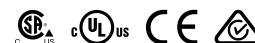


# Arc-Flash Detection Relays

## PGR-8800 Series

### Arc-Flash Monitoring Relay

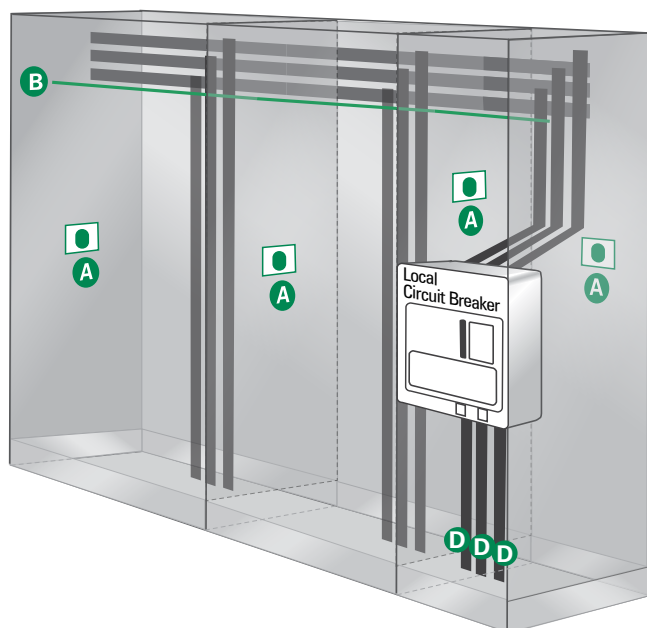


## Description

The PGR-8800 series arc-flash relay is a microprocessor-based protection relay that limits arc-flash damage by using light sensors to rapidly detect an arc and then trip a circuit breaker. Phase-current-transformer inputs are provided for current-constrained, arc-flash protection and, when so equipped, a programmable definite-time overcurrent function can be enabled. An optical sensor on the PGR-8800 and an adjustable trip-level reduce the chance of nuisance tripping by setting a threshold for ambient light. The PGR-8800 accepts PGA-LS10 point sensors and PGA-LS20/PGA-LS30 fiber-optic sensors, which are designed to collect light over a wide angle and with high sensitivity. Sensors, inputs, and connections are monitored to ensure fail-safe operation. A secondary solid-state trip circuit provides a redundant trip path. A USB port is used for configuration and access to event logs and graphs. For fast fault location, front-panel and sensor LEDs indicate sensor health and which sensor(s) detected an arc fault. A maximum of four PGR-8800 units can be linked into one system.

## Sensor Placement

The PGR-8800 arc-flash relay and sensors are easily installed in retrofit projects and new switchgear with little or no re-configuration. More complex systems with multiple power sources are configured using the relay's built-in USB interface software. Generally, it is recommended to mount one or two sensors per cubicle to cover all horizontal and vertical bus bars, breaker compartments, drawers, and anywhere that there is a risk for an arc fault. Threading a fiber-optic sensor through the cabinets and in areas where point-sensor coverage is uncertain results in complete coverage and an added level of redundancy. Even if policy is to only work on de-energized systems, all maintenance areas should be monitored to prevent potential damage and additional cost.



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### Features & Benefits

| FEATURES                                        | BENEFITS                                                                                                                            |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Arc-flash trip time &lt;1 ms</b>             | Limits arc-flash damage and risk of injury                                                                                          |
| <b>Multiple sensors (up to 24)</b>              | A single unit can monitor six sensors. Up to four PGR-8800 units can be linked into one system                                      |
| <b>Fail-safe system</b>                         | Continuous monitoring of optical sensors and inputs ensures protection                                                              |
| <b>Redundant trip circuit</b>                   | Solid-state backup arc-detection circuit adds a second layer of safety                                                              |
| <b>Adjustable light sensitivity</b>             | Allows for operation in bright environments and maximum sensitivity in dark environments                                            |
| <b>LED indication (on unit and each sensor)</b> | 18 LEDs provide at-a-glance status for module and I/O state                                                                         |
| <b>Current detection</b>                        | Phase-CT inputs provide overcurrent protection and prevent nuisance trips                                                           |
| <b>Optical detection</b>                        | Point and fiber-optic sensors provide wide detection area with sensor health trip indication                                        |
| <b>Digital inputs (6)</b>                       | Two each: remote trip, inhibit, and reset inputs                                                                                    |
| <b>Service mode</b>                             | Allows for system test without tripping                                                                                             |
| <b>Trip coil contact</b>                        | Solid-state 24–300 V dc/24–300 V ac IGBT                                                                                            |
| <b>Indication contacts</b>                      | Form C and status outputs                                                                                                           |
| <b>USB interface</b>                            | Data logging and configuration software use a USB interface with no drivers or software installation                                |
| <b>Built-in sensor</b>                          | Can be used in single-sensor systems, as a seventh sensor, and for calibration                                                      |
| <b>Universal power supply/battery backup</b>    | 100–240 V ac, 14–48 V dc, or 110–250 V dc supply accepted. Ability to charge and run off an external, user-supplied 24 V dc battery |
| <b>Data logging</b>                             | On-board event recorder helps with system diagnostics                                                                               |
| <b>Modbus</b>                                   | Remotely view measured values, event records, and reset trips                                                                       |
| <b>Upstream tripping</b>                        | Ability to trip upstream device if the local breaker fails to clear the fault                                                       |

