## Specifications

| | |
|---|---|
| Power Supply | 120 VAC (66-132 volts, 50-60 Hz)<br>2.5 VA consumption<br>24 VAC or VDC (19-29 volts)<br>2.5 VA consumption<br>Green LED = Power supply energized |
| Setpoint Range | AG1 Series: 5-100 mA field adjustable<br>AG2 Series: 80-950 mA field adjustable<br>AG3 Series: Tri-Set, 5, 10 & 30 mA, jumper select (defaults to 5 mA when jumper is removed) |
| Isolation Voltage | Up to 1500 VAC |
| Frequency Range | 50-60 Hz (monitored circuit) |
| Output Rating | Relay output: 1.0 A @120 VAC, 2 A @ 30 VDC |
| Response Time | 150 ms @ 5% over setpoint<br>100 ms @ 50% over setpoint<br>50 ms @ 500% over setpoint |
| Dimensions | 2.98”H x 3.86”W x 1.45”D<br>(76 x 98 x 37 mm)<br>Case aperture 0.75” (19 mm) diameter |
| Case | UL94 V-0 Flammability rated |
| Environmental | -4 to 122°F (-20 to 50°C)<br>0-95% RH, Non-condensing<br>Pollution Degree 2<br>Altitude to 6561 ft (2000 meters) |
| Listings | UR/cUR, CE |

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

The sensor may comply with EN 61010-1 CAT III 600 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 fuse rated 5 A max shall be placed in series with the main input power terminal. Use twisted pair for output connection.
De-energize power before changing setpoint 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 senor 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.

## System Grounding

Good design practice and code require that all AC power systems be grounded. AG Series detectors are designed to work on grounded AC power systems. They may not operate properly on ungrounded systems.

## Model Number Key

**AG 1 - SDT1 - 120 - ENE - 005 - N**

**NOISE IMMUNITY:**
N - Noise Immunity
None (Blank)

**SETPOINT:**
005 to 950 - Factory Adjusted Setpoint in mA (specify when ordering)
TR3 - Tri-Set, 5, 10 & 30 mA, Jumper Select

**OPTIONS:**
ENE - Normally Energized
DEN - Normally De-energized

**POWER SUPPLY:**
24U - 24 VAC/VDC
120 - 120 VAC

**OUTPUT TYPE:**
SDT1 - SPDT Relay (Form C)
1 A @ 120 VAC, 2 A @ 30 VDC

**SETPOINT RANGE:**
1 - 5-100 mA, Adjustable
2 - 80-950 mA, Adjustable
3 - Tri-Set, 5, 10 & 30 mA, Jumper Select

**AG Series Ground Fault Detector**

## Power Supply Notes

All low-current Ground-Fault Detectors 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 detector power isolated from noisy circuits.
2. Do not power the detector with the same circuit that switches contactors or other high current, inductive loads.

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# INSTRUCTIONS




## AG1, 2 & 3 SERIES

### Ground Fault Detectors with Relay Outputs, Auto-Reset

## Quick “How To” Guide

1. **Run all current carrying conductors through detector window.**
   A. Use an auxiliary CT if conductors do not fit. Consult Factory for CT selection.
2. **Mount the detector to a surface if needed.**
3. **Connect output & power wiring.**
   A. Use 30-10 AWG copper conductors rated 75°C minimum. Tighten to 5-7 inch-pounds.
   B. Make sure power and load matches those shown on the sensor’s label.
4. **Test.**
   A. Pressing the “TEST” button tests the detectors internal circuits. CAUTION: The output and any connected loads will switch!

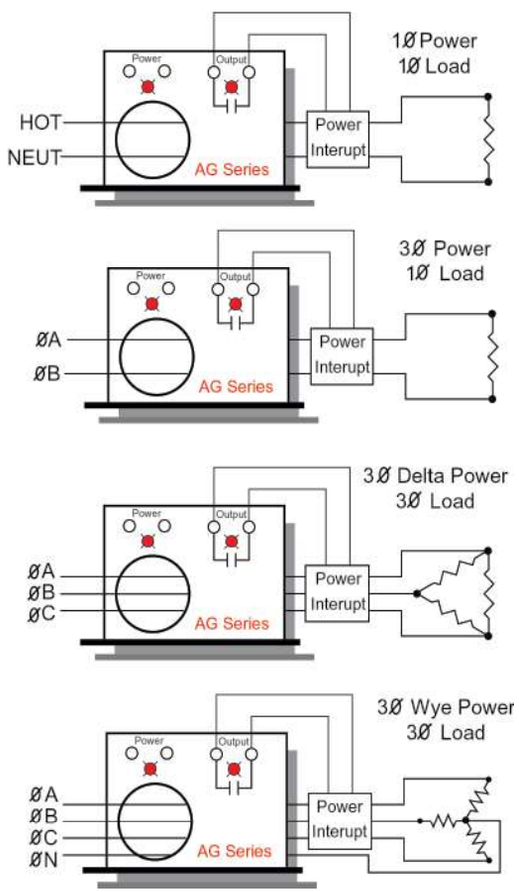
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## Description

