Specifications

Power Supply	24 VAC/VDC (20-30 V)
Power Consumption	<4 VA
Setpoint Range	Adjustable, see Model Number Key
Monitored Circuit	600 VAC line-to-line max. 50-60 Hz
Output Switch	Electromechanical relay 1.0 A @ 120 VAC, 2 A @ 30 VDC resistive
Isolation Volate	UL listed to 1240 VAC
Response Time	120 ms minimum, adjustable to 1 second
Green LED Display	Power supply energized
Sensing Aperture	1.76" (44.7 mm) inside diameter
Case	UL94 V-0 Flammability rated
Environmental	-4 to 104°F (-20 to 40°C) Surrounding air 0-95% RH, Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)
Listings	UL/cUL, CE

For products intended for the EU market, the following is applicable to the CE compliance of the product:
The AGLD Series comply with EN 61010-1 CAT III 300 V 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. A listed branch circuit fuse rated max 5 A shall be placed in series with the main input power terminal. Use twisted pair for output connection. De-energize power before changing set point jumper position.

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 shock

When operating the sensor certain parts may carry hazardous live voltage (e.g. primary conductors, power supply). The sensor should not be put into operation if the installation is not complete.

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Model Number Key

AGLD1 - SDT1 - 24U - DEN - ADJ

Setpoint:
ADJ - Adjustable trip point
5-100 mA (Range 1)
80-950 mA (Range 2)

Contact Action:
DEN - Normally De-energized, Auto reset
ENE - Normally Energized, Auto reset
LA - Latching, Normally De-energized

Power Supply:
24U - 24 VAC/VDC

Output Type:
SDT1 - SPDT (One Norm. Open & One Norm. Closed Contact)

Setpoint Range:
1 - 5-100 mA, Adjustable
2 - 80-950 mA, Adjustable

AGLD Series Ground Fault Relay

Description

AGLD Series sensors 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.

Principal 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 AGLD sensor detects this minute field and changes the output state. This concept extends to three phase circuits such as 3 or 4 wire Delta and 3 or 4 wire Wye. The sensor is not designed for use on ungrounded systems.

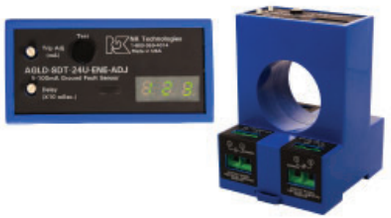
Power Supply Notes

All low-current Ground-Fault Relays 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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INSTRUCTIONS



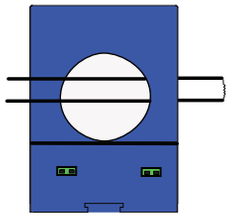
AGLD SERIES

Ground Fault Sensors with Adjustable Trip and Delay

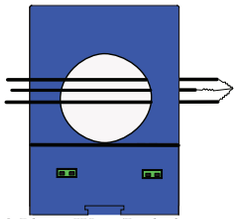
Quick "How To" Guide

1. Run all current carrying conductors through sensor window.
   A. Do not include the grounded conductor, but do include the neutral if the load uses one.
2. Mount the sensor to a surface if needed.
3. Connect output & power wiring.
   A. Use 30-10 AWG rated 75°C minimum copper conductors only and tighten to 5-7 in lbs.
   B. Make sure power and load matches those shown on the sensor's label.
4. Power up.
   A. The Green LED display 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! Display will flash.
   B. Reset by removing the power to the faulting load or resolving the fault condition. Display will be steady (not flashing).

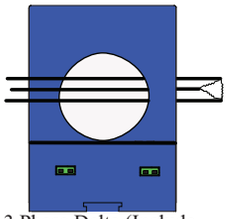
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Single Phase (Phase & Neutral or Phase to Phase)



3 Phase Wye (Include neutral if load uses neutral)



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

Installation & Wiring

AGLD 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 "Principal of Operation") Be Sure all wires are oriented so current flows in the same direction.

Test Switch

Pressing the test button will cause the output to change state. This may operate the connected load depending on your control scheme.

