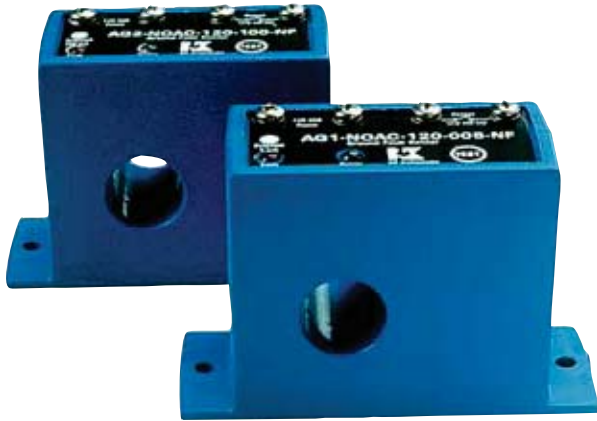




NK Technologies

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800.959.4014 • www.nktechnologies.com • sales@nktechnologies.com



MADE IN
USA

AG SERIES Ground Fault (Earth Leakage) Sensors

Applications

Personnel Protection (typically 5mA)

- Detects sensitive ground fault conditions, which may be injurious to personnel and processes.
- Functions as sensor and alarm trigger when part of an overall ground fault protection system.

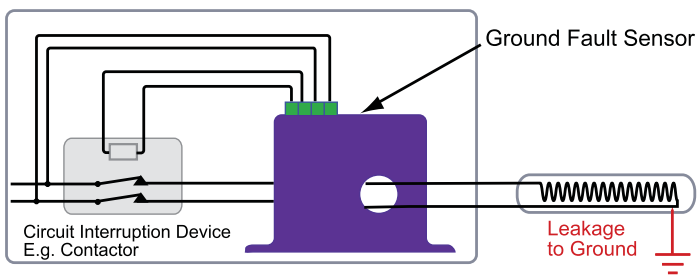
Equipment Protection (typically 10mA or 30mA)

- For applications where personal protection is not the primary concern, higher setpoint capability helps eliminate nuisance tripping while still providing adequate ground fault detection to protect machine electronics.

Regulatory

- Meets requirements as stipulated by governmental and industrial regulatory groups for ground fault sensing.

Insulation Breakdown Monitoring



AG Series Ground Fault Sensors help protect people, products, and processes from damage by ground fault conditions by monitoring all current-carrying conductors in grounded single- and three-phase delta or wye systems.

“Zero Sum” Operating Principle: In three-phase delta and wye systems, under normal conditions current in the ‘hot’ leg of a two-wire load is equal in magnitude but opposite in sign to the current in the neutral leg. As a result, the electromagnetic fields surrounding these two conductors cancel, producing a “zero sum current.” As soon as current leaks to ground (fault condition) the two currents become imbalanced and a net magnetic field results. AG Series sensors monitor this field and trip alarm contacts when the leakage rises above setpoint.

Features

Broad Range of Options to Match Application Needs

- N.O./N.C. solid-state switch or mechanical relay outputs.
- Normally energized or normally de-energized contacts.
- Noise Immunity option for use in EMI/RFI sensitive environments.

Setpoint Options Maximize Ease-of-Use

- Field selectable 5mA, 10mA or 30mA setpoints on the AG3 “Tri-set” model makes user adjustments fast, sure and convenient.
- Single factory calibrated setpoints available from 5mA to 950mA.

Compatible with Standard Equipment

- Applicable on single- and three-phase systems.
- Ideal for use with shunt trip breakers.
- Magnetically isolated from monitored circuit and control power.

Agency Approved

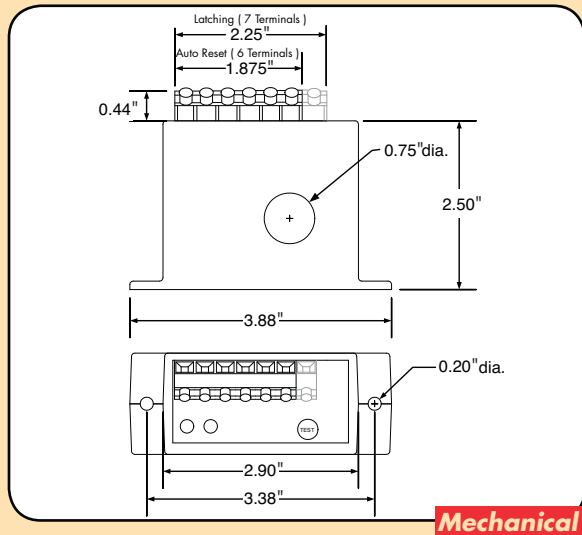
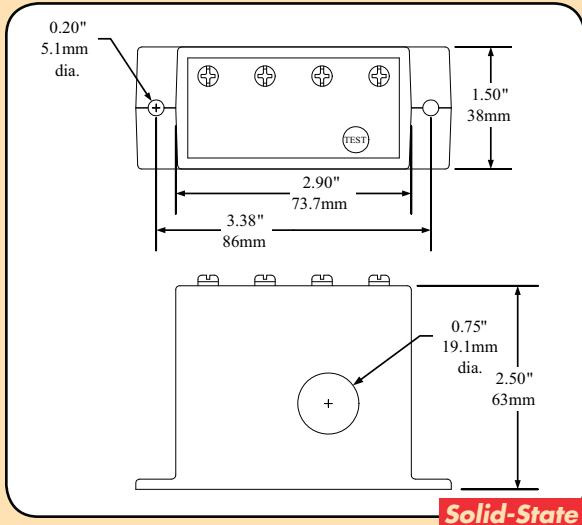
- UL, CE approved.



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Dimensions



Specifications

| | | |
|------------------------------|---|---|
| Setpoint Range | Factory calibrated models (specify when ordering): <ul style="list-style-type: none">● AG1: 5–100mA (005–100)● AG2: 80–950mA (080–950) | |
| | TR3 "Tri-set" models (field jumper select): <ul style="list-style-type: none">● AG3: 5, 10, or 30mA | |
| | Solid-state Output Models | Mechanical Output Models |
| Output | Isolated Dry Contact | Mechanical Relay |
| Output Rating | <ul style="list-style-type: none">● Solid-state AC Switch 1A @ 240VAC● Solid-state DC Switch 0.15A @ 30VAC | <ul style="list-style-type: none">● Auto Reset: SPDT Relay 1A @ 125VAC, 2A @ 30VDC● Latching: SPST Relay 1A @ 125VAC, 2A @ 30VDC |
| Off State Leakage | <ul style="list-style-type: none">● <10 micro Amps (N.O.)● <2.5mA (N.C.) | None |
| Response Time | <ul style="list-style-type: none">● 200ms @ 5% above trip point● 60ms @ 50% above trip point● 15ms @ 500% above trip point | |
| Isolation Voltage | 5,000 VAC (tested) | |
| Frequency Range | 50–400 Hz (monitored circuit) | |
| Noise Immunity Option | N/A | <ul style="list-style-type: none">● EMI/RFI Shielding● Power supply noise filtering |
