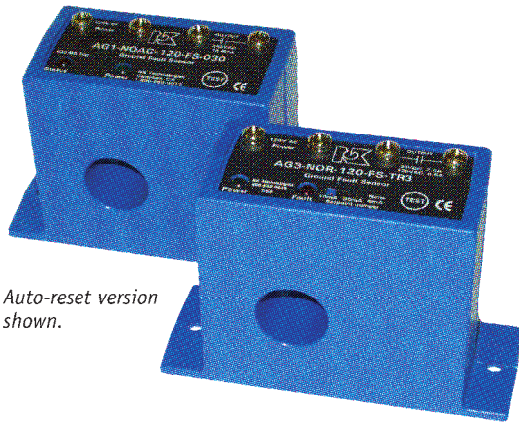




NK Technologies

AG Series



Auto-reset version shown.

'AG' Series sensors from NK Technologies protect people, products and processes from ground faults by monitoring all current-carrying wires in grounded single or 3-phase systems.

MADE IN USA

Operating Principal: Under normal conditions, the current in the hot leg of a two-wire load is equal in strength but opposite in sign to the current in the neutral leg. These two currents create magnetic fields that are also equal but opposite. When the wires are next to each other, the fields cancel, producing a "Zero Sum Current". If any current leaks to ground from one wire (Ground Fault), the two currents become imbalanced and the result is a net magnetic flux or field. AG Series ground fault sensors monitor this field and alarm when leakage rises above setpoint. This concept applies to grounded 3-phase delta and wye systems.

Ground Fault Sensors

Applications

Personnel Protection (typically 5mA)

Senses low fault currents and alarms to shut power before injury occurs.

Equipment Protection (typically 30mA)

When personal protection is not an issue, select a higher setpoint to protect equipment or product

Regulatory Approval

Meet requirements by industry groups and governments for Ground Fault Protection.

Features

■ Broad Range of Options to Match Application Needs:

- Choice of NO/NC solid-state switch and mechanical relay outputs.
- Normally energized or normally de-energized contacts.
- Latching outputs for controlling contactors; auto-reset option for control of shunt trip breakers.
- Noise-immune option for use in EMI/RFI sensitive environments.

■ Setpoint Options Maximize Ease-of-Use:

- Field-selectable 5mA, 10mA or 30mA setpoints (AG3 "Tri-set" model only) makes user-adjustable setpoint fast and convenient.
- Single, factory-adjusted setpoint can be fixed from 5mA to 950mA when ordering.

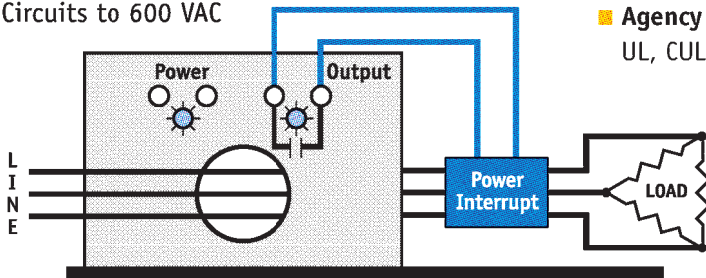
■ Compatible with Standard Equipment

- Applicable on most 1Φ and 3Φ systems.
- Ideal for use with shunt trip breakers or contactors.
- Magnetically isolated from monitored circuit and control power.

■ Agency Approved

UL, CUL and CE acceptance worldwide.

Easy to Apply on 1Φ or 3Φ
Circuits to 600 VAC



Ground Fault Sensors

AG Series
PAGE 25

NK Technologies ■ 1400 Dell Ave. Suite A ■ Campbell, CA 95008 ■ 800/959-4014
www.nktechnologies.com ■ sales@nktechnologies.com

*Know your power...
because with knowledge comes control.*

AG Series

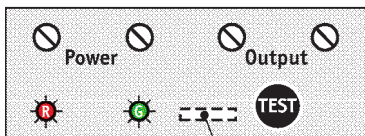
Solid State Ground Fault Sensors

MADE IN
USA



AG Series products with solid state outputs combine the benefits of NK Technologies' ground fault sensing technology with the reliability and longevity of solid state contacts. Solid state technology provides unlimited switch operating life, superior resistance to shock and vibration, zero off-state leakage, high switching speeds and high input-output isolation, all of which make these units an ideal choice for standard and harsh environments alike.

