

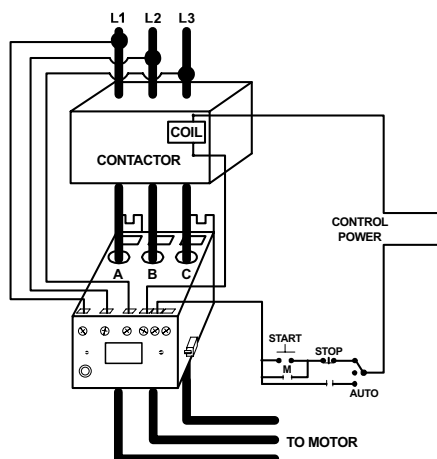
## 777-KW/HP-P2 SERIES

### 3-Phase Current & Voltage Monitor

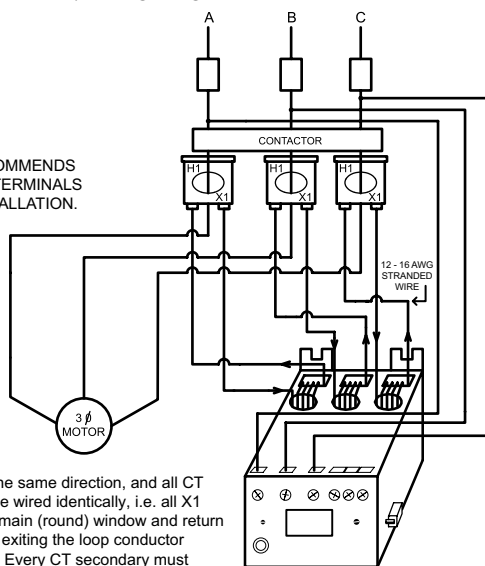


### Wiring Diagram

TYPICAL WIRING DIAGRAM FOR 777-KW/HP-P2 SERIES



CURRENT TRANSFORMER WIRING DIAGRAM FOR 777-KW/HP-P2 SERIES

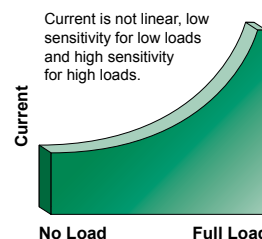
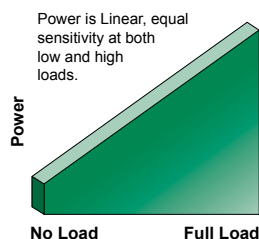


LITTELFUSE RECOMMENDS USING CTs WITH TERMINALS TO SIMPLIFY INSTALLATION.

All CTs must face the same direction, and all CT secondaries must be wired identically, i.e. all X1 terminals enter the main (round) window and return to H1 terminal after exiting the loop conductor window (rectangle). Every CT secondary must make 5 passes through the corresponding main conductor window.

### Description

The 777-KW/HP-P2 series has the overload, voltage, phase loss and reversal, voltage and current unbalance, current and power monitoring\*, and underload trip based on power in one package. The underpower trip feature is desirable anytime the current vs. load characteristic is non-linear or has little change. In general terms, smaller motors and slow-speed motors have little change in current over the normal load range. Larger motors that are running light loads will also show small current changes over the operating load range. 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.



The units also feature a communications 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.

### Features & Benefits

FEATURES	BENEFITS
<b>Low and High Power Protection</b>	Increases reliability for non-linear motors where the load characteristic has little change
<b>Built-in Display</b>	Visual indication for programming, viewing real-time voltage, current, kilowatts, or horsepower, and last fault code
<b>Programmable voltage and current settings</b>	Allows usage on wide range of systems
<b>3 selectable restart options</b>	Choose from automatic, semi-automatic, or manual to best meet individual application needs
<b>3 programmable restart delay timers</b>	Program separate restart delay time for rapid cycle protection, motor cool down, and dry-well recovery
<b>Remote display compatibility</b>	Increases safety through remote display of real-time data and fault history, without the need to open the cabinet. Aids with arc flash safety regulations
<b>Flexible reset</b>	Reset can be done through pushbutton on relay or remotely with optional 777-MRSW or OL-RESET remote reset kit
<b>Network communications capability</b>	Compatible with Modbus, DeviceNet**, Profibus, or Ethernet using optional communications module

