



  
**MOTOR  
PROTECTION  
RELAYS**



Expertise Applied | Answers Delivered

# Littelfuse

Reliable Protection for Over 35 Years



MP

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## MOTOR PROTECTION

### Typical Applications

MOTORS

PUMPS

VARIABLE FREQUENCY DRIVES

SWITCHGEAR

MOTOR CONTROL CENTERS

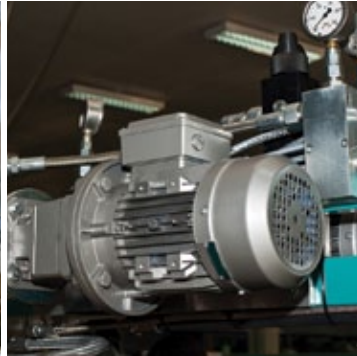
PORTABLE POWER CABLES

ELECTRICAL DISTRIBUTION

PROCESS CONTROL PANELS

POWER DISTRIBUTION PANELS

# From Basic to Reliable Protection



## PGR-6100 Motor Ground-Fault & Insulation Relay

### Features/Benefits

- Continuous on- and off-line monitoring
- On-line monitoring to detect ground faults
- Off-line monitoring of insulation resistance
- CT loop monitoring
- 2 analog outputs and Form C alarm contacts to indicate insulation resistance and ground-fault current

### Specifications

**IEEE Device Numbers:** 50G, 50N, 51G, 51N, 64

**Dimensions:**  
**H:** 99.7 mm (3.9")  
**W:** 75 mm (3")  
**D:** 110 mm (4.3")

**Communications:**  
 2 Analog Outputs

**Warranty:** 5 years

### Accessories

PGA-0500 Series Analog Meters  
 PGC-5000 Family Current Transformers  
 PGH Family High Tension Couplers

### Web Resources

[www.littelfuse.com/pgr-6100](http://www.littelfuse.com/pgr-6100)



## PGR-6130 Electronic Overload Relay

### Features/Benefits

- Integrated CT for currents up to 90 A
- Thermal overload protection
- Cause-of-trip indication
- N.O. and N.C. alarm contacts
- Adjustable overload trip class setting
- Adjustable current pickup
- Overtemperature (PTC) protection

### Specifications

**IEEE Device Numbers:** 46, 49, 51  
**Dimensions:**  
**H:** 83 mm (3.3")  
**W:** 78 mm (3.1")  
**D:** 99 mm (3.9")

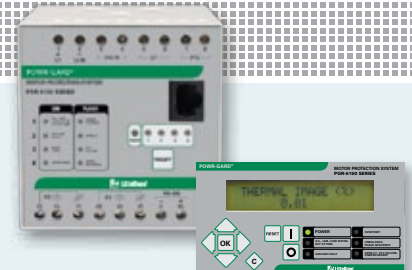
**Warranty:** 5 years

### Accessories

PGB-6130 Remote Indication and  
 Reset Assembly

### Web Resources

[www.littelfuse.com/pgr-6130](http://www.littelfuse.com/pgr-6130)



## PGR-6150 Motor Protection System

### Features/Benefits

- Integrated CTs for currents < 25 A
- Thermal protection through starting, running, overload and cooling cycles
- 13 protective functions
- 2 relay outputs, 1 digital input
- Optional display: 40-character LCD
- RS-485 interface with Modbus® RTU
- Data logging

### Specifications

**IEEE Device Numbers:** 37, 46, 49, 50, 50G, 50N, 51,  
 51G, 51N, 66

**Dimensions (Relay):**  
**H:** 83 mm (3.3")  
**W:** 78 mm (3.1")  
**D:** 99 mm (3.95")

**Dimensions (OPI):**  
**H:** 56 mm (2.2")  
**W:** 106 mm (4.2")  
**D:** 23 mm (0.9")

**Communications:** RS-485 with Modbus® RTU

**Warranty:** 5 years

### Accessories

PGR-6150-OPI Operator Interface

### Web Resources

[www.littelfuse.com/pgr-6150](http://www.littelfuse.com/pgr-6150)

# Advanced— for Small, Medium and Large Motors

## Basic & Standard Motor Protection Relays

Protection for low-voltage motors (<1000 V) including ground-fault protection, overload, and overtemperature.

