

**EGFL Series Ground Fault Sensors
CurrentWatch
Current Sensors**



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The CurrentWatch EGFL Series from Eaton's electrical business is a family of ground fault (earth leakage) sensors. Ground fault sensors help protect people, products and processes from damage by ground fault conditions by monitoring all current-carrying conductors in grounded single- and three-phase delta or wye systems. For more information on the operating principle, see to the right. The EGFL Series is available with either solid-state or mechanical relay outputs.

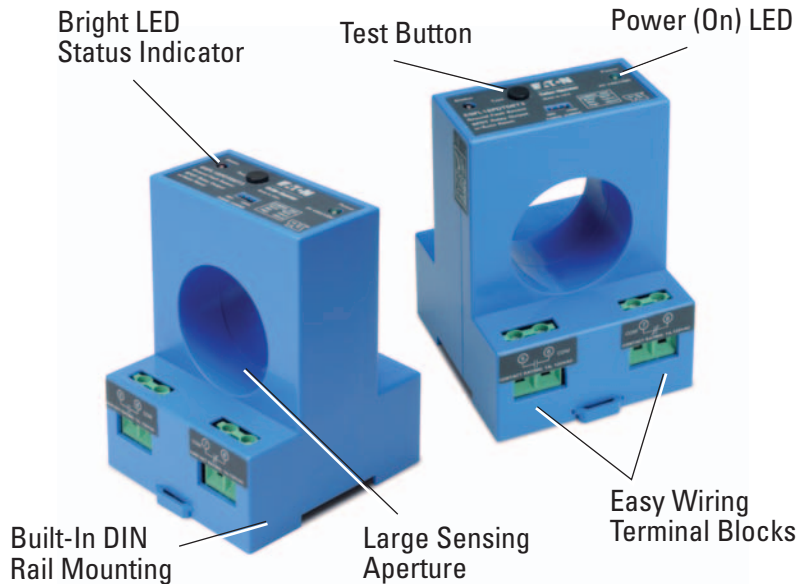
The EGFL Series with mechanical relays are available in solid-core housings with a choice of N.O. or N.C. SPST latching relays and a SPDT Form C relay with auto-reset. All mechanical models can be ordered with a fixed setpoint or with a "tri-set" option, which provides three factory-set, field adjustable setpoints.

Approvals

- UL Approved (Pending)



Ground Fault Sensors with Mechanical Relays



Product Features

- **Broad Range of Options to Meet Application Needs** — Mechanical relays, normally energized or normally de-energized contacts
- **Setpoint Options Maximize Ease-of-Use and Application Flexibility** — Field selectable 5, 10 or 30 mA setpoints on the EGFL "Tri-set" models make user adjustments fast, sure and convenient
- **Compatible with Standard Equipment** — Application on single- and three-phase systems, ideal for use with shunt trip breakers, and magnetically isolated from monitored circuit and control power
- **Agency Approved** — UL and CE Certified, accepted worldwide

Typical Applications

- **Personnel Protection (Typically 5 mA)** — Detects sensitive ground fault conditions, which could cause injury to people, and functions as a sensor and alarm trigger when part of an overall ground fault protection system
- **Equipment Protection (Typically 10 or 30 mA)** — For applications where personnel protection is not the primary concern, higher setpoint capability helps eliminate nuisance tripping while still providing adequate ground fault detection to protect machine electronics
- **Regulatory** — Meets requirements as stipulated by governmental and industrial regulatory groups for ground fault sensing

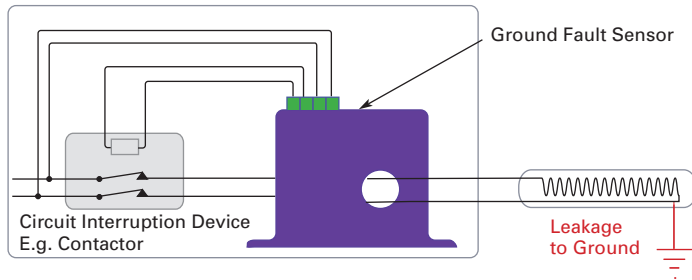
"Zero Sequence" Operating Principle

In three-phase delta and wye systems, under normal conditions, current in the 'hot' leg of a two-wire load is equal in magnitude but opposite in sign to the current in a neutral leg. As a result, the electromagnetic fields surrounding these two conductors cancel, producing a "zero sum current." As soon as current leaks to ground (fault condition), the two currents become imbalanced and a net magnetic field results. The CurrentWatch EGFL Series sensors monitor this field and trip alarm contacts when the leakage rises above the setpoint.


For Customer Service in the U.S. call **1-800-356-1243**,
 in Canada call **1-800-268-3578**.
 For Application Assistance in the U.S. and Canada
 call **1-800-426-9184**.