## 777-KW/HP-P2 SERIES

### Ordering Information

MODEL	LINE VOLTAGE	MOTOR FULL AMP RANGE	DESCRIPTION
777-KW/HP-P2	200-480 V ac (3-phase)	2-800 A (external CTs required above 90 A)	Provides 480 VA @ 240 V ac output SPDT relay contacts
777-LR-KW/HP-P2	200-480 V ac (3-phase)	1-800 A (external CTs required above 9 A)	Provides 480 VA @ 240 V ac output SPDT relay contacts
777-HVR-KW/HP-P2	340-480 V ac (3-phase)	2-800 A (external CTs required above 90 A)	Provides 470 VA @ 600 V ac output SPDT relay contacts. Required when a CPT (control power transformer) is not used on a 480 V system. Commonly used in pumping applications to save the cost and extra wiring associated with a CPT
777-575-KW/HP-P2	500-600 V ac (3-phase)	2-800 A (external CTs required above 90 A)	Provides 480 VA @ 240 V ac output SPDT relay contacts. Used in Canada and NE USA where 575 V utility power services are common
777-MLR-KW/HP-P2	200-480 V ac (3-phase)	0.5-21 A and 40-740 A with external CTs	Provides 480 VA @ 240 V ac output SPDT relay contacts. It is wired directly without the need to loop conductors for 5-21 amps (under 5 amps requires looping of conductors), and can be used with external CTs for 40-740 amps

### Accessories



**RS485MS-2W Communication Module**  
(for limited Modbus capabilities) Required to enable the Modbus communications function on Model 77X-type products.



**CIO-MB/CIO-120-MB Communication Module**  
Modbus-RTU interfaces capable of providing discrete control and monitoring of an overload relay over a Modbus network.



**CIO-DN-P/CIO-120-DN-P Communication Module**  
DeviceNet™ interfaces capable of providing discrete control and monitoring of motor starters, drives and other devices over a DeviceNet\*\* network.



**CIO-777-PR Communication Module**  
Profibus interface capable of providing discrete control and monitoring of motor starters, drives and other devices over a Profibus network.



**CIO-EN (non-POE) Communication Module**  
Modbus-TCP and Modbus-RTU interface capable of providing discrete control and monitoring of an overload relay over a Modbus network.



**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.

# Protection Relays

Motor and Pump Protection - 3-Phase Pump Protection

## 777-KW/HP-P2 SERIES

### Specifications

<b>Frequency</b>	50/60 Hz
<b>Functional Characteristics</b>	
<b>TC-Overcurrent Trip Class</b>	02-60, J02-J60, L00-L60 or OFF
<b>Output Characteristics</b>	
<b>Output Contact Rating (SPDT - Form C)</b>	
<b>Pilot duty rating</b>	480 VA @ 240 V ac, B300
<b>General purpose</b>	10 A @ 240 V ac
<b>Pilot duty rating for HVR model</b>	470 VA @ 600 V ac, B600
<b>General Characteristics</b>	
<b>Ambient Temperature Range</b>	
<b>Operating</b>	-20 °C to 70 °C (-4 °F to 158 °F)
<b>Storage</b>	-40 °C to 80 °C (-40 °F to 176 °F)
<b>Accuracy</b>	
<b>Voltage</b>	±1 %
<b>Current</b>	±3 % (<100 A direct)
<b>Power</b>	±4 % (<100 A direct)
<b>GF Current</b>	±15 %
<b>Timing</b>	±0.5 second
<b>Repeatability</b>	
<b>Voltage</b>	±0.5 % of nominal voltage
<b>Current</b>	±1 % (<100 A direct)
<b>Power</b>	±2 %
<b>Maximum Input Power</b>	10 W
<b>Pollution Degree</b>	3
<b>Class of Protection</b>	IP20
<b>Relative Humidity</b>	10-95 %, non-condensing per IEC 68-2-3
<b>Terminal Torque</b>	7 in.-lbs.
<b>Standards Passed</b>	
<b>Electrostatic Discharge (ESD)</b>	IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air
<b>Radio Frequency Immunity (RFI), Conducted</b>	IEC 61000-4-6, Level 3 10 V/m
<b>Radio Frequency Immunity (RFI), Radiated</b>	IEC 61000-4-3, Level 3 10 V/m
<b>Fast Transient Burst</b>	IEC 61000-4-4, Level 3, 3.5 kV input power
<b>Short Circuit Rating</b>	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 +1000 V for 1 minute)

#### Vibration

IEC 68-2-6, 10-55Hz, 1 mm peak-to-peak, 2 hours, 3 axis

#### Shock

IEC 68-2-27, 30g, 3 axis, 11 ms duration, half-sine pulse

### Safety Marks

#### UL

UL 508, UL 1053 (File #E68520)

#### CE

IEC 60947-1, IEC 60947-5-1

#### CSA

C22.2

### Maximum Conductor Size

#### (with insulation) through 777

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

\* Low current trip and high power trip are network programmable only

\*\*DeviceNet is a trademark of its respective owner.