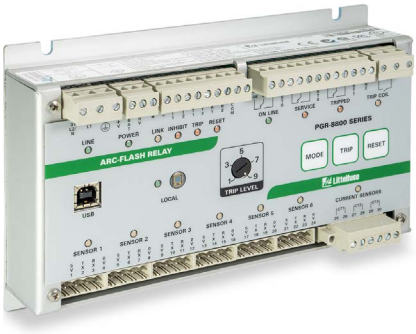
Arc-Flash Detection Relays
PGR-8800 Series

Arc-Flash Monitoring Relay

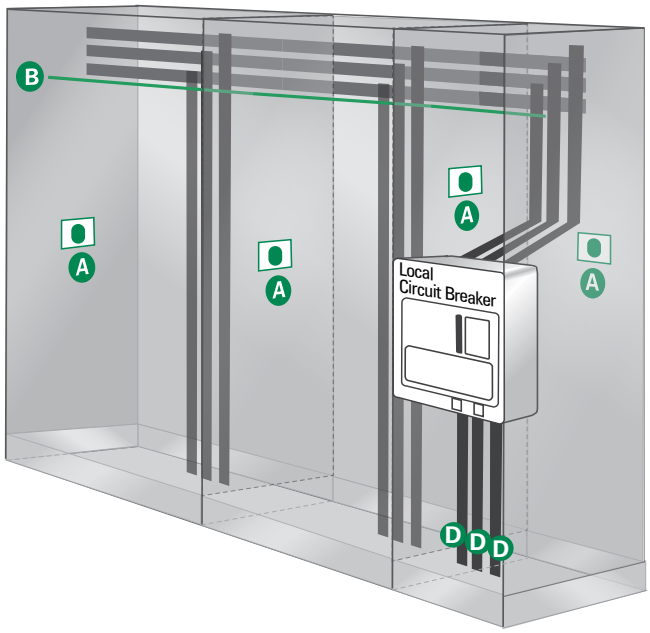


Description

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

Applications

- Switchgear cubicle
- Transformer compartment
- Motor control center

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Specifications

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

Certification & Compliance

cULus	UL508 Industrial Control Equipment E348169
CE	EMC standards: EN60255-26
CSA	LR 62897
RCM	Australia
FCC	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.

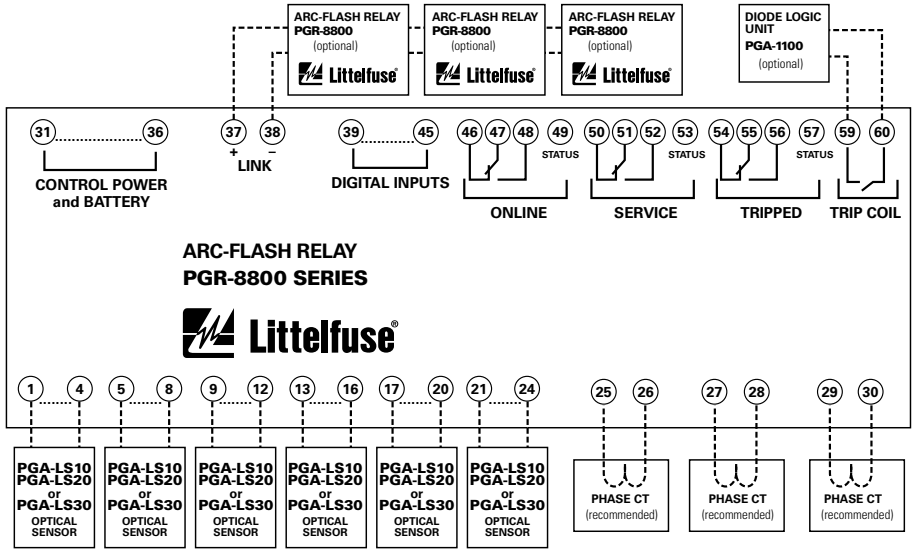
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Ordering Information

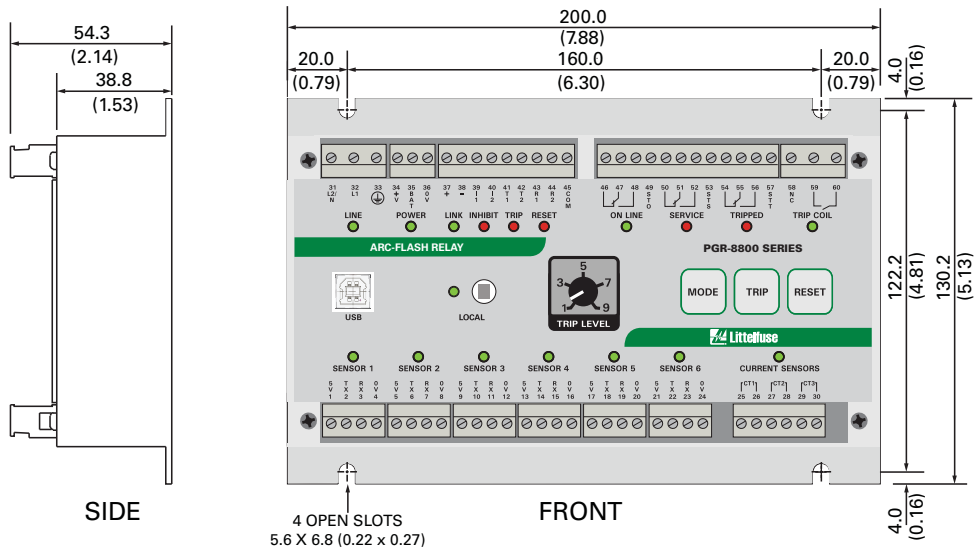
ACCESSORIES	REQUIREMENT
PGA-LS10	Required*
PGA-LS20, PGA-LS30	Required*
PGA-1100	Optional
Current Transformer	Optional

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

Wiring Diagram



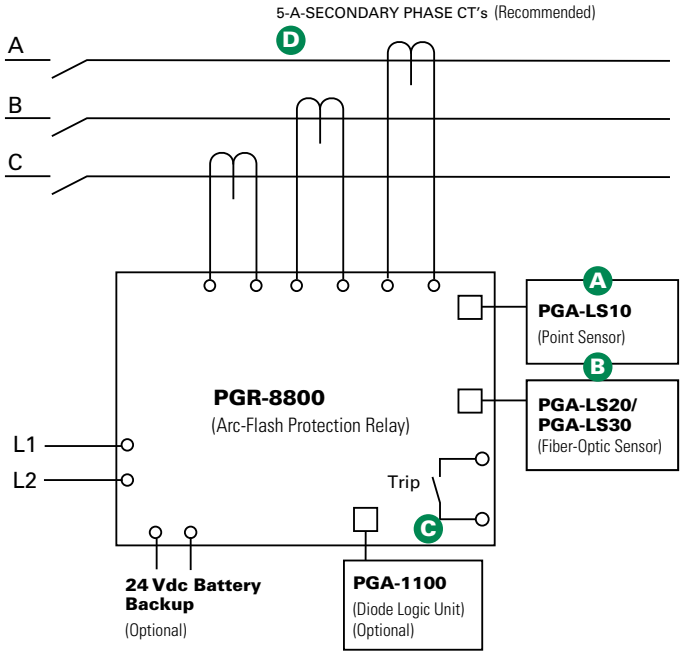
Dimensions Inches (mm)



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Simplified Circuit Diagram



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