**PGR-6100**  
**PGR-6130**  
**PGR-6150**

## Advanced Motor Protection Relays

Multi-function protection for low- and medium-voltage motors including dynamic thermal modeling, metering, and overcurrent reduction setting for maintenance.

**MPU-32**  
**MPS**

## Pump Protection Relay

Multi-function protection for low-voltage pumps including overload, undercurrent, and phase sequence.

**PGR-6800**



## MPU-32 (PGR-6200) Motor Protection Unit

### Features/Benefits

- Modular system and compact design makes installation easy for new or retrofit applications
- Monitors current and temperature
- Overcurrent reduction setting for maintenance
- Dynamic thermal modeling
- 80-character LCD
- Communications for different networks
- Data logging
- Optional RTD protection
- Optional differential protection
- Conformal coating

### Specifications

**IEEE Device Numbers:** 37, 38, 46, 49, 50, 50G, 50N, 51, 51G, 51N, 66, 74, 86, 87

**Dimensions:**  
**H:** 96 mm (3.78")  
**W:** 96 mm (3.78")  
**D:** 132 mm (5.2")

**Communications:** RS-232 (Standard); RS-485, DeviceNet™, Ethernet (Optional)

**Warranty:** 10 years

### Accessories

Current Transformers  
MPS-RTD RTD Module  
MPS-DIF Differential Module  
MPU-CIM Current Input Module

### Web Resources

[www.littelfuse.com/mpu-32](http://www.littelfuse.com/mpu-32)

## MPS (PGR-6300) Motor Protection System

### Features/Benefits

- Monitors voltage, current, and temperature
- Starter control, metering, and data logging
- Overcurrent reduction setting for maintenance
- 80-character vacuum fluorescent display
- 22 motor protection functions
- Conformal coating
- Dynamic thermal modeling
- RTD protection with hazardous-location-certified RTD module
- Optional differential protection
- Modular design makes installation easy

### Specifications

**IEEE Device Numbers:** 1, 2, 3, 5, 9, 14, 18, 19, 27, 34, 37, 38, 46, 47, 48, 49, 50, 50G, 50N, 51, 51G, 51N, 55, 59, 66, 74, 81, 86, 87, 94

**Dimensions (OPI):**  
**H:** 98 mm (3.86")  
**W:** 192 mm (7.56")  
**D:** 42 mm (1.65")

**Communications:** Allen-Bradley® DF1 and Modbus® RTU (Standard); DeviceNet™, Profibus®, Ethernet (Optional)

**Warranty:** 10 years

### Accessories

Current Transformers  
MPS-RTD RTD Module  
MPS-DIF Differential Module

### Web Resources

[www.littelfuse.com/mps](http://www.littelfuse.com/mps)

## PGR-6800 Pump Protection Relay

### Features/Benefits

- Undercurrent protection
- Thermal overload protection
- Integrated CTs for currents up to 90 A
- Cause-of-trip indication
- Phase sequence, phase unbalance, and phase-loss protection
- N.O. and N.C. alarm contacts
- Adjustable overload trip class setting
- Adjustable current pickup

### Specifications

**IEEE Device Numbers:** 37, 46, 49, 51

**Dimensions:**  
**H:** 83 mm (3.3")  
**W:** 78 mm (3.1")  
**D:** 99 mm (3.9")

**Warranty:** 5 years

### Accessories

PGB-6800 Remote Indication and Reset Assembly

### Web Resources

[www.littelfuse.com/pgr-6800](http://www.littelfuse.com/pgr-6800)

# Optimizing Processes and Reducing Downtime

Industrial operations cannot tolerate unscheduled shutdowns, as each lost hour of production can be extremely expensive. In addition, repairing and replacing damaged equipment, such as electrical motors, is a costly and time-consuming process, which increases downtime and expends maintenance resources. Combined, the cost of downtime, lost or scrapped production, replacement parts and troubleshooting, is quite significant.



