

# Protection Relays and Controls

## MOTOR AND PUMP PROTECTION - SINGLE AND 3-PHASE

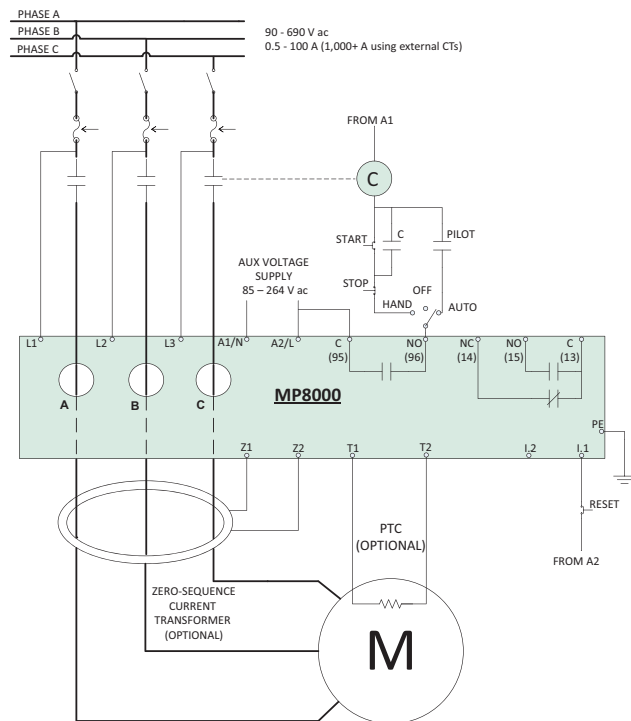
### Bluetooth Overload Relay



Patented

### Wiring Diagram

TYPICAL WIRING DIAGRAM FOR 3-PHASE



### Description

The MP8000 is an electronic overload relay that provides advanced motor protection and is fully programmable via Bluetooth\* using the Littelfuse app on an Android\* or iOS\* mobile device. It is easy to use and shock hazard is reduced, because the app allows settings to be modified and real-time operational information to be viewed without requiring the user to open the control panel.

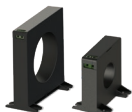
The MP8000 protects any motor drawing 0.5-1,000 full load amperes (external CTs are required above 100 amperes). It is designed for single or 3-phase systems with operating voltages of 90-690 V ac (use of external potential transformers can extend upper voltage range above 690 V ac). For retrofit applications above 690 V ac where PTs cannot be added, the MP8000 can be set to current-only mode. Common applications include conveyor systems, HVAC equipment, saws and grinders, fan motors, and almost any pumping application.

Protection is unsurpassed by combining overload, over and undervoltage, phase loss and reversal, voltage and current unbalance, power monitoring, and underload protection in one package. For standalone applications, the Bluetooth interface can be used when paired with a smartphone or tablet. The units also feature an Ethernet communications port that can be used to connect to a Modbus TCP/IP or Ethernet/IP network. Unit can be remotely monitored and controlled from a PC or SCADA system, and data logging is available through a PC with the MP8000 software or other software using the MP8000 memory map. This capability allows for a simple cost-effective way to further reduce shock hazards.

### Features & Benefits

FEATURES	BENEFITS
<b>Bluetooth interface</b>	Visual indication for programming, viewing real-time voltage or current, and last fault information (date and time stamped)
<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>4 programmable delay timers</b>	Program separate delay times for power up, rapid cycle protection, motor cool down, and underload restarting
<b>Programmable auxiliary relay output</b>	From C outout can be programmed to ground fault, trip indication, or network control
<b>Flexible reset</b>	Reset can be done through pushbutton on panel, remotely via the network
<b>Network communications capability</b>	Compatible with Ethernet Modbus TCP/IP and Ethernet/IP

