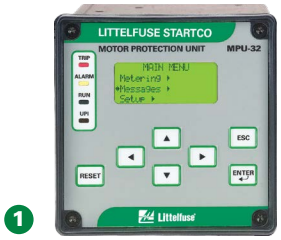
Motor and Pump Protection Relays
MPU-32 Series

Motor Protection Unit



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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.

❶ 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

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

CSA	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))
CE	EN 60255-26, IEC 61010-1
UL	UL Recognized (UL 508, UL 1053, UL 60079-15 (RTD module only))
RCM	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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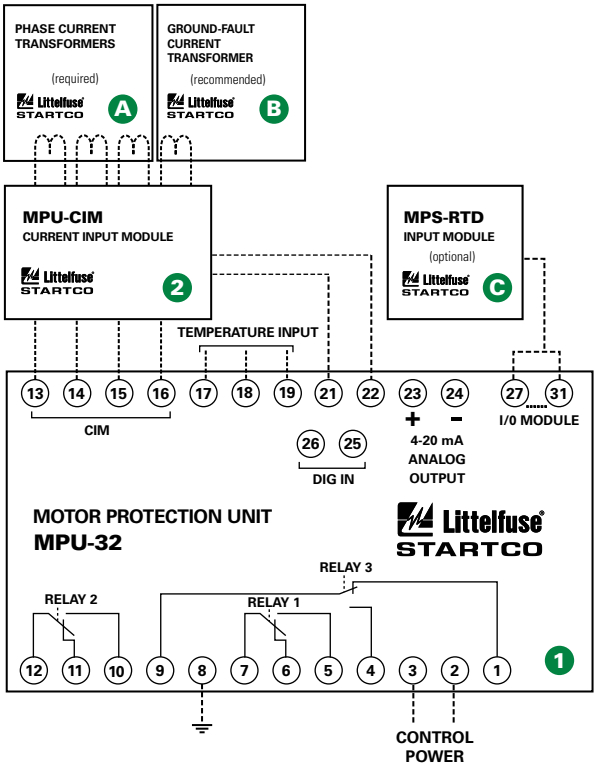
Ordering Information

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	

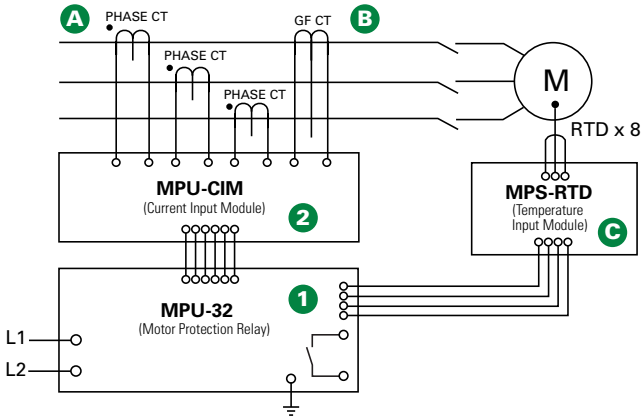
ACCESSORIES	REQUIREMENT
Phase CTs	Required
Earth-Fault CTs	Optional
MPS-RTD-01-00	
MPU-32-SMK	
CA-945	
MPU-16A-Y92A-96N	

Simplified Wiring Diagram



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

Simplified Circuit Diagram



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