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

©2022 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: 09/30/2022

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

©2022 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: 09/30/2022

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.

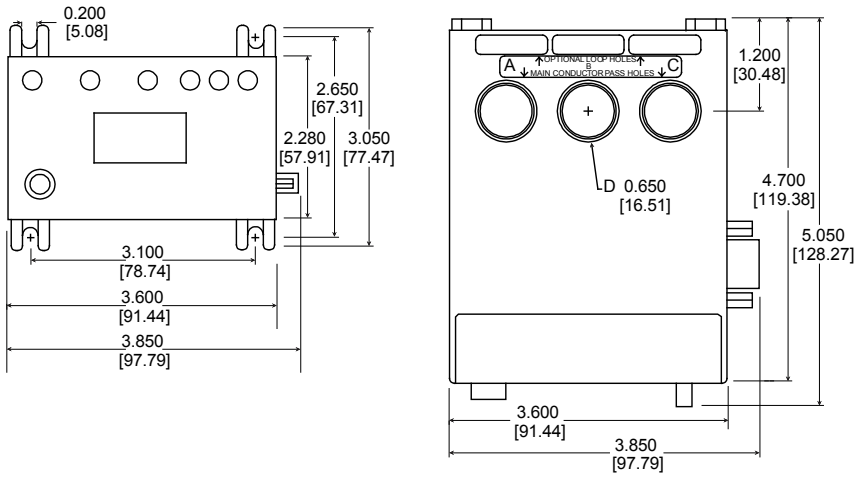
777-MRSW Manual Remote Reset Kit
Allows the 777 line of MotorSaver® and PumpSaver® products to be manually reset without opening the panel door.

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

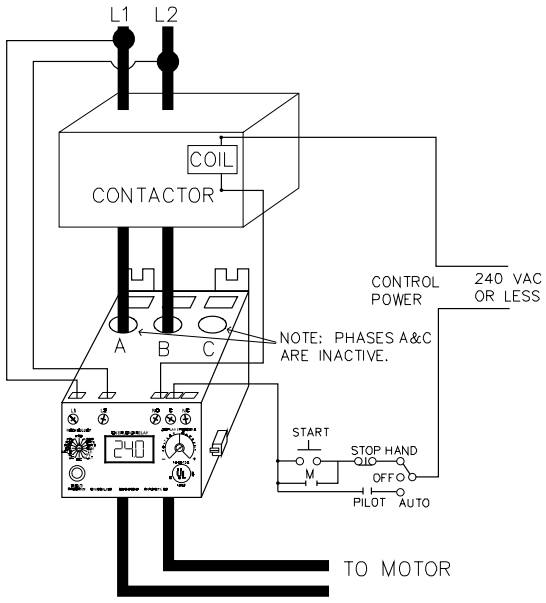
Dimensions Inches (mm)



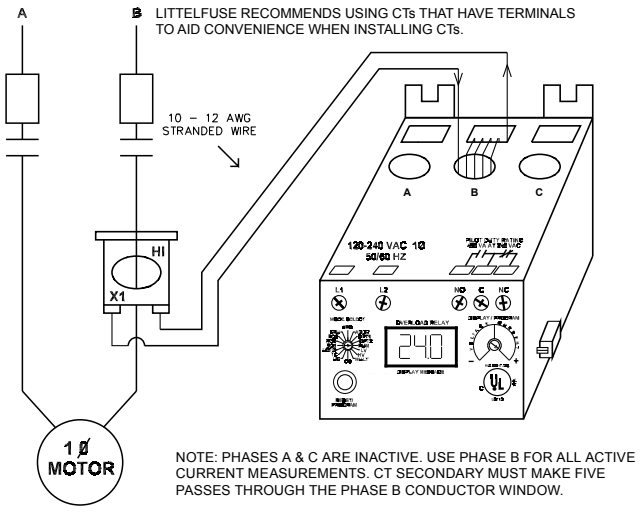
©2022 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: 09/30/2022

Simplified Wiring Diagram

TYPICAL WIRING DIAGRAM FOR MODEL 77C WITH MOTOR CONTROL



TYPICAL WIRING DIAGRAM FOR MODEL 77C WITH EXTERNAL CT



Disclaimer Notice – Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at **www.littelfuse.com/product-disclaimer.**

©2022 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: 09/30/2022