Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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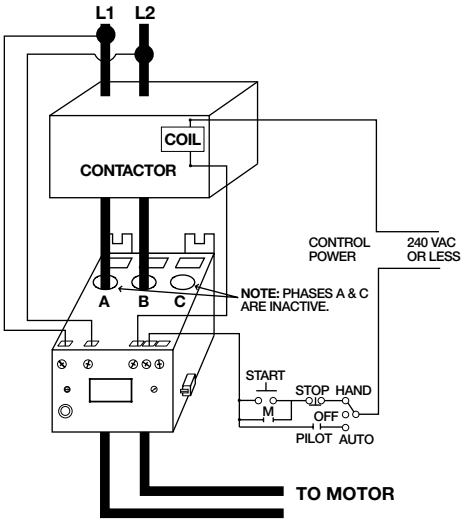
Littelfuse
Expertise Applied | Answers Delivered

77C-KW/HP SERIES

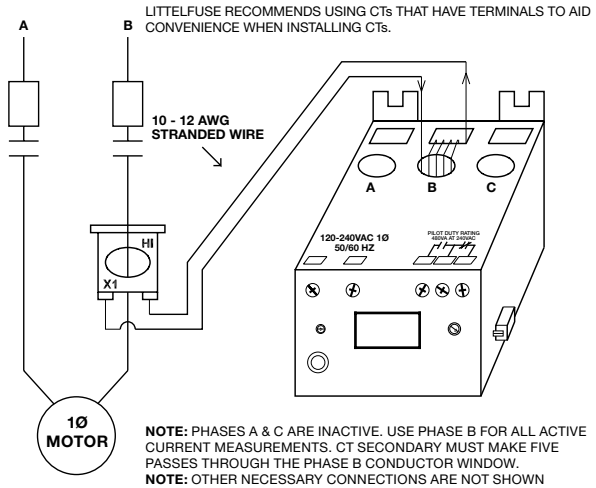
Single-Phase Current & Voltage Monitor

Wiring Diagram

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

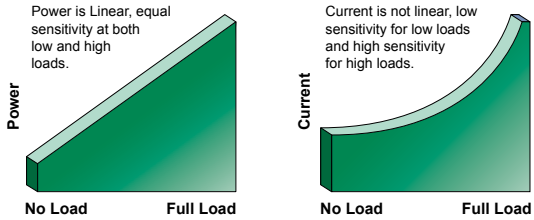


TYPICAL WIRING DIAGRAM FOR MODEL 77C-KW/HP WITH EXTERNAL CT



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 sensivity 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 run-hour meter, last four fault codes, 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 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	100-240VAC	2-90A (external CTs required above 90A)	Provides 480VA @ 240VAC output SPDT (Form C) relay contacts
77C-LR-KW/HP	100-240VAC	1-9A (external CTs required above 9A)	Provides 480VA @ 240VAC output SPDT (Form C) relay contacts

77C-KW/HP SERIES

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.

Specifications

Input Voltage	100-240 VAC, 1Ø
Frequency	50-60 Hz
Motor Full Load Amp Range	
77C-KW/HP	2-25 Amps, 3Ø(Loops Required) 26-90 Amps, 3Ø(Direct) 91-800 Amps, 3Ø(External CT's)
77C-LR-KW/HP	1.0 Amps - 2.5 Amps (1 Loop) 2.0 Amps - 9.0 Amps (Direct)
Short Circuit Withstand Rating	100kA per UL and CSA
Power Consumption	5W (Maximum)
Output Contact Rating SPDT (Form C)	Pilot duty rating: 480 VA @ 240 VAC General purpose: 10A @ 240 VAC
Expected Life	
Mechanical	1 x 10^6 operations
Electrical	1 x 10^5 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 UL508, UL1053
CE	IEC 60947-1, IEC 60947-5-1

Standards Passed	
Electrostatic Discharge (ESD)	IEC 1000-4-2, Level 3, 6kV contact, 8kV air
Radio Frequency Immunity (RFI), Conducted	IEC 1000-4-6, Level 3 10V/m
Radio Frequency Immunity (RFI), Radiated	IEC 1000-4-3, Level 3 10V/m
Fast Transient Burst	IEC 61000-4-4, Level 3, 3.5kV input power
Surge	
IEC	1000-4-5, Level 3, 2kV line-to-line; Level 4,
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
Environmental	
Temperature Range	
Ambient Operating	-20° - 70° C (-40° - 158°F)
Ambient Storage	-40° - 80° C (-40° - 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	85V - HV Setting
HV- High Voltage Threshold	LV Setting - 264V
MULT- # of Conductors or CT Ratio (XXX:5)	
77C:	1-10 Conductors or 100-800 Ratio
77C-LR:	1 or 2
OC- Overcurrent Threshold	(20-100A) ÷ MULT or 80-120% of CT Primary
CUB- Current Unbalance Threshold	2 - 25% or 999
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 - 0.99 HP **2** = 1.00 - 9.95 KW **6** = 1.00 - 9.95 HP **3** = 10.0 - 99.5 KW **8** = 10.0 - 99.5 HP **4** = 100 - 650 KW **9** = 100 - 650 HP

* If J Prefix is displayed in trip class setting, jam protection isenabled. 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.

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