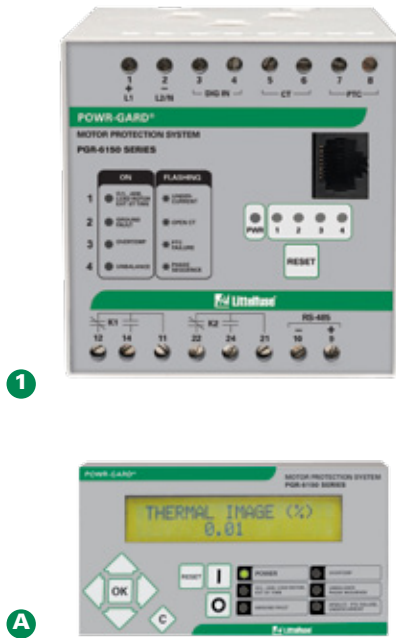


# PGR-6150 SERIES

## Motor Protection System



### Description

The PGR-6150 Motor Protection System provides 13 protective functions by utilizing both current and temperature inputs. It is a modular system consisting of the control unit and an operator interface (PGR-6150-OPI). The OPI allows programming and displays metered values. The PGR-6150 is used to provide current- and temperature-based protection, metering and data logging for three-phase motors used in industrial environments. Current transformers are not required for currents up to 25 A.

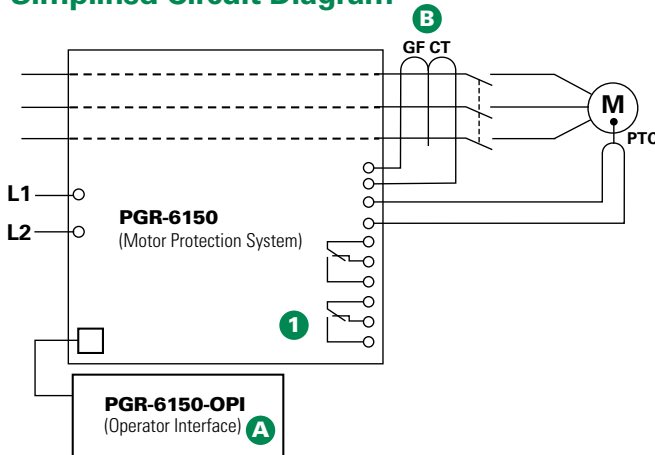
#### 1 Control Unit

- Integrated phase CTs (external for applications > 25 A)
- Ground-fault CT input
- One PTC input and one programmable input
- Two programmable output contacts
- Eight status LEDs
- RS-485 Communications
- DIN-rail mountable
- PC interface software

#### A Operator Interface (optional)

- Large, bright, LCD display (2 x 20 alphanumeric characters)
- Keypad for menu selection (system parameters, measurements, and fault reports)
- Displays metered values
- Six user-programmable LEDs
- Powered by Control Unit
- 1 meter (39-inch) connection cable included

### Simplified Circuit Diagram



### Accessories

**A PGR-6150-OPI Operator Interface**  
Optional Operator Interface for displaying metered values and programming

**B PGC-6000 Series Ground-Fault Transformer**  
Optional zero-sequence current transformer, used to measure ground-fault current. Required for applications >25 A.

### Ordering Information

| ORDERING NUMBER                   | CONTROL POWER           |
|-----------------------------------|-------------------------|
| PGR-6150-24 (Control Unit)        | 24/48 Vdc               |
| PGR-6150-120 (Control Unit)       | 120/240 Vac/dc          |
| PGR-6150-OPI (Operator Interface) | Powered by Control Unit |

NOTE: External CTs can be used for full-load currents >25 A.

| ACCESSORIES     | REQUIREMENT |
|-----------------|-------------|
| PGC-6000 Series | Optional    |

