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

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

<table>
<thead>
<tr>
<th>ORDERING NUMBER</th>
<th>CONTROL POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGR-6150-24 (Control Unit)</td>
<td>24/48 Vdc</td>
</tr>
<tr>
<td>PGR-6150-120 (Control Unit)</td>
<td>120/240 Vac/dc</td>
</tr>
<tr>
<td>PGR-6150-OPI (Operator Interface)</td>
<td>Powered by Control Unit</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ACCESSORIES</th>
<th>REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGC-6000 Series</td>
<td>Optional</td>
</tr>
</tbody>
</table>
Features & Benefits

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

Dynamic Thermal Modeling

Without Thermal Memory

For every 10°C over insulation temperature rating the motor loses 50% of its life span.

With Thermal Memory

Maximum Operating Temperature

Motor

Traditional Overload

Max Overload

Input Temperature

Input Voltage

AC Measurements

Frequency

50, 60 Hz

Dimensions

(Operator Interface)

H 56 mm (2.2”); W 106 mm (4.2”); D 22.8 mm (0.9”)

Output Contacts

Two Form C

Communications

RS-485 with Modbus®-RTU

Approvals

UL Listed (E353735), CE (European Union)

Warranty

5 years

Mounting

DIN (Control Unit); Panel (Operator Interface)