Connections



*Typical of
Auto-reset
Version*

*Jumper Location
for Tri-Set Models*

Notes:

- Adjustable Setpoint version has setpoint adjust but no jumper.

Output Table

Normally Energized Models (-FS Option)

Protection from faults and loss of control power.

	No Power	Control Power Applied	
		No Fault	Fault
N.C. Normally Closed	Closed	OPEN	Closed
N.O. Normally Open	Open	CLOSED	Open

Normally De-energized Models (-NF Option)

Protection from faults only when control power is applied.

	No Power	Control Power Applied	
		No Fault	Fault
N.C. Normally Closed	Closed	CLOSED	Open
N.O. Normally Open	Open	OPEN	Closed

Solid State Ground Fault Sensors



Specifications

Setpoint Range

- "Single-Set" Models Factory adjusted and sealed
 - AG1: 5–100mA, specify when ordering
 - AG2: 80–950mA, specify when ordering
- "Tri-Set" Models 5, 10 & 30mA jumper select

Output

Isolated Dry Contact

Output Rating

- Solid State AC Switch: 1A @ 240VAC
- Solid State DC Switch: 0.15A @ 30VDC

Off State Leakage

< 10µA

Response Time

- 200 ms @ 5% above setpoint
- 60 ms @ 50% above setpoint
- 15 ms @ 500% above setpoint

Isolation Voltage

Up to 1,250VAC (monitored circuit)

Frequency Range

50–400Hz (monitored circuit)

Sensing Aperture

0.75" (19.1mm) dia., up to 4" (100mm) dia. available, consult factory.

Power Supply

- 120VAC (55–110% of nominal voltage)
- 24VAC/DC (+/-10% of nominal voltage)
- Green LED = power (all models)

Case

UL 94V-0 Flammability Rated

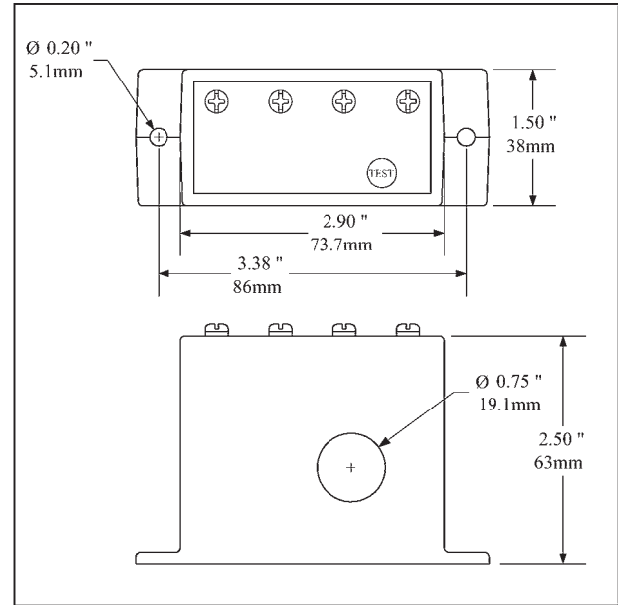
Environmental

5 to 158°F (-15 to 70°C),
0–95% RH, non-condensing

Safety

UL 1053, Class 1 Recognized, CE*

*Most option combinations are UL recognized.

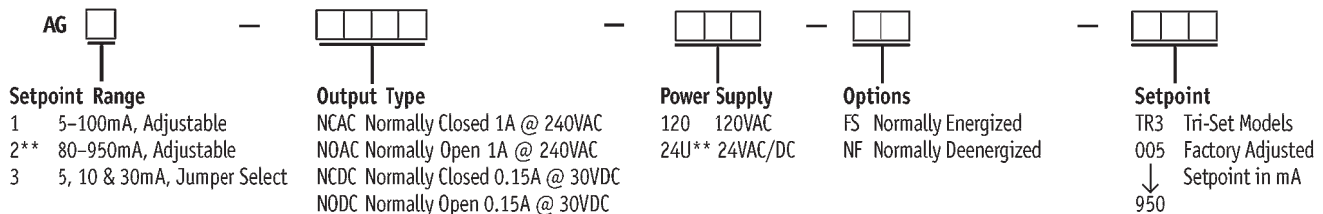


MADE IN
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Ordering Information

Example: AG1-NOAC-120-005-FS

Ground fault sensor with normally open solid state output, 120VAC power supply, 5mA setpoint, fail safe version.



