

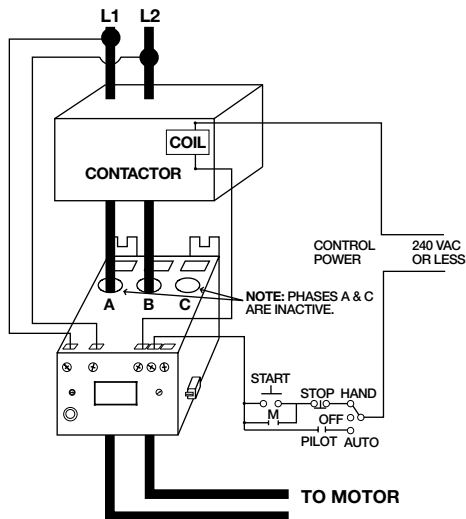
77C-KW/HP SERIES

Single-Phase Current & Voltage Monitor

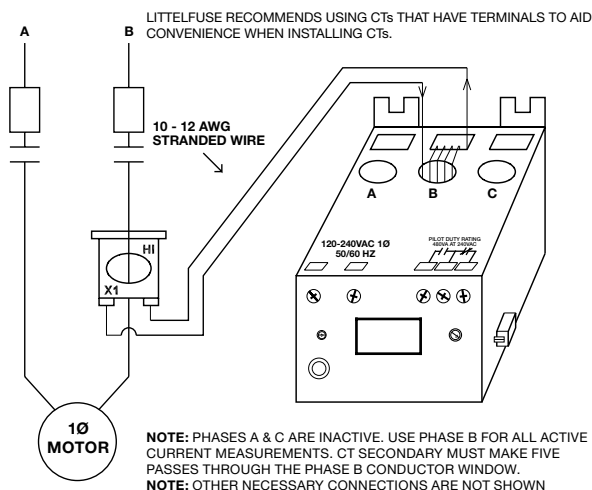


Wiring Diagram

TYPICAL WIRING DIAGRAM FOR MODEL 77C-KW/HP WITH MOTOR CONTROL

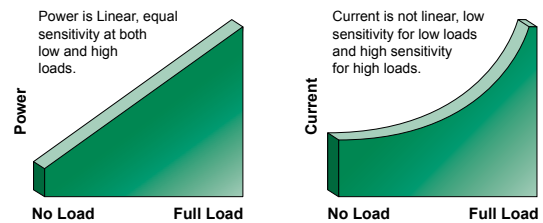


TYPICAL WIRING DIAGRAM FOR MODEL 77C-KW/HP WITH EXTERNAL CT



Description

The 77C-KW/HP and 77C-LR-KW/HP are fully programmable pump protection relays which will monitor the voltage and current for high or low voltage, overload and underload conditions 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. Common uses include pumping applications where motors run slower than around 3400 rpm and usually have small current vs load changes; such as slow speed mixer or agitator motors up to 50 hp, and magdrive or can pumps.



The Littelfuse PumpSaver® relay provides the high sensitivity of a power monitor to protect pump motors from dry run and dead-head conditions.

Features & Benefits

FEATURES	BENEFITS
Underload protection	Increases reliability for non-linear motors where the load characteristic has little change
Built-in display	Visual indication for programming, viewing real-time voltage, current, kilowatts or horsepower, and last fault code
15 programmable criteria settings	Allows user flexibility to fine-tune the relay for maximum protection in any application.
Last fault memory	Provides instant troubleshooting diagnostics
Remote display compatibility	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.
Flexible reset	Reset options: automatic, manual using pushbutton on relay, or remotely with optional 777-MRSW or OL-RESET remote reset kit.
Network communications capability	Compatible with Modbus using optional communications module (RS485MS-2W)

Ordering Information

MODEL	LINE VOLTAGE	MOTOR FULL AMP RANGE	DESCRIPTION
77C-KW/HP	100-240 V ac	2-90 A (external CTs required above 90 A)	Provides 480 VA @ 240 V ac output SPDT (Form C) relay contacts
77C-LR-KW/HP	100-240 V ac	1-9 A (external CTs required above 9 A)	Provides 480 VA @ 240 V ac output SPDT (Form C) relay contacts

77C-KW/HP SERIES

Accessories



RS485MS-2W Communication Module

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.

