

# Motor and Pump Protection Relays

## MPU-32 Series

### Motor Protection Unit



## Description

The MPU-32 series Motor Protection Unit is used to provide current and temperature-based protection, metering, and data-logging for three-phase, low-voltage, medium-horsepower induction motors. This relay is ideal for retrofitting and upgrading obsolete or aging motor protection using existing CTs. The MPU-32 can be programmed using the front-panel operator interface, the TIA-232 port, or an optional communications network. See the PMA Family of Panel Mount Adapter Kits to replace common obsolete relays.

### 1 Motor Protection Unit

- Three ac-current inputs
- Earth-leakage-CT input
- Programmable digital input
- 24 V dc source for digital input
- Programmable 4–20-mA analog output
- Onboard temperature-sensor input
- 100-Ω-Platinum RTD or PTC
- Three programmable output relays

- Local RS-232 communications, optional network communications
- PC-interface software (SE-Comm-RIS)
- 4 line x 20 character backlit LCD display
- Keypad for programming and display selection
- 4 LEDs; 1 user programmable

### 2 Current Input Module (MPU-CIM)

The MPU-CIM Current Input Module is the interface between the MPU-32 relay and the 5-A-secondary, 1-A-secondary, and sensitive current transformers. The MPU-CIM is ordered separately from the MPU-32 and can be surface- or DIN-rail mounted. Wire-clamping terminals are standard, but the MPUCTI is available for those requiring ring-tongue terminals.

## Features & Benefits

FEATURES	IEEE #	BENEFITS
<b>Overload</b>	49, 51	Extends motor life and prevents insulation failures and fires
<b>Dynamic thermal model</b>		Provides protection through starting, running, and cooling cycles
<b>Communications</b>		Remotely view measured values and event records, reset trips, and access setpoints
<b>Ground fault</b>	50G/N, 51G/N	Prevents catastrophic failures and fires
<b>Current unbalance/Phase loss/Phase reverse (current)</b>	46	Prevents overheating due to unbalanced phases
<b>RTD temperature</b>	38, 49	RTD temperature protection (MPS-RTD module) for high-ambient or loss-of-ventilation protection
<b>Phase loss/Phase reverse (current)</b>	46	Detects unhealthy supply conditions
<b>Overcurrent</b>	50, 51	Prevents catastrophic failures and fires and extends motor life
<b>Jam</b>		Prevents motor damage by detecting mechanical jams or excessive loading
<b>Undercurrent</b>	37	Detects low level or no-load conditions
<b>PTC overtemperature</b>	49	Overtemperature (PTC) protection for high-ambient or loss-of-ventilation detection
<b>Starts per hour</b>	66	Limits the motor starts per hour to prevent overheating
<b>Differential</b>	87	Optional MPS-DIF module for sensitive winding-fault protection

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### Applications

- Low and medium voltage motors

### Specifications

#### Protective Functions

##### (IEEE Device Numbers)

Overload (49, 51), Phase reverse (current) (46), Overcurrent (50, 51), Jam, Ground fault (50G/N, 51G/N), PTC overtemperature (49), RTD temperature (38, 49), Unbalance (current) (46), Starts per hour (66), Differential (87), Phase loss (current) (46), Undercurrent (37)

#### Input Voltage

65-265 V ac, 25 VA; 80-275 V dc, 25 W

#### Power-Up Time

800 ms at 120 V ac

#### Ride-Through Time

100 ms minimum

#### 24-Vdc Source

100 mA maximum

#### AC Measurements

True RMS and DFT, Peak, 16 samples/cycle, and positive and negative sequence of fundamental

#### Frequency

50, 60 Hz or ASD

#### Output Contacts

Three Form C programmables

#### Communications

TIA-232 (standard); TIA-485, DeviceNet™, Ethernet (optional)

#### Analog Output

4-20 mA, programmable

#### Conformally Coated

Standard feature

#### Warranty

10 years

#### Control Unit Mounting

Panel (standard), Surface (with MPU-32-SMK converter kit)

#### Current Input Module Mounting

DIN, Surface

### Certification & Compliance

<b>CSA</b>	CSA, Canada and USA (CSA C22.2 No. 14, CSA C22.2 No. 213-M1987 (RTD module only), CSA E60079-15:02 (RTD module only))
<b>CE</b>	EN 60255-26, IEC 61010-1
<b>UL</b>	UL Recognized (UL 508, UL 1053, UL 60079-15 (RTD module only))
<b>RCM</b>	RCM

### Accessories

#### A Phase Current Transformers

Phase CTs are required to detect phase currents. For upgrade applications, existing CTs can be used.