### Accessories



**ZSCT Series Current Transformer**  
Used with Littelfuse relays to detect low levels of earth-leakage current.

### Ordering Information

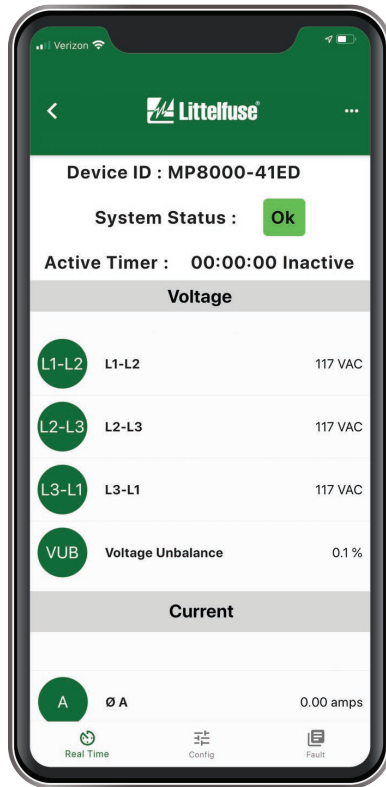
MODEL	LINE VOLTAGE	MOTOR FULL AMP RANGE	DESCRIPTION
MP8000	90-690 V ac (use of external potential transformers can extend upper voltage range above 690 V ac)	0.5-1,000+ A (external CTs required above 100 A)	Provides remote wired communication via Ethernet Modbus TCP/IP or Ethernet/IP

# Protection Relays and Controls

## MOTOR AND PUMP PROTECTION - SINGLE AND 3-PHASE

### Protection Functions

- Overload/Overpower (49)
- Underload/Underpower (37P)
- Overcurrent (51)/Jam
- Undercurrent (37)
- Current Unbalance/Phase Loss (46)
- Phase Reversal (47)
- Overvoltage (59)
- Undervoltage (27)
- Voltage Unbalance (47)
- Rapid Cycling/Jog
- Contactor Failure
- Zero-Sequence Ground Fault (50G/N, 51G/N)
- PTC Motor Overtemperature (49)



MP8000  
Littelfuse App icon



### Specifications

#### Functional Characteristics

**Frequency** 50/60 Hz  
**TC- Overcurrent Trip Class** Trip class 02-60 or linear

#### Output Characteristics

**Output Contact Rating**  
**Control relay** SPST - Form A  
**Auxiliary relay** SPDT - Form C  
**Pilot Duty Rating** B300  
**General Purpose** 5 A @ 240 V ac

#### General Characteristics

##### Ambient Temperature Range

**Operating** -40 °C to 70 °C (-40 °F to 158 °F)  
**Storage** -40 °C to 85 °C (-40 °F to 185 °F)

##### Accuracy

**Voltage** ±1 % of reading ±0.5 V  
**Current** ±2 % (2 to 100 amperes direct)  
**Timing** +/-0.5 % of setting +/- 1second  
**GF Current** ±5 %

##### Repeatability

**Voltage** ±0.5 %  
**Current** ±1 % (2 to 100 A direct)

##### Power Consumption

<5 W

##### Pollution Degree

3 (conformal coating standard)

##### Class of Protection

IP20

##### Relative Humidity

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

##### Terminal Torque (depluggable terminal blocks)

5.5 in.-lbs.

##### Terminal Torque (Earth Ground)

7.9 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

##### Radio Frequency Immunity (RFI), Radiated

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

##### Fast Transient Burst Surge

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

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

Level 4, 4 kV line-to-ground

Part 15.107 for emissions,

Part 15.247 for intentional radiators

##### FCC Rating

##### Short Circuit Withstand Rating

100 kA symmetrical at 690 V ac

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

##### Hi-Potential Test

##### Safety Marks

**cULus** UL 60947, UL 1053, C22.2 (File #E68520)

**CE** IEC 60947 Edition 5.2, IEC 60947-8

##### Maximum Conductor Size (with insulation)

0.63"

**H** 74.42 mm (2.93"); **W** 103.63 mm (4.08");

**D** 121.67 mm (4.79")

**Weight** 0.85 lbs (13.6 oz, 385.6 g)

**Mounting Method** Surface mount (4 - #8 screws)

or DIN-rail mount

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