** Not UL recognized in any configuration

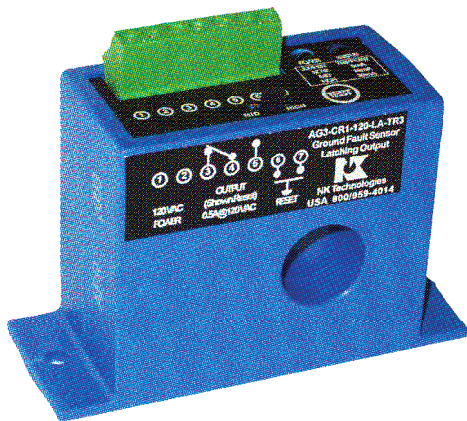
Solid State Ground Fault Sensors

AG Series continued

Know your power...
because with knowledge comes control.

AG Series

Mechanical Relay Ground Fault Sensors



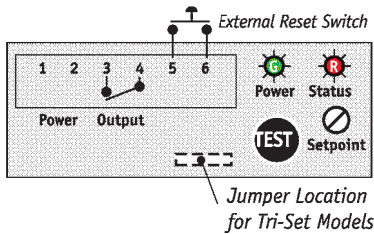
MADE IN
USA

AG Series products with mechanical outputs are available in solid-core enclosures and offer a choice between a N.O. or N.C. SPST latching relay and a SPDT Form C relay with auto-reset. All mechanical models can be ordered with a factory adjusted setpoint or with the "Tri-set" option which provides three factory-fixed, field-selectable setpoints. A noise immunity option is also available for applications within harsh EMI/RFI environments.

Connections

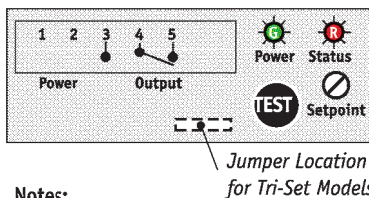
Latching Models (-LA)

-NOR1 Output Option Shown, -NCR1 similar



Auto Reset Models

-ENE and -DEN



Notes:

- Adjustable Setpoint version has setpoint adjust but no jumper.

Output Table

Normally Energized Models (-ENE Option)

Protection from faults and loss of control power

	No Power	Control Power Applied	
		No Fault	Fault
N.C.	Closed	OPEN	Closed
N.O.	OPEN	Closed	OPEN

Normally Deenergized Models (-DEN Option)

Protection from faults only when control power is applied

	No Power	Control Power Applied	
		No Fault	Fault
N.C.	Closed	CLOSED	Open
N.O.	Open	OPEN	Closed

Latching Models (-LA Option)

Latching models initially power up in the Reset (Normal) position. If there is a fault or the test button is pressed, the output switches and is latched. The output will remain latched after the fault is cleared, even if control power is removed. To reset the output, apply a momentary contact across the "Reset" terminals (5-6).

Mechanical Relay Ground Fault Sensors



Specifications

Setpoint Range

- **"Single-Set" Models** Factory adjusted and sealed
 - AG1: 5–100mA, specify when ordering
 - AG2: 80–950mA, specify when ordering

- **"Tri-Set" Models**
 - 5, 10 & 30mA jumper select

Output

- Auto Reset: SPDT Relay, 1.0A @ 125VAC, 2A @ 30VDC
- Latching: SPST Relay, 1.0A @ 125VAC, 2A @ 30VDC

Response Time

- 200 ms @ 5% above setpoint
- 60 ms @ 50% above setpoint
- 15 ms @ 500% above setpoint

Isolation Voltage

Up to 1,250VAC (monitored circuit)

Frequency Range

50–400Hz (monitored circuit)

Noise Immunity Option

- Shielded from external EMI/RFI interference.
- Power supply noise filtering.