#### B Earth-Fault Current Transformer

Optional zero-sequence current transformer detects ground-fault current. Available with 5-A and 30-A primary ratings for low-level pickup.

#### C MPS-RTD Temperature Input Module

Optional module provides 8 inputs to connect Pt100, Ni100, Ni120, and Cu10 RTDs.

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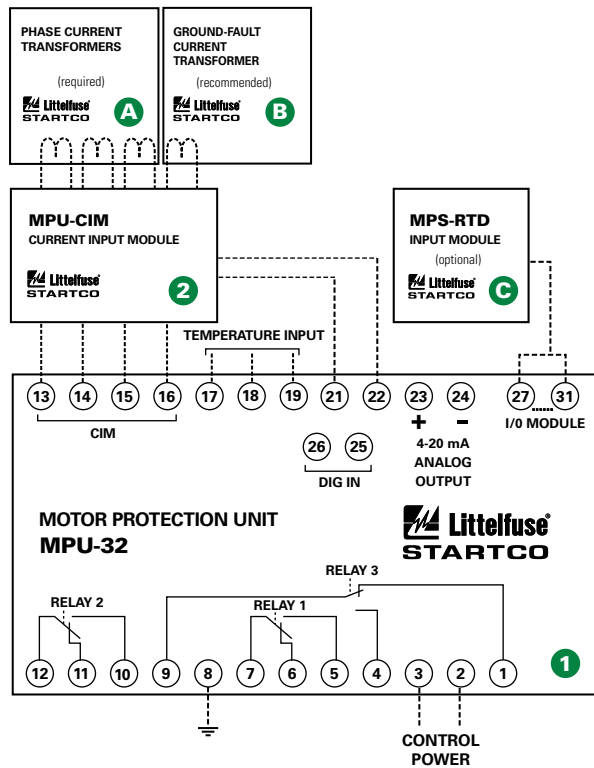
## MPU-32 Series

### Ordering Information

ORDERING NUMBER	COMMUNICATION	PHASE CURRENT TRANSFORMER INPUTS
MPU-32-00-00	TIA-232	Using MPU-CIM-00-00, purchased separately
MPU-32-01-00	TIA-232 & TIA-485	
MPU-32-02-00	TIA-232 & DeviceNet™	
MPU-32-04-00	TIA-232 & EtherNet/IP™ & Modbus® TCP	
MPU-32-00-01	TIA-232	Onboard inputs for 1-A phase CTs
MPU-32-01-01	TIA-232 & TIA-485	
MPU-32-02-01	TIA-232 & DeviceNet™	
MPU-32-04-01	TIA-232 & EtherNet/IP™ & Modbus® TCP	

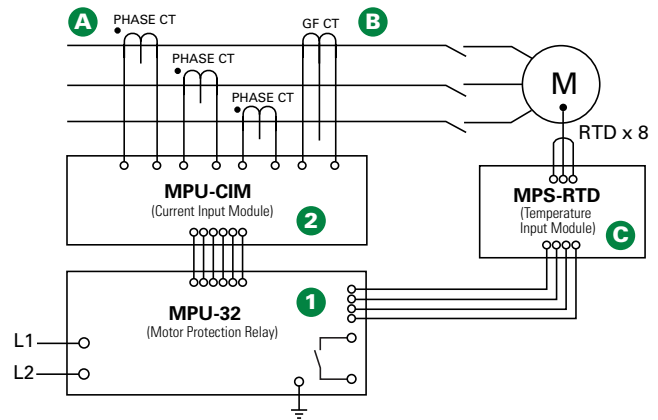
ACCESSORIES	REQUIREMENT
Phase CTs	Required
Earth-Fault CTs	Optional
MPS-RTD-01-00	
MPU-32-SMK	
CA-945	
MPU-16A-Y92A-96N	

### Simplified Wiring Diagram



Note: Unit shown with MPU-CIM-00-00 for phase current transformer inputs

### Simplified Circuit Diagram



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