AG Series detectors 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 AG detector 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.



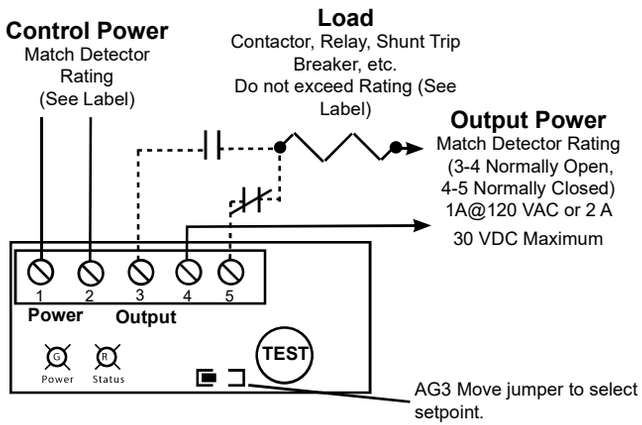

## Installation & Wiring

AG Series detectors 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 detector and other magnetic devices.

Run all current carrying conductors through the detector apeture in the same direction. (See "Principal of Operation")

Connect power wiring to the detector. Be sure that the power supply matches the power rating on the detector label. Use 30-10 AWG copper conductors and tighten terminals to 5-7 inch-pounds torque.

Connect output wiring to the detector. Be sure that the output load is less than or equal to the output rating on the detector label. Use 30-10 AWG copper conductors and tighten terminals to 5-7 inch-pounds torque.




## Operation

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

**CAUTION: Any circuit connected to the detector will be operated.**

**Normally Energized Models (-ENE)** Detects Ground Faults and loss of control power

| | NO POWER | | CONTROL POWER APPLIED | | | |
|---|---|---|---|---|---|---|
| | | | No Fault | | Fault Detected | |
| **Output** | **Output** | **LED** | **Output** | **LED** | **Output** | **LED** |
| N.C. Normally Closed | CLOSED | Off | OPEN | OFF | CLOSED | ON |
| N.O. Normally Open | OPEN | Off | CLOSED | OFF | OPEN | ON |

**Normally De-Energized Models (-DEN)** Detects Ground Faults only.

| | NO POWER | | CONTROL POWER APPLIED | | | |
|---|---|---|---|---|---|---|
| | | | No Fault | | Fault Detected | |
| **Output** | **Output** | **LED** | **Output** | **LED** | **Output** | **LED** |
| N.C. Normally Closed | CLOSED | Off | CLOSED | OFF | OPEN | ON |
| N.O. Normally Open | OPEN | Off | OPEN | OFF | CLOSED | ON |

## Setpoint Adjustment

**AG1 & AG2 ONLY** series detectors are factory calibrated to trip at the setpoint specified at the time order. We highly recommend leaving this factory calibrated setpoint alone. If you must change the factory setpoint, follow these steps:

A. Setup

Connect control power and output circuits. Run a conductor through the aperture with current equal to your desired setpoint.

B. Adjust Setpoint to Maximum

Remove the Setpoint Cover. Turn the adjustment pot 5 revolutions CCW (Counter Clockwise) to the maximum (least sensitive) setpoint. The Status LED should be OFF. The adjustment pot has a slip clutch so you cannot feel or damage the end point.

C. Dial in new Setpoint

Turn the pot slowly CW (Clockwise) until the LED turns ON. The detector is now adjusted to trip at the current that is passing through the aperture. Reset the detector.

D. Relabel Detector

Relabel the detector with the new setpoint. Use a label maker or tape with a permanent marker.

**AG3 -** Move the jumper to the desired setpoint as shown on the label.

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