### Applications

- Switchgear cubicle
- Transformer compartment
- Motor control center

# Arc-Flash Detection Relays

## PGR-8800 Series

### Specifications

|                                        |                                                                       |
|----------------------------------------|-----------------------------------------------------------------------|
| <b>IEEE Device Numbers</b>             | Overcurrent (50), Arc Flash (AFD)                                     |
| <b>Input Voltage</b>                   | 100–240 V ac, 14–48 V dc, and 110–250 V dc                            |
| <b>Dimensions</b>                      | <b>H</b> 130 mm (5.1"); <b>W</b> 200 mm (7.9"); <b>D</b> 54 mm (2.1") |
| <b>Optical Trip Settings</b>           | 9–25 klux, 800 µs–20 s                                                |
| <b>Current Trip Setting (A)</b>        | Programmable                                                          |
| <b>Indication Contact Mode</b>         | Fail-safe                                                             |
| <b>Trip Coil Voltage<sup>(1)</sup></b> | 24–300 V dc, 24–300 V ac                                              |
| <b>Trip Coil Contact Mode</b>          | Selectable fail-safe or non-fail-safe                                 |
| <b>Redundant Trip Circuit</b>          | Standard feature                                                      |
| <b>Input Monitoring</b>                | Standard feature                                                      |
| <b>USB Interface</b>                   | Standard feature                                                      |
| <b>Trip, Reset, Service Buttons</b>    | Standard feature                                                      |
| <b>Expandable System</b>               | Link up to 4 PGR-8800 units                                           |
| <b>Warranty</b>                        | 5 years                                                               |
| <b>Mounting</b>                        | Surface, DIN (with D0050 adapter clips)                               |
| <b>Approvals</b>                       | UL, CE, CSA, RCM, FCC, DNV type approval, ABS type approval           |

### Certification & Compliance

|              |                                                          |
|--------------|----------------------------------------------------------|
| <b>cULus</b> | UL508 Industrial Control Equipment E348169               |
| <b>CE</b>    | EMC standards: EN60255-26                                |
| <b>CSA</b>   | LR 62897                                                 |
| <b>RCM</b>   | Australia                                                |
| <b>FCC</b>   | ANSI/IEEE C37.90.1-2002 (Oscillatory and Fast Transient) |

### Accessories

#### A PGA-LS10 Point Sensor

Line-of-sight light sensor detects an arc as small as 3 kA within a 2 m half-sphere. Sensor health and trip indication.  
Dimensions: See PGR-8800 Manual

#### B PGA-LS20/PGA-LS30 Fiber-Optic Sensor

360° light sensor for tricky installations with many shadows or to run along bus bars. Sensor health and trip indication.  
Dimensions: See PGR-8800 Manual

#### C PGA-1100 Diode Logic Unit

This module allows multiple PGR-8800 relays to trip the same breaker, for example an upstream or a tie-breaker.  
Dimensions: **H** 80mm (3.15") **W** 20mm (0.79") **D** 70mm (2.76")

#### D Current Transformers

Eliminate nuisance arc-flash trips and use for overcurrent protection.

### Ordering Information

| ORDERING NUMBER                   | DESCRIPTION                         |
|-----------------------------------|-------------------------------------|
| PGR-8800-00 (UL, CE, CSA, RCM)    | Arc-Flash Relay                     |
| PGR-8800-00-CC (UL, CE, CSA, RCM) | Arc-Flash Relay, Conformally Coated |

NOTE (1) - Contact Littelfuse for trip coil voltages higher than 300 V dc/V ac.

