

Specifications	
Monitored Circuit	600VAC max., 50/60Hz
Output Description	Electromechanical relay
Rating	SPDT relay: 1A @ 120VAC, 2A @ 30VDC resistive
Off State Leakage	None
Power Supply	120VAC (66-132 VAC) 50/60 Hz 24 VAC/VDC (19-29 V)
Power Consumption	2.5 Watts
Setpoint	5, 10 & 30 mA, Jumper select
Response Time	150ms @ 5% over setpoint 100ms @ 50% over setpoint 50ms @ 500% over setpoint
Status (Red) LED	Relay has tripped (relay operated)
Power (Green) LED	Power supply energized
Aperture	1.76" (44.7mm) ID
Isolation Voltage	2200VAC
Case	UL 94V-0 Flammability Rating
Environmental	Operating temperature: -4 to 122°F (-20 to 50°C)
	Relative humidity: 0-95% RH, Non-condensing
	Pollution Degree 2
	Altitude to 2000 meters
Agency Approvals	UL/cUL (E222847), CE

For products intended for the EU market, the following is applicable to the CE compliance of the product:

The GFSL series comply with EN61010-1 CAT III 300V max line-to-neutral measurement category. If insulated cable is used for the primary circuit, the voltage rating of the measurement category can be improved according to the characteristics given by the cable manufacturer. Use twisted pair for all connections. De-energize power before changing set point jumper position.

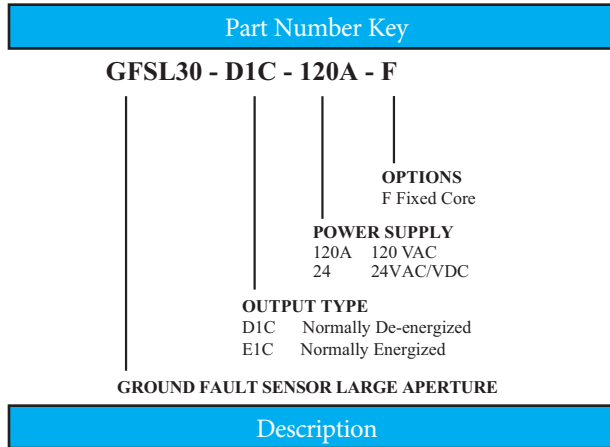
24 VAC/VDC Power Supply	120VAC 50/60Hz Power Supply
Fuse at 5 amps maximum	
Overvoltage Category I	Overvoltage Category II



WARNING! RISK OF DANGER:
SAFE OPERATION CAN ONLY BE GUARANTEED IF THE SENSOR IS USED FOR THE PURPOSE IT WAS DESIGNED FOR AND WITHIN LIMITS OF THE TECHNICAL SPECIFICATIONS. WHEN THIS SYMBOL IS USED, IT MEANS YOU MUST CONSULT ALL DOCUMENTATION TO UNDERSTAND THE NATURE OF POTENTIAL HAZARDS AND THE ACTION REQUIRED TO AVOID THEM.



WARNING! RISK OF ELECTRICAL SHOCK:
WHEN OPERATING THE SENSOR CERTAIN PARTS MAY CARRY HAZARDOUS LIVE VOLTAGE (E.G. PRIMARY CONDUCTOR, POWER SUPPLY). THE SENSOR SHOULD NOT BE PUT INTO OPERATION IF THE INSTALLATION IS NOT COMPLETE.



GFSL series relays monitor all current carrying wires in single or three phase systems to detect ground faults. They provide a contact output that can operate relays, contactors or signal automation systems.

Principle of Operation

Under normal conditions, the current in one wire of a two wire load is equal in strength but opposite in sign to the current in the other wire. The two wires create magnetic fields that cancel, a condition known as "Zero Sum Current". If any current leaks to ground (Ground Fault), the two currents become unbalanced and there is a net resulting magnetic field. The GFSL relay detects this minute field and changes the output state. This concept extends to three phase systems such as 3 wire Delta and to 4 wire Wye. The sensor is not designed for use on ungrounded Delta systems.

Power Supply Notes

All low-current ground fault sensors are sensitive devices that require reasonable care in system design to avoid false trips caused by high electrical noise levels. Keep in mind that the best way to reduce noise in a system is to suppress it at its source.

1. Keep the sensor power isolated from noisy circuits.
2. Do not power the sensor with the same circuit that switches contactors or other high current inductive loads.