Specifications

Input Voltage

100-240 V ac, 1Ø

Frequency

50-60 Hz

Motor Full Load Amp Range 77C-KW/HP

2-25 A (Loops Required)
26-90 A (Direct)
91-800 A (External CT's)
1.0 A - 2.0 A (additional Loop)
2.0 A - 9.0 A (Direct)

77C-LR-KW/HP

Short Circuit Withstand

Rating

100 kA per UL and CSA

Power Consumption

5 W (Maximum)

Output Contact Rating SPDT (Form C)

Pilot duty rating: 480 VA @ 240 V ac
General purpose: 10 A @ 240 V ac

Expected Life

Mechanical

1 x 10⁶ operations

Electrical

1 x 10⁵ operations at rated load

Accuracy at 25 °C (77 °F)

Voltage

±1 %

Current

±3 % (Direct, No External CT's)

Timing

5 % ± 1 second

Repeatability

Voltage

± 0.5 % of nominal voltage

Current

± 1 % (Direct, No External CT's)

Safety Marks

UL

UL 508, UL 1053

CE

IEC 60947-1, IEC 60947-5-1

Standards Passed

Electrostatic Discharge (ESD)

IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air

Radio Frequency Immunity

IEC 61000-4-6, Level 3 10 V/m

(RFI), Conducted

Radio Frequency Immunity

IEC 61000-4-3, Level 3 10 V/m

(RFI), Radiated

Fast Transient Burst

IEC 61000-4-4, Level 3, 3.5 kV input power

Surge

IEC

IEC 61000-4-5, Level 3, 2 kV line-to-line;
Level 4, 4 kV line-to-ground

ANSI/IEEE

Hi-potential Test

C62.41 Surge and Ring Wave compliance to a level of 6 kV line-to-line

Vibration

Meets UL 508 (2 x rated V +1000 V for 1 min.)
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

Mechanical

Dimensions

H 78.74 mm (3.1"); **W** 99.06 mm (3.9");
D 129.54 mm (5.1")

Terminal Torque

7 in.-lbs.

Enclosure Material

polycarbonate

Weight

1.2 lbs

Maximum Conductor Size

Through 777

0.65" with insulation

Protection Relays

Motor and Pump Protection - Single-Phase Pump Protection



Littelfuse®

Expertise Applied | Answers Delivered

77C-KW/HP SERIES

Environmental

Temperature Range

Ambient Operating

-20 °C - 70° C (-4 °F - 158 °F)

Ambient Storage

-40 °C - 80° C (-40 °F - 176 °F)

Pollution Degree

3

Class of Protection

IP20, NEMA 1

Relative Humidity

10-95 %, non-condensing per IEC 68-2-3

Programmable

Operating Points

Range

LV- Low Voltage Threshold

85 V - HV Setting

HV- High Voltage Threshold

264 V - LV Setting

MULT- # of Conductors or

CT Ratio (XXX:5)

1-10 Conductors or 100-800 Ratio

77C:

1 or 2

77C-LR:

OC- Overcurrent Threshold

(20-100 A) ÷ MULT or 80-120 % of CT Primary

TC- Overcurrent Trip Class *

5, J5, 10, J10, 15, J15, 20, J20, 30, J30, or

LIn (linear)

RD1- Rapid Cycle Timer

0, 2 - 500 seconds

RD2- Restart Delay After All

Faults Except Undercurrent

(motor cool down timer)**

2 - 500 minutes/seconds

RD3- Restart Delay

After Undercurrent

(dry well recovery timer)

2 - 500 minutes/seconds

#RU- Number of Restarts

After Undercurrent

0, 1, 2, 3, 4, A (Automatic)

ADDR- RS485 Address

A01- A99

#RO-Number of Restarts

After Overcurrent

0, 1, 2, 3, 4, A (Automatic)

LP/PWS (PWS = LP Range)

1 = 0.01 - 0.99 KW

5 = 0.01 - 1.30 HP

2 = 1.00 - 9.95 KW

6 = 1.34 - 13.3 HP

3 = 10.0 - 99.5 KW

8 = 13.4 - 133 HP

4 = 100 - 650 KW

9 = 134 - 871 HP

SETTING	RD2	RD3	SETTING	RD2	RD3
0	Minutes	Minutes	2	Seconds	Minutes
1	Minutes	Seconds	3	Seconds	Seconds

* If J Prefix is displayed in trip class setting, jam protection is enabled. If programmed to LIn position, overcurrent trip delays are fixed linear-type delays set in OPT1 position.

** RD2 & RD3 can be changed from minutes to seconds under program position OPT2.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Littelfuse:

[77C-LR-KW/HP](#) [77C-KW/HP](#)