# Arc-Flash Detection Relays

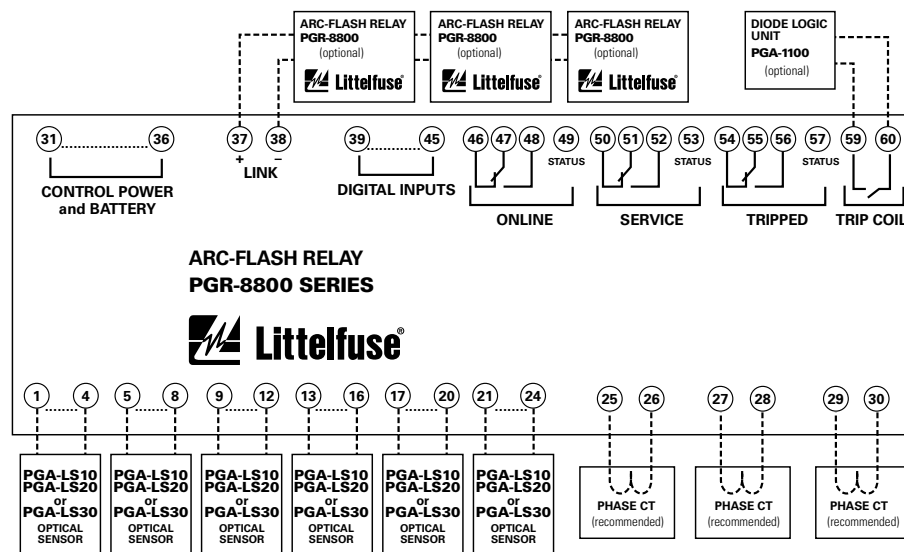
## PGR-8800 Series

### Ordering Information

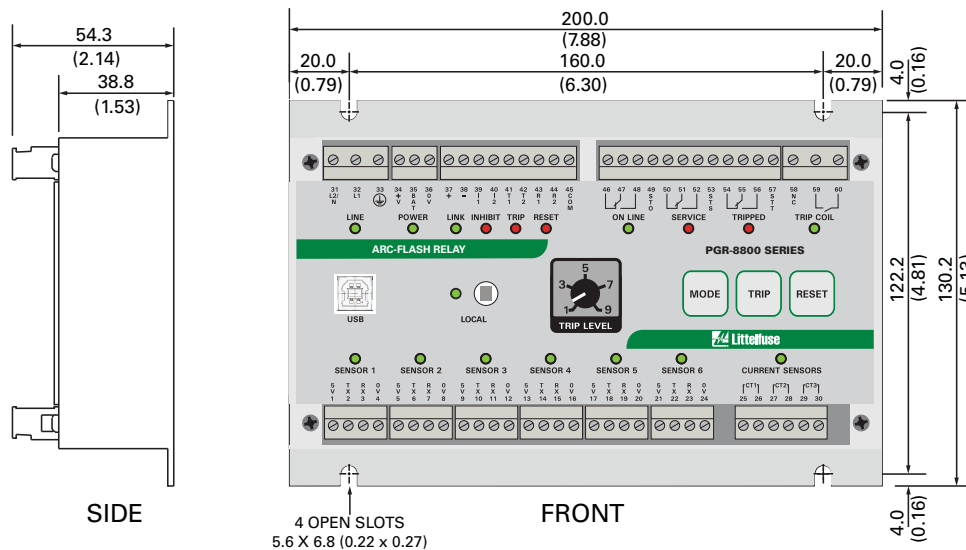
| ACCESSORIES         | REQUIREMENT |
|---------------------|-------------|
| PGA-LS10            | Required*   |
| PGA-LS20, PGA-LS30  | Required*   |
| PGA-1100            | Optional    |
| Current Transformer | Optional    |

\*At least one sensor is required. However, the exact number of sensors for proper coverage depends on the application.

### Wiring Diagram



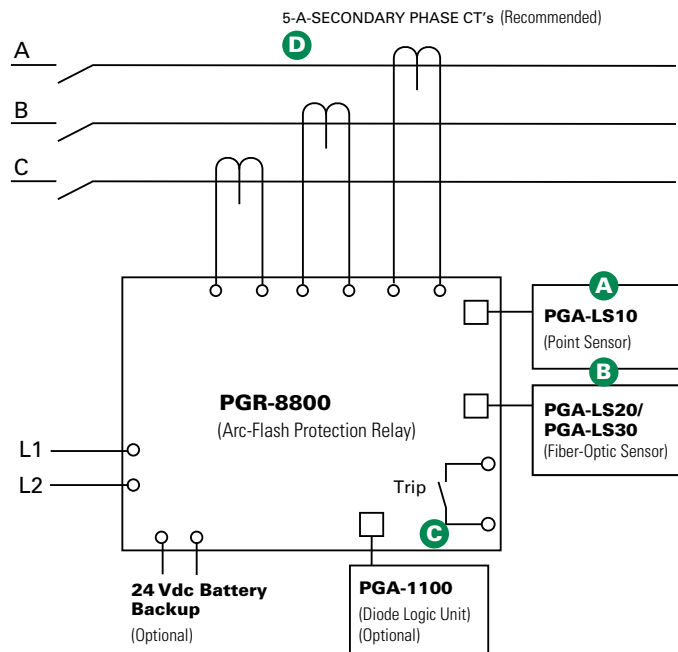
### Dimensions Inches (mm)



# Arc-Flash Detection Relays

## PGR-8800 Series

### Simplified Circuit Diagram



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