Sensing Aperture

0.75" (19.1mm) dia., up to 4" (100mm) dia. available, consult factory.

Power Supply

- 120VAC, operates from 55-110% of nominal voltage
- 24VAC & 24VDC, operates +/-10%

Case

UL 94V-0 Flammability Rated

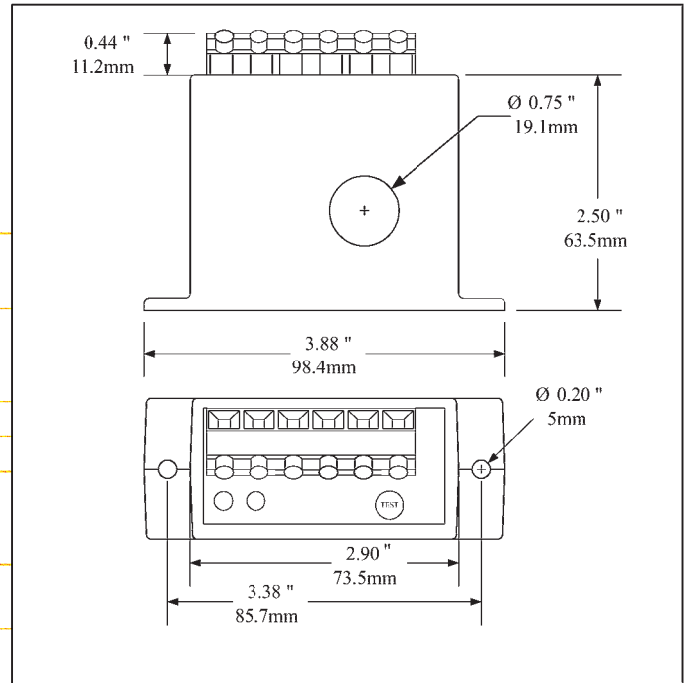
Environmental

5 to 158°F (-15 to 70°C),
0-95% RH, non-condensing

Safety

UL 1053, Class 1 Recognized, CE*

*UL and CE recognition is pending.

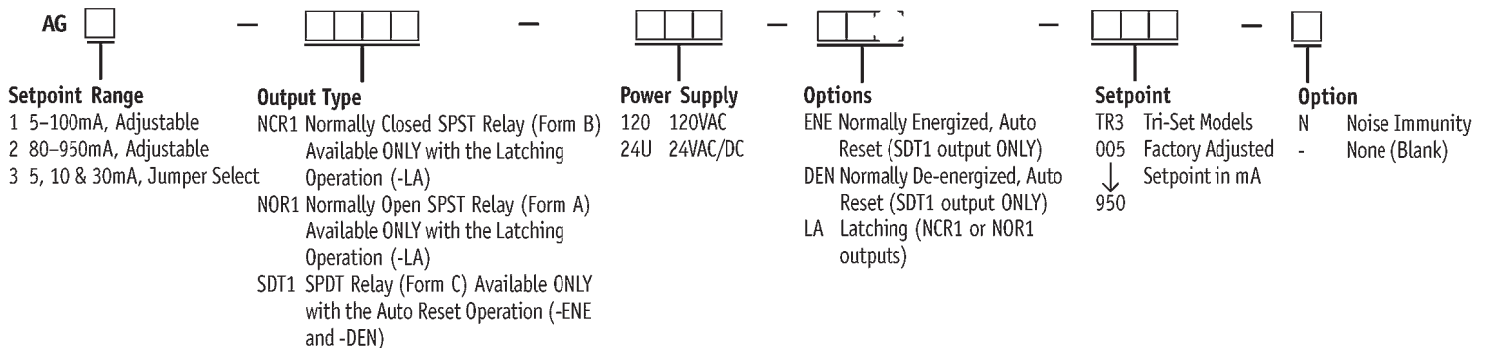


MADE IN
USA

Ordering Information

Example: AG1-NOR1-120-LA-005

Ground fault sensor with normally open SPST Relay output, latching, 120VAC power supply, 5mA setpoint, without optional noise immunity.



Mechanical Relay Ground Fault Sensors

AG Series continued