

Motor and Pump Protection Relays

77C Series

Single-Phase Current & Voltage Monitor



Description

The single-phase 77C unit is a fully-programmable, electronic overload relay designed to protect any motor drawing 2-800 full load A (external CTs are required above 90 A). Common applications include conveyor systems, HVAC equipment, saws and grinders, fan motors, and almost any pumping application. The 77C and 777-HVR-SP (family of products) are for single-phase 100-240 V ac applications.

All of the overload relays provide unsurpassed protection by combining overload, underload, and voltage in one unit. For standalone applications, the units incorporate a 3-digit LED display that is used for programming, providing real-time operational information, and displaying diagnostic codes to aid in troubleshooting a fault condition. These units also feature a communications network port that can be used with communication modules, listed in the 777 accessories section, to form a Modbus, DeviceNet™, Profibus, or Ethernet network. Up to 99 units can be remotely monitored and controlled from a PC, PLC, or SCADA system, and data logging through a PC with the optional Solutions software. This capability allows for a simple, cost-effective way to meet new requirements for arc-flash safety.

*Subtrol and DeviceNet are trademarks of their respective owners.

Features & Benefits

| FEATURES | BENEFITS |
|--|---|
| Built-in display | Visual indication for programming, viewing real-time voltage or current, and last fault code |
| Programmable voltage and current settings | Allows usage on a wide range of systems |
| 3 selectable restart options | Choose from automatic, semi-automatic, or manual to best meet individual application needs |
| 3 programmable restart delay timers | Program separate restart delay time for rapid cycle protection, motor cool down, and dry-well recovery |
| Remote display compatibility | Increases safety through remote display of real-time data and fault history. Aids with arc-flash safety regulations |
| Flexible reset | Reset can be done through pushbutton on relay or remotely with optional 777-MRSW or OL-Reset remote reset kit |

Applications

- Conveyor systems
- HVAC equipment
- Saws and grinders
- Fan motors

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Specifications

Functional Characteristics

| | |
|---|---|
| Frequency | 50/60 Hz |
| TC- Overcurrent Trip Class (77C, 777 non-Plus Series units) | 5, 10, 15, 20, 30 (J prefix enables jam protection feature) |

Output Characteristics

| | |
|--|-------------------------|
| Output Contact Rating (SPDT - Form C) | |
| Pilot duty rating | 480 VA @ 240 V ac, B300 |
| General purpose | 10 A @ 240 V ac |
| Pilot duty rating for HVR models | 470 VA @ 600 V ac, B600 |

General Characteristics

| | |
|----------------------------------|------------------------------------|
| Ambient Temperature Range | |
| Operating | -20 °C to 70 °C (-4 °F to 158 °F) |
| Storage | -40 °C to 80 °C (-40 °F to 176 °F) |

Accuracy

| | |
|-------------------|-------------------------|
| Voltage | ±1 % |
| Current | ±3 % (<100 amps direct) |
| GF Current | ±15 % |

Timing

| | |
|----------------------------------|---------------|
| (77C, 777 non-Plus Series units) | 5 % +1 second |
|----------------------------------|---------------|

Repeatability

| | |
|----------------------------|--|
| Voltage | ±0.5 % of nominal voltage |
| Current | ±1 % (<100 amps direct) |
| Maximum Input Power | 10 W |
| Pollution Degree | 3 |
| Class of Protection | IP20 |
| Relative Humidity | 10-95 %, non-condensing per IEC 68-2-3 |
| Terminal Torque | 7 in.-lbs. |

Standards Passed

| | |
|--|--|
| Electrostatic Discharge (ESD) | IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air |
| Radio Frequency Immunity (RFI) | |
| Conducted | IEC 61000-4-6, Level 3 10 V/m |
| Radiated | IEC 61000-4-3, Level 3 10 V/m |
| Fast Transient Burst | IEC 61000-4-4, Level 3, 3.5 kV input power |
| Short Circuit | 100 kA |
| Surge | |
| IEC | 61000-4-5, Level 3, 2 kV line-to-line; Level 4, 4 kV line-to-ground |
| ANSI/IEEE | C62.41 Surge and Ring Wave Compliance to a level of 6 kV line-to-line |
| Hi-potential Test | Meets UL 508 (2 x rated V +1000V for 1 minute) |
| Vibration | IEC 68-2-6, 10-55 Hz, 1 mm peak-to-peak, 2 hours, 3 axis |
| Shock | IEC 68-2-27, 30 g, 3 axis, 11 ms duration, half-sine pulse |
| Maximum Conductor Size (with insulation) through 77C | 0.65" |
| Dimensions | H 77.47 mm (3.05"); W 97.79 mm (3.85"); D 128.27 mm (5.05") |
| Weight | 1.56 lbs. (24.96 oz., 707.6 g) |
| Mounting Method | Surface mount (4 - #8 screws) or DIN rail mount |

Certification & Compliance

| | |
|------------|--------------------------------|
| UL | UL 508, UL 1053 (File #E68520) |
| CE | IEC 60947-1, IEC 60947-5-1 |
| CSA | C22.2 |

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Accessories

RS485MS-2W Communication Module

(for limited Modbus capabilities) Required to enable the Modbus communications function on Model 77X-type products.