Wiring

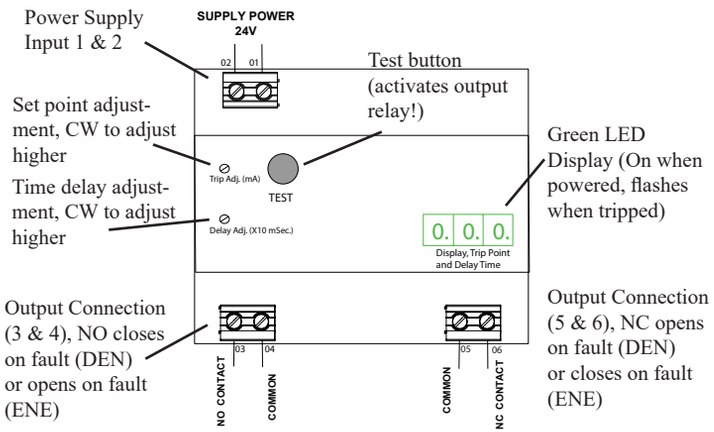
Use 30-10 AWG copper wire and tighten terminals to 5-7 inch-pounds torque. See diagrams.

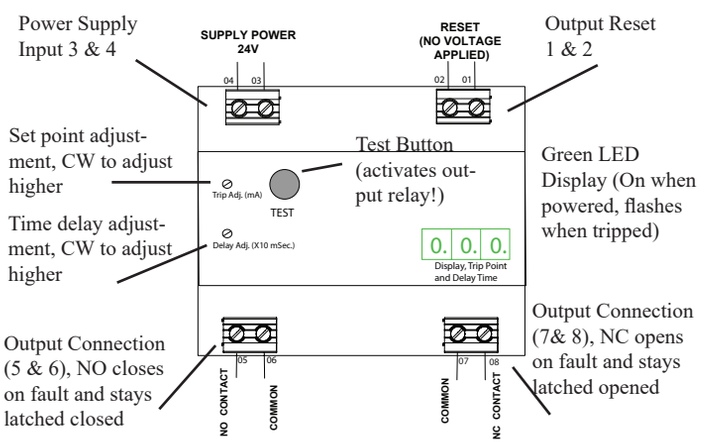
Power

Connect power wiring to Terminals 1-2 (Auto-reset) or 3-4 (Latching) Be sure that the power supply matches the power rating on the relay label. Green LED Display will light with power applied. The input is not polarity sensitive.

Output

Connect output wiring to Terminals 3-4 (NO) or 5-6 (NC) (Latching models: NO 5-6 and NC 7-8).





Operation

AGLD Series Auto Reset Ground fault sensors operate in one of two states: Normally de-energized (DEN) or Normally energized (ENE).

DEN Sensors produce a change in the relay contacts ONLY when there is a fault over the trip point.

ENE Sensors provide contact action when the sensor is powered, so the contact state will return to the original condition with fault detected or with a loss of power to the sensor.

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

Upon detecting a fault or when the TEST switch is pressed, the output will switch.

The output will reset to the original (energized) state after the TEST button has been depressed.

To indicate that the sensor has sensed a fault, the LED display will flash until the fault has cleared.

Contact Action			Control Power Applied	
Model	Contact State	No Power	No Fault	Fault Detected
ENE	Norm. Open	Open	Closed	Open
	Norm. Closed	Closed	Open	Closed
DEN	Norm. Open	Open	Open	Closed
	Norm. Closed	Closed	Closed	Open
LA	Norm. Open	Open	Open	Latch Closed
	Norm. Closed	Closed	Closed	Latch Open

Field Setpoint Adjustment

The AGLD sensors provide an easy method to set the amount of fault current which will cause the output to change state. There is a white slotted adjustment knob to the left of the TEST button. This is a linear, single turn potentiometer allowing the trip point to be set at a minimum of 5 mA by turning counterclockwise, and 100 mA clockwise. The LED display will show the trip point in mA at any time the sensor is powered, except when adjusting the output delay.

Time Delay Adjustment

The delay adjustment is located on the lower left side on the top of the sensor, directly below the trip point adjustment. Turning the slotted knob fully counterclockwise to set the delay to the minimum (30ms to activate the output contacts) and the amount of added delay will be shown on the LED display. After one second, the display will revert from showing the amount of added delay to displaying the trip point. Note that the display shows the delay in ms, but with the decimal point one place to the left. The delay can be increased by turning the adjustment clockwise, and the display will show 00 with no added delay, up to 99, representing 990ms of added delay after a fault is detected.

When used with an external CT, the relay will be set to trip at a point much lower than without the CT. How much fault current will cause the output to change state will depend on the external current transformer used. Please contact the factory for information.

The AGLD sensor provides a window with ID of 1.76 inches (or 44.7 mm). This allows a maximum of four 250 MCM THHN to pass through. The formula to calculate if there will be room for the wires follows:

Measure the OD of one wire. Use this measurement multiplied by 2.15 to obtain the OD of a bundle of three, and by 2.41 for the OD of bundle of four wires. Please contact the factory for more information.

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