



Ground Fault Sensor

RU
E211244

The **CR7310** series, Ground Fault Sensor provides a reliable and cost effective method for sensing ground faults. The current-carrying wires are routed through the opening extending from the top of the case. When ground current reaches the level set by the trip point adjustment, the relay trips, illuminates the tripped LED and provides an output signal. A precision voltage reference circuit ensures a highly repeatable trip point. The Sensor is rated as a Class 1 device.



Relay Option Shown (-ELR)

Applications

- Monitor motor ground faults
- Sense early failure of heater elements
- Equipment Protection

Features

- Variable trip point
- Monitors currents from 10 mA to 100 AC Amps
- Electrical isolation between circuits
- Output relay rated up to 20 Amps
- LED trip status indicator
- Dead band prevents relay chatter
- Calibrated dial
- External current transformers available

Specifications *

Mounting:

3/16" dia. clearance holes on 1 15/16" by 2 15/16" centers

Environmental:

Operating Temperature: -30°C to +70°C
Storage Temperature: -55°C to +85°C
0-95% RH, Non-condensing

Input Supply Power:

Terminals: 2 - 1/4" Male Q C

Sensed Current:

Max. Continuous: 200% Full Scale
Frequency: 50-400 Hz *

* All specifications for operation at 60 Hz only

Output Options

The Relay is available with three different output configurations, electromechanical relay, optoisolated NPN transistor or zero-crossing optoisolated triac. Specify desired selection in part number.

Relay (-ELR)

Arrangement: 1 Form C (SPDT)
Contact Material: Silver-cadmium oxide
Terminals: 3 - 1/4" Male Q C
Mechanical Life: 10 million operations, typ. @ rated load
Electrical Life: 100,000 operations, typ. @ rated load
Initial Contact resistance:
50 milliohms max. @ 500 mA, 12 Vdc
Contact Rating: UL508/873 & CSA

VOLTAGE	LOAD TYPE	N.O. CONTACT	N.C. CONTACT
240 Vac	Resistive	20A	10A
240 Vac	Motor	2HP	1/2HP
125 Vac	Motor	1HP	1/4HP
28 Vdc	Resistive	20A	10A

DC Switching (-NPN)

Vce (full off): 30 Vdc max.
Isink (full on): 120 mAdc max. @ rated full-on
Vce (full on): 1.5 Vdc @ 120 mAdc Isink
Off state leakage current: 5ua @ 30 Vdc (typical)
Terminals: 2- 1/4" Male Q C

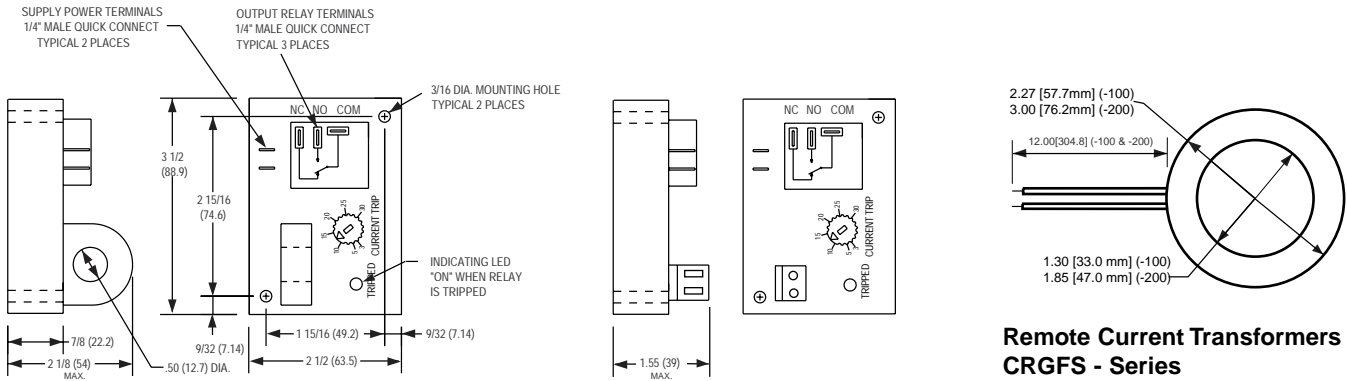
AC Switching (-TRC)

Off state voltage: 240 Vac RMS max.
Minimum switch voltage: 24 Vac RMS
On state current: 500 ma. RMS max. continuous
Switching mode: Zero crossing
Off state leakage: 60 ua @ 240 Vac max.
Terminals: 2- 1/4" Male Q C

THE GROUND FAULT SENSOR IS INTENDED FOR EQUIPMENT PROTECTION AND IS NOT FOR PROTECTION OF PERSONNEL, ANIMALS OR ELECTRICALLY SENSITIVE EQUIPMENT.

Ground Fault Sensor

Outline Drawing



Shown with Internal Current Transformer (-I)

Shown with Remote Current Transformer (-R)

Part Numbers

CR7310 - [] [] - [] [] [] - [] [] [] - X - [] [] - [] [] [] - [] GROUND FAULT SENSOR

TRIP STATUS
EH - Energized on High, trips when sense current is above trip point and returns to non-trip status when sense current is below the trip point.
LH - Latch on High, trips when sense current is above trip point and remains tripped until supply power is removed.

TRIP RANGE
.01.1 - 0.01 to 0.1 AAC
.11 - 0.1 to 1.0 AAC
110 - 1.0 to 10 AAC
330 - 3.0 to 30 AAC
660 - 6.0 to 60 AAC
101 - 10 to 100 AAC

The trip ranges shown are for one wire pass through the window opening. The trip range may be proportionally lowered with additional wire passes through the window.