Example Application — CurrentWatch EGFL Series

Insulation Breakdown Monitoring



Model Selection — CurrentWatch EGFL Series

	Power Supply	Setpoint	Output Type	Contacts	Catalog Number
Mechanical Relay Sensors					
	120V AC	Tri-Set Adjustable, 5, 10 or 30 mA	Mechanical Relay, N.O. SPST Relay, Form A	Latching Relay	EGFL1NOLAT3
			Mechanical Relay, N.C. SPST Relay, Form B	Latching Relay	EGFL1NCLAT3
			Mechanical Relay, SPDT Form C, Auto-Reset	Normally Energized	EGFL1SPDTNET3
	24V AC/DC	Tri-Set Adjustable, 5, 10 or 30 mA	Mechanical Relay, N.O. SPST Relay, Form A	Latching Relay	EGFL2NOLAT3
			Mechanical Relay, N.C. SPST Relay, Form B	Latching Relay	EGFL2NCLAT3
			Mechanical Relay, SPDT Form C, Auto-Reset	Normally Energized	EGFL2SPDTNET3
			Normally De-Energized	EGFL2SPDDET3	

Output Table — CurrentWatch EGFL Series

	No Power	Control Power Applied	
		No Fault	Fault
Normally Energized Models			
Protection from faults and control power loss.			
Normally Open Models	Open	Closed	Open
Normally Closed Models	Closed	Open	Closed
Normally De-Energized Models			
Protection from faults only when power is applied.			
Normally Open Models	Open	Open	Closed
Normally Closed Models	Closed	Closed	Open

Latching Models

Latching models power up initially in the rest (normal) mode. If there is a fault condition or the test button is pushed, the output contacts will change state and latch. The output will remain latched regardless of whether the fault is cleared or control power is removed. To reset the output, apply a momentary contact across “reset” terminals.

Wiring Diagrams — CurrentWatch EGFL Series

Models	Wiring Diagram
Latching Models	<p>The diagram shows a terminal block with six terminals labeled 1 through 6. Terminals 1 and 2 are labeled 'Power', and terminals 3 and 4 are labeled 'Output'. An 'External Reset Switch' is connected to terminals 5 and 6. To the right of the terminal block are a green 'Power' LED and a red 'Status' LED. Below these is a circular 'TEST' button. A dashed box highlights a jumper location between terminals 3 and 4, labeled 'Jumper Location for Tri-Set Models'.</p>
Auto Reset Models	<p>The diagram shows a terminal block with five terminals labeled 1 through 5. Terminals 1 and 2 are labeled 'Power', and terminals 3 and 4 are labeled 'Output'. To the right of the terminal block are a green 'Power' LED and a red 'Status' LED. Below these is a circular 'TEST' button. A dashed box highlights a jumper location between terminals 3 and 4, labeled 'Jumper Location for Tri-Set Models'.</p>
General Wiring Diagram for Ground Fault Sensors	<p>This section contains four separate wiring diagrams, each showing an 'EGF Series' sensor connected to a 'Power Interrupt' circuit. <ul style="list-style-type: none"> 1Ø Power 1Ø Load: Shows a single-phase power source with 'HOT' and 'NEUT' lines. The sensor is connected in series with the power line. 3Ø Wye Power 3Ø Load: Shows a three-phase wye power source with lines labeled ØA, ØB, ØC, and ØN. The sensor is connected to the ØA line. 3Ø Delta Power 3Ø Load: Shows a three-phase delta power source with lines labeled ØA, ØB, and ØC. The sensor is connected to the ØA line. 3Ø Power 1Ø Load: Shows a three-phase power source with lines labeled ØA and ØB. The sensor is connected to the ØA line. </p>

Specifications — CurrentWatch EGFL Series

Power Supply	120V AC (55 – 110% of nominal voltage) 24V AC/DC (+/- 20%)
Output Signal	Mechanical Relay
Output Rating	Auto Reset Models: SPDT Relay 1A @ 125V AC 2A @ 30V DC Latching Models: SPST Relay 1A @ 125V AC 2A @ 30V DC
Off State Leakage	None
Response Time	200 ms @ 5% above trip point 60 ms @ 50% above trip point 15 ms @ 500% above trip point
Frequency Range	50 – 400 Hz (monitored circuit)
Loading	2VA max.
Isolation Voltage	5,000V AC (tested)
Sensing Aperture	1.83 in. (46.5 mm) dia.
LED Indicator	Green LED for Power On Status Red LED for Contact Status
Housing	UL94 V0 Flammability Rated
Environmental	Temperature: -4 to +122°F (-20 to +50°C) Humidity: 0 – 95% RH, Non-Condensing
Approvals	UL 1053, Class 1 Recognized, CE

Approximate Dimensions — CurrentWatch EGFL Series

Models	Dimensions
Mechanical Relay Models	