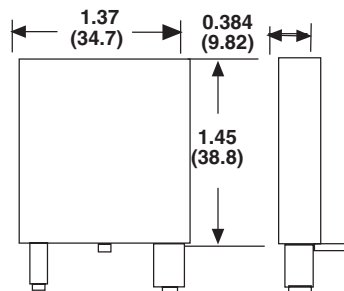


Figure 2