TRIP POINT DIAL
CD - Calibrated Dial
FP - Fixed Trip Point (Specify value of fixed trip-point with order)

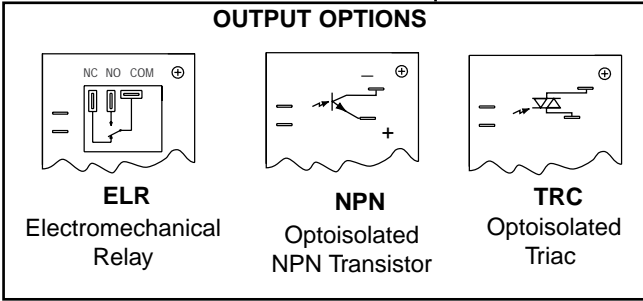
No adjustment dial provided with the fixed set point option

- CD - FP

-330 trip range shown

I - Internal Transformer
R - Remote Transformer

SUPPLY VOLTAGE
120 - 120 Vac
240 - 240 Vac
 All supply voltage tolerances are 55 to 110 %



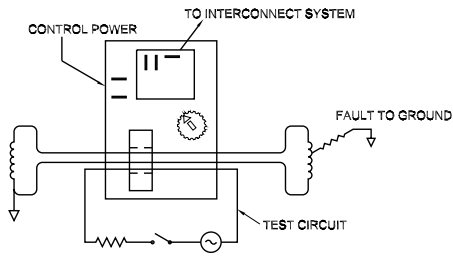
CRGFS - [] [] EXTERNAL CURRENT SENSING TRANSFORMER

- 100** 1.30 dia. Window
- 200** 1.83 dia. Window

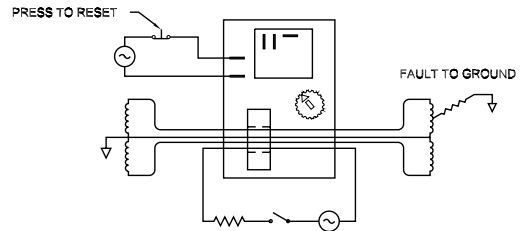


Ground Fault Sensor, Series 7310

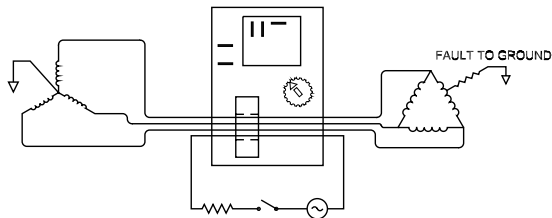
INSTALLATION AND TEST PROCEDURE



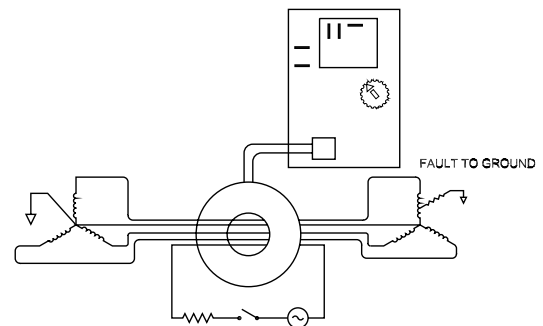
SINGLE-PHASE, TWO WIRE



SINGLE-PHASE, THREE WIRE



THREE-PHASE, THREE WIRE (DELTA)



THREE-PHASE, FOUR WIRE (Y)

The 7310 Series Ground Fault Sensor is intended for equipment protection and is in no way to be considered adequate protection for injury to personnel, animals, or electrically sensitive equipment. The sensor is intended as a class I device, to provide a signal that can be applied with other equipment for complete system protection. Other devices such as fuses and circuit interrupters are required for complete equipment protection.

The interconnect system attached to the Ground Fault Sensor shall be evaluated in accordance with the manufacturers detailed instructions. Only qualified personnel shall perform this evaluation.

The test circuit shown above is to simulate fault current to verify the operation of the complete system. The resistor and power source should be selected to apply a minimum of 1.5 times the maximum trip rating of the sensor.

The proper location of the sensor around the bus of the circuit to be protected shall be determined. This check includes verifying that the bus or cable polarity is correct and that the grounding conductor is not encompassed by the sensing coil on the ground fault sensor. This can be done visually, with the knowledge of which bus is involved.

The grounding points of the system shall be verified to determine that ground paths do not exist that would bypass the ground fault sensor. The use of high-voltage testers and resistance bridges are recommended.

A simulated fault current circuit shall be installed according to the above diagram. The reaction of the systems interrupting device should be monitored for correct response to determine whether the system functions as intended. This test shall verify that the control power transformer has adequate capacity. If the system is zone interlocked, that function should be checked to determine whether the system functions as intended.

The results of the test shall be recorded on the attached test form. Additional copies of the test form may be obtained from CR MAGNETICS, Inc. or downloaded from the Internet at www.crmagnetics.com/groundfaultform.pdf. The form requires the date the test was performed and the results. The form shall be retained by those in charge of the electrical facility and made available to the authority having jurisdiction.

NOT FOR PROTECTION OF PERSONNEL, ANIMALS OR ELECTRICAL SENSITIVE EQUIPMENT.

THE SENSOR MUST BE INSTALLED AND ROUTINELY INSPECTED BY QUALIFIED PERSONNEL.

CR Magnetics, Inc. 544 Axminster Dr. Fenton MO USA 63026 V: 636.343.8518 F: 636.343.5119
Web: <http://www.crmagnetics.com> Email: sales@crmagnetics.com