Communication Adapters

- RS485-RS232–Converter with cable & plug
- RS485-USB–Converter with cable & plug
- RS232-USB–Converter

Specifications match industry standard.

RM1000 Remote Monitor

The RM1000/777 motor management system combines unsurpassed electronic motor protection and critical, user-friendly, motor monitoring for up to 16 devices.

RM2000 Remote Monitor

The RM2000/777 motor management system combines unsurpassed electronic motor protection and critical, user-friendly, motor monitoring with event storage and real-time clock for date and time stamp.

Solutions Software: Solutions-M

Software features include data logging, real-time data monitoring and fault and event monitoring.

777-MRSW Manual Remote Reset Kit

Allows the 777 line of MotorSaver® and PumpSaver® products to be manually reset without opening the panel door.

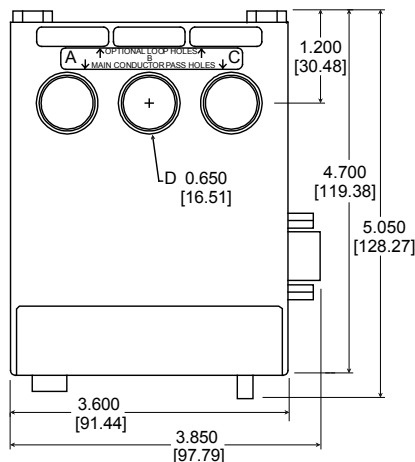
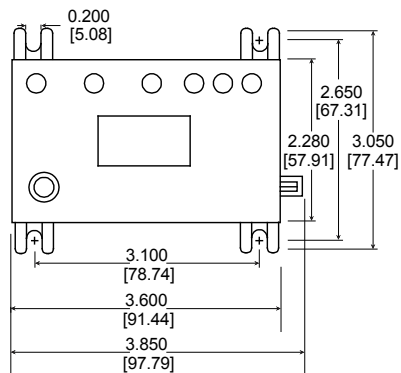
OL-RESET Manual Remote Reset Kit

Allows the 777 line of MotorSaver® and PumpSaver® products to be manually reset without opening the panel door.

Ordering Information

| MODEL | LINE VOLTAGE | MOTOR FULL AMP RANGE | DESCRIPTION |
|------------|--------------|--|---|
| 77C | 100-240 V ac | 2-800A (external CTs required above 90A) | Provides 480VA @ 240 V ac output SPDT relay contacts |
| 77C-LR | 100-240 V ac | 1-9A only | Provides 480VA @ 240 V ac output SPDT relay contacts |
| 777-HVR-SP | 340-480 V ac | 2-800A (external CTs required above 90A) | Provides 470VA @ 600 V ac output SPDT relay contacts. For systems with no control power transformer |

Dimensions Inches (mm)

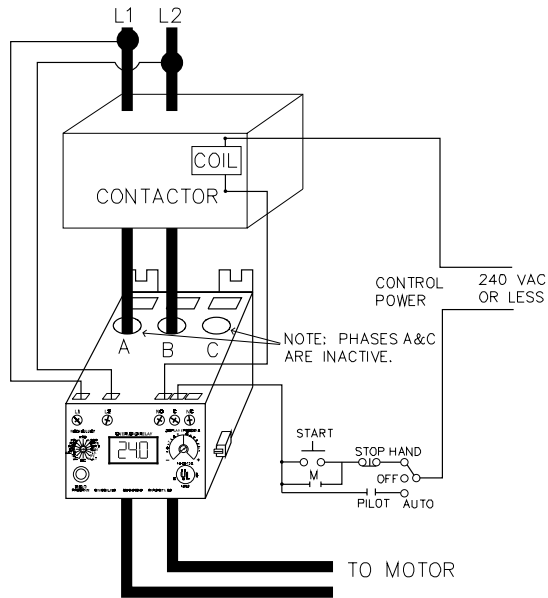


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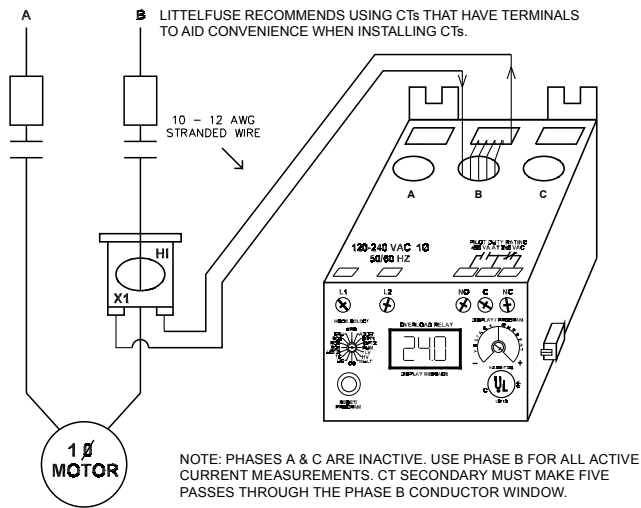
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Simplified Wiring Diagram

TYPICAL WIRING DIAGRAM FOR MODEL 77C WITH MOTOR CONTROL



TYPICAL WIRING DIAGRAM FOR MODEL 77C WITH EXTERNAL CT



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