

Specifications

Setpoint Range	AG1 Series: 5-100mA Field Adjustable AG2 Series: 80-950mA Field Adjustable AG3 Series: Tri-Set, 5, 10 & 30 mA, Jumper Select
Voltage Range	Up to 1,500 VAC (Monitored Circuit)
Frequency Range	50-400Hz (Monitored Circuit)
Output Options	(See Product Label)
Solid State AC Detector	1A @ 240 VAC (2A for 10 Min.)
Solid State DC Detector	0.15A 30 VDC (500mA momentary)
Response Time	150 mS @ 5% above setpoint. 100 mS @ 50% above setpoint.
Power Supply	<u>120 VAC</u> (50-400 Hz) (66-132 volts) 2.5 VA consumption <u>240 VAC</u> (50-400 Hz) (200-240 volts) 2.9 VA consumption <u>24VAC or VDC</u> (19-28 volts) 2.5VA consumption Green LED=Power supply energized
Dimensions	2.5"H x 2.8"W x 1.5"D, (64x71x38mm), aperture 0.75" (19mm) dia. (See Diagram)
Case	UL 94V-O Flammability Rated
Environmental	-4 to122° F (-20 to 50 °C), 0-95% RH, Non Condensing
Listings	UL 1053, Class 1 Recognized, CE Certified (Not all option combinations are recognized. See product label)

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 which powers contactors or other high current, inductive loads.

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

AG1-NCAC-120 -FS - 005

Setpoint

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

Options

FS Normally Energized
NF Normally De-energized

Power Supply

24U 24 VAC/DC
120 120 VAC
240 200-240 VAC

Output Type

NCAC Normally Closed 1A @ 240 VAC
NOAC Normally Open 1A @ 240 VAC
NCDC Normally Closed 0.15A @ 30 VDC
NODC Normally Open 0.15A @ 30 VDC

Setpoint Range

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

AG Series Ground Fault Detector

Know Your Power



Other NK Technologies Products Include:

AC & DC Current Transducers
AC & DC Current Operated Detectors
1 ϕ & 3 ϕ Power Transducers
Current & Potential Transformers (CTs&PTs)



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INSTRUCTIONS



AG 1, 2 & 3 SERIES Ground Fault Detectors Solid State 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 22 to 14 AWG copper wires.
 - B. Make sure load matches the output shown on the detectors' label.
 - Detectors labeled “xxAC” will only detector AC.
 - Detectors labeled “xxDC” will only detector DC.
 - C. Make sure power supply matches the power input shown on the label.
4. **Test**
 - A. Pressing the “TEST” button tests the detectors internal circuits. CAUTION: The output and any connected loads will detector!

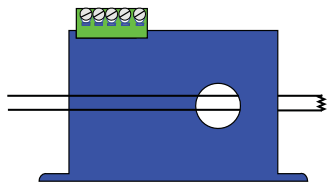
Description

AG Series ground fault 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.

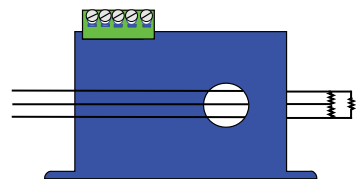
Principal of Operation

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.

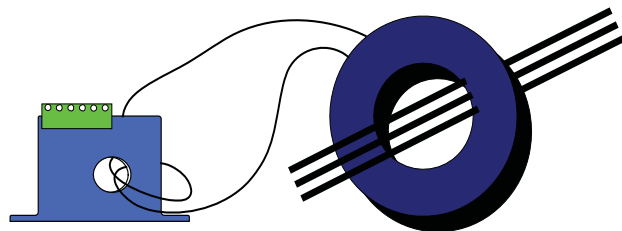
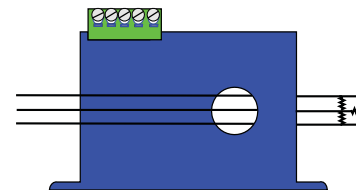
Single Phase (Phase & Neutral or Phase to Phase)



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



3 Phase Wye (Include neutral if load uses neutral)



3 Phase Load, using an auxiliary Current Transformer. Contact factory for details.

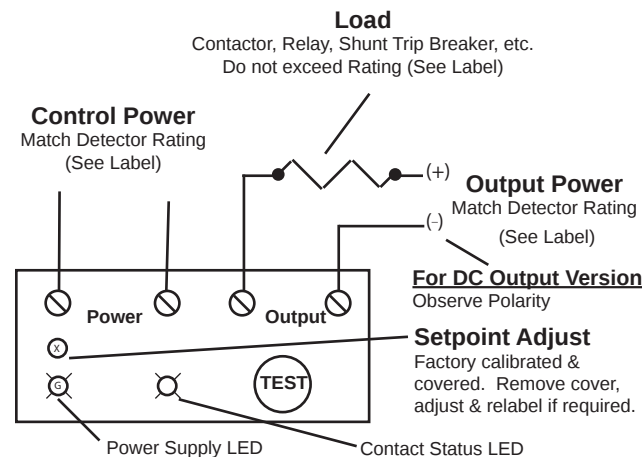
Installation & Wiring

AG Series ground fault 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 aperture 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 22 to 14 AWG copper wire and tighten terminals to 7 inch-pounds torque.

Connect controlled load to terminals. Be certain the output current draw is lower or equal to the output rating on the detector label.



Operation

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

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

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

Output Style

N.C. Normally Closed
N.O. Normally Open

NO POWER	
Output	LED
CLOSED	Off
OPEN	Off

CONTROL POWER APPLIED			
No Fault		Fault Detected	
Output	LED	Output	LED
OPEN	ON	CLOSED	OFF
CLOSED	ON	OPEN	OFF

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

Output Style

N.C. Normally Closed
N.O. Normally Open

NO POWER	
Output	LED
CLOSED	Off
OPEN	Off

CONTROL POWER APPLIED			
No Fault		Fault Detected	
Output	LED	Output	LED
CLOSED	OFF	OPEN	ON
OPEN	OFF	CLOSED	ON

Setpoint Adjustment

AG1 & AG2 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 set point.

B. Adjust Setpoint to Maximum

Remove the Setpoint Cover. Turn the adjustment pot 4 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. No other adjustment can be made.