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GFSL auto reset - Inst - Rev 1 072825 P-N 490680017



GFSL SERIES Ground Fault Relays with Auto-Reset Relay Outputs INSTALLATION INSTRUCTIONS



Quick Start Guide

1. Run all current carrying conductors through relay window.

A. Set range selection jumper before installing any power or output conductors.

2. Mount the relay to a surface if needed.

3. Connect output & power wiring.

A. Use 22AWG (0.326mm²) up to 14AWG (2.5mm²) insulated to 60°C minimum copper wires.

B. Make sure power and load matches those shown on the sensors' label.

4. Power up

A. The Green LED will light when the sensor is powered.

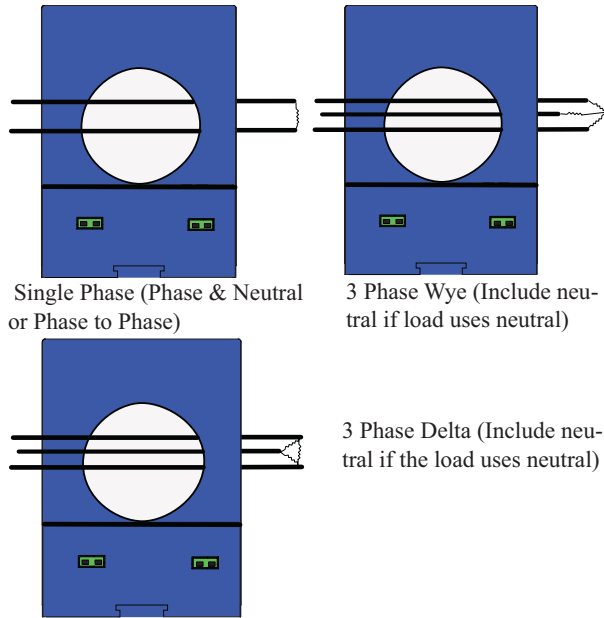
B. Energize the monitored circuit.

5. Test

A. Pressing the "TEST" button tests the sensors internal circuits.



Caution: The output and any connected loads will switch!

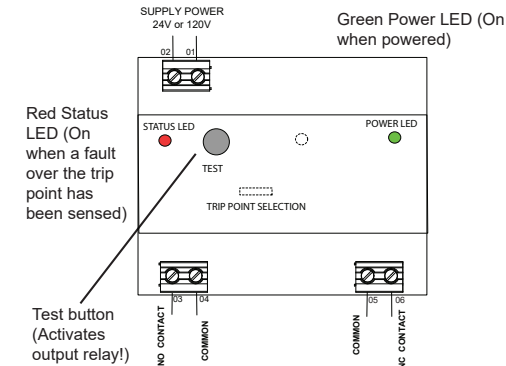


Single Phase (Phase & Neutral or Phase to Phase)

3 Phase Wye (Include neutral if load uses neutral)

3 Phase Delta (Include neutral if the load uses neutral)

Power Supply Input (1 & 2)



Green Power LED (On when powered)

Red Status LED (On when a fault over the trip point has been sensed)

Test button (Activates output relay!)

Output Connection:

D1C output action

(3 & 4), NO closes on fault, (5 & 6) NC opens on fault.

E1C output action

(3 & 4), NO closes with power to the sensor, opens on fault or loss of power to the sensor.

(5 & 6), NC opens with power to the sensor, closes on fault or loss of power to the sensor.

Installation & Wiring

GFSL series sensors work in the same environment as motors, contactors, heaters, pull-boxes, and other electrical enclosures. They can be mounted in any position or hung directly on wires with a wire tie. Just leave at least one inch distance between sensor and other magnetic devices. Run all current carrying conductors through the opening in the sensor. (See "Operation") Be sure all wires are oriented so current flows in the same direction.

Wiring

Use 22AWG (0.326mm²) up to 14AWG (2.5mm²) copper wire and tighten terminals to 5.3 in lbs (0.6 Nm) torque. See Diagram.

Power

Connect power wiring to Terminals 1 & 2. Be sure that the power supply matches the power rating on the sensor label. Green LED (Power) will light.

Output

Connect output wiring to Terminals 3 & 4 or 5 & 6

Operation

GFSL Series Auto-Reset Ground fault relays operate in one of two states: Normal or Tripped. The D1C versions trips the output only with fault current over the set point. The E1C versions trip (change state) when the power is applied to the relay and reverts back to shelf state if power is removed or a fault is sensed.

The normally open contact closes on sensed fault current over the set point (or test) and the normally closed contact opens on detected fault.

GFSL models use a jumper to select the trip point. With the jumper removed, the relay will trip at the lowest set point. The jumper can be placed over two pins to set the trip point at the medium level, or the other two pins to be set at the highest trip point.

Output Type	No Power at Sensor		Power Applied		Fault Sensed (or Loss of Power- E1C models)	
	3-4	5-6	3-4	5-6	3-4	5-6
D1C	Open	Closed	Open	Closed	Closed	Open
E1C	Open	Closed	Closed	Open	Open	Closed

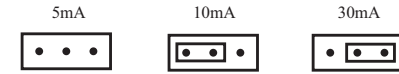
Operation Continued

Testing

To test operation, gently press the TEST button. This simulates a fault and tests the internal switching circuits.



CAUTION: ANY CIRCUIT CONNECTED TO THE RELAY WILL BE OPERATED.



Note: The tri-set GFSL model cannot be adjusted higher nor lower than the factory settings.