# PGR-6150 SERIES

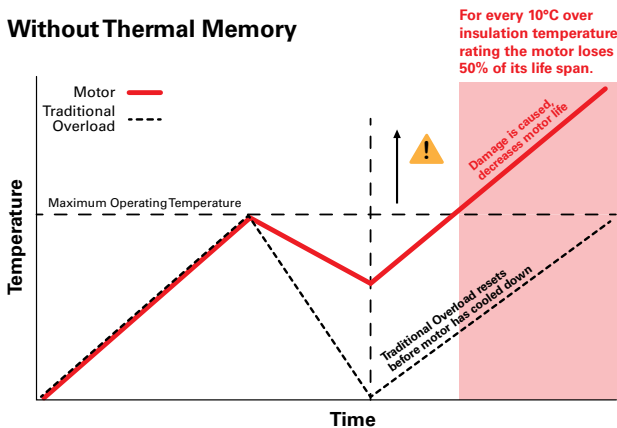
## Motor Protection System

### Features & Benefits

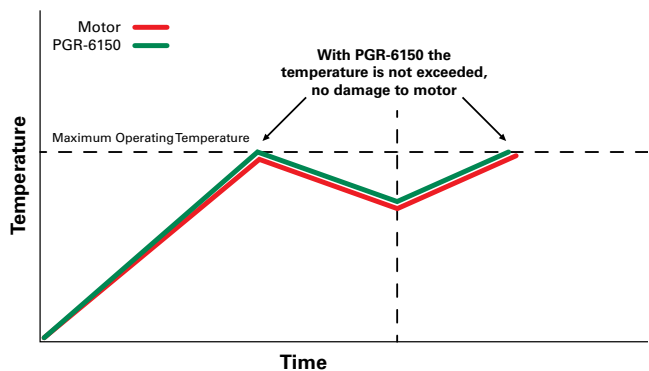
| FEATURES                         | IEEE # | BENEFITS   |
|----------------------------------|--------|--|
| <b>No CTs required</b>           | 49, 51 | No current transformers are required for currents < 25 A   |
| <b>Adjustable trip settings</b>  |        | Adjustable overload trip class setting from 5 to 45 to match motor characteristics               |
| <b>Digital input</b>             |        | Programmable digital input   |
| <b>Output contacts</b>           |        | Two programmable Form C output contacts for operation of separate annunciation and trip circuits |
| <b>Overload</b>                  | 49, 51 | Extends motor life and prevents insulation failures and fires                                    |
| <b>Overcurrent/Jam</b>           | 50, 51 | Detects catastrophic failures and fires; extends motor life                                      |
| <b>Undercurrent</b>              | 37     | Detects low level or no-load conditions  |
| <b>Unbalance (current)</b>       | 46     | Prevents overheating due to unbalanced phases  |
| <b>Phase loss/Phase sequence</b> | 46     | Detects unhealthy supply conditions  |
| <b>PTC overtemperature</b>       | 49     | Detect high ambient or blocked ventilation and single phasing; prevents shaft/pump damage        |
| <b>Dynamic thermal model</b>     |        | Provides protection through starting, running, overload, and cooling cycles                      |
| <b>Communications</b>            |        | RS-485 communications to remotely display metered values   |

### Dynamic Thermal Modeling

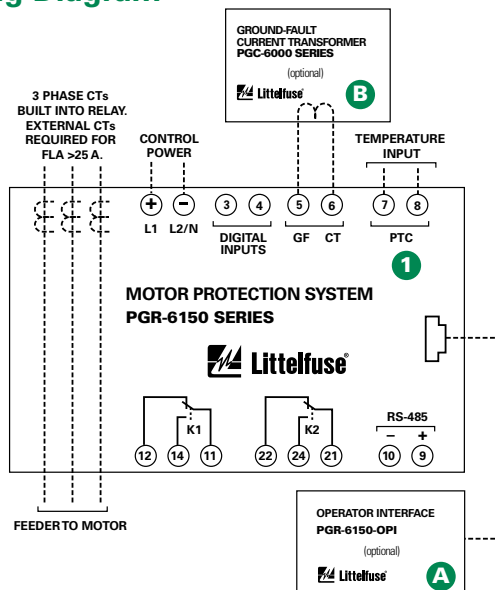
#### Without Thermal Memory



#### With Thermal Memory



### Wiring Diagram



### Specifications

|   |   |  |
|---|---|--|
| <b>Protective Functions (IEEE Device Numbers)</b> | Overload (49, 51)<br>Phase sequence (46)<br>Overcurrent (50, 51)<br>Jam<br>Ground fault (50G/N, 51G/N)<br>Undercurrent (37) | PTC overtemperature (49)<br>Failure to accelerate<br>RTD temperature (49)<br>Unbalance (current) (46)<br>Starts per hour (66)<br>Phase loss (current) (46) |
| <b>Input Voltage</b>                              | 110-230 Vac/Vdc; 24/48 Vdc, 5 W   |  |
| <b>AC Measurements</b>                            | RMS, 16 samples/cycle   |  |
| <b>Frequency</b>                                  | 50, 60 Hz   |  |
| <b>Dimensions (Control Unit)</b>                  | <b>H</b> 83 mm (3.3"); <b>W</b> 78 mm (3.1"); <b>D</b> 99 mm (3.9")   |  |
| <b>Dimensions (Operator Interface)</b>            | <b>H</b> 56 mm (2.2"); <b>W</b> 106 mm (4.2"); <b>D</b> 22.8 mm (0.9")  |  |
| <b>Output Contacts</b>                            | Two Form C  |  |
| <b>Communications</b>                             | RS-485 with Modbus® RTU   |  |
| <b>Approvals</b>                                  | UL Listed (E353735), CE (European Union)  |  |
| <b>Warranty</b>                                   | 5 years   |  |
| <b>Mounting</b>                                   | DIN (Control Unit); Panel (Operator Interface)  |  |