## IMPROVE SAFETY

- FIRE HAZARDS
- ARC-FLASH HAZARDS
- INJURY TO PERSONNEL



## REDUCE COST

- EQUIPMENT REPLACEMENT
- MOTOR REWINDS
- FAULT DAMAGE
- LOST PRODUCTION



## MINIMIZE DOWNTIME

- UNSCHEDULED SHUTDOWNS
- REPLACEMENT TIME
- UNRELIABLE PROTECTION

## Motor Protection Comparison Chart

FEATURE	BENEFIT	PGR-6100	PGR-6130	PGR-6150	MPU-32	MPS	PGR-6800
OVERLOAD (49, 51)	Prevent insulation damage and fires. Extends motor life.		✓	✓	✓	✓	✓
OVERCURRENT / JAM (50, 51)	Prevents catastrophic failures and fires. Extends motor life.			✓	✓	✓	
UNDERCURRENT (37)	Detects low-level or no-load conditions.			✓	✓	✓	✓
CURRENT UNBALANCE / PHASE LOSS / PHASE REVERSE (46)	Prevents overheating and extends motor life.		✓	✓	✓	✓	✓
GROUND FAULT (50G/N, 51G/N)	Prevents catastrophic failures and fires.	✓		✓	✓	✓	
OVERTEMPERATURE (49)	Extends motor life by ensuring that cooling is effective.		✓	✓	✓	✓	
OVERVOLTAGE (59)	Prevents stress to insulation.					✓	
UNDERVOLTAGE (27)	Prevents a start attempt when it will damage the motor.					✓	
VOLTAGE UNBALANCE (47)	Detects unhealthy supply voltage.					✓	
DIFFERENTIAL (87)	Provides sensitive protection for high-resistance winding faults.				✓	✓	
STARTER CONTROL	Simplifies the installation by reducing component count.					✓	
METERING	Alphanumeric display of conditions.			✓	✓	✓	
DATA LOGGING	Record of trips and starts.			✓	✓	✓	
INTEGRATED CTs	External current transformers not required.		✓	✓			✓
OFF-LINE INSULATION MONITORING	Continuously monitors motor windings when de-energized.	✓					
REDUCED OVERCURRENT	Minimizes Arc-Flash Hazards during maintenance.				✓	✓	
COMMUNICATIONS	Provides means to interface with the relay remotely.			✓	✓	✓	

NOTE: IEEE Device Numbers are shown in parenthesis after the applicable features.

As the world's #1 brand in circuit protection, Littelfuse offers the broadest and deepest portfolio of circuit protection products and a global network of technical support backed by more than 80 years of application design expertise. Littelfuse's products can help:

- Improve uptime and reliability
- Reduce risk of fire and shock hazards
- Minimize dangerous operating conditions

■ Littelfuse locations



[WWW.LITTELFUSE.COM/PROTECTIONRELAYS](http://WWW.LITTELFUSE.COM/PROTECTIONRELAYS)

Littelfuse is committed to helping OEM engineers, consulting engineers and end users select the right products to protect critical electrical equipment—supported by our full line of product catalogs and reference materials.

**Protection Relay Catalog** The comprehensive line of electronic and microprocessor-based protection relays safeguard equipment and personnel to prevent expensive damage, downtime or injury due to electrical faults.

**Arc-Flash Relay Brochure** Littelfuse Startco offers one of the fastest Arc-Flash Protection relays on the market. The PGR-8800 can detect a developing arc flash extremely fast and send a trip signal before any significant damage occur.

**Fuses and Fuse Holders Catalog** Littelfuse offers a complete circuit protection portfolio of industrial power fuses, including time-saving indication products for an instant visual blown-fuse identification, even on de-energized systems.

**Generator Controls and Alarm Panels** Littelfuse Selco provides generator control, diagnostics and protection products as well as alarm annunciation and indication panels

To view all Littelfuse product catalogs, visit our website at [www.littelfuse.com/catalogs](http://www.littelfuse.com/catalogs)

