

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.

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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
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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.

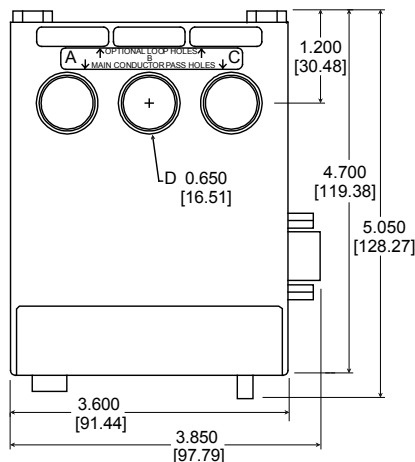
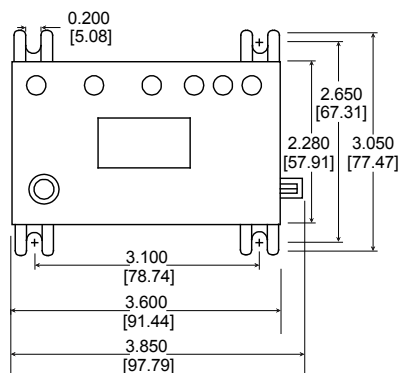
OL-RESET Manual Remote Reset Kit

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)

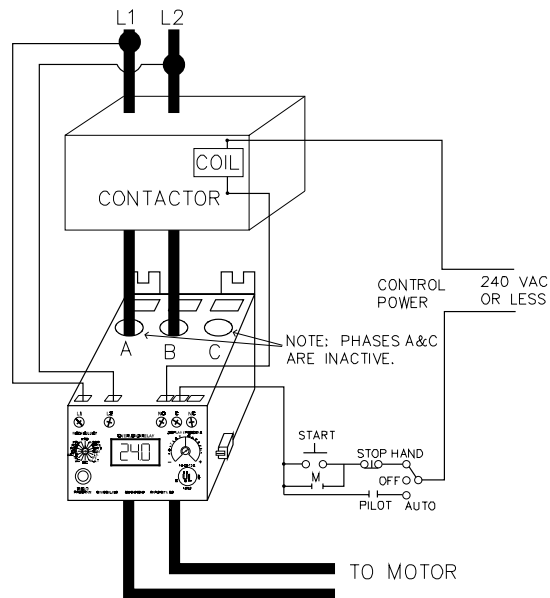


Motor and Pump Protection Relays

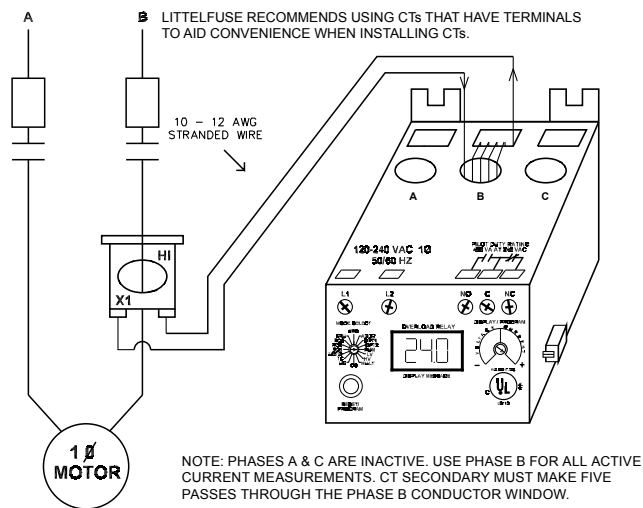
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Simplified Wiring Diagram

TYPICAL WIRING DIAGRAM FOR MODEL 77C WITH MOTOR CONTROL



TYPICAL WIRING DIAGRAM FOR MODEL 77C WITH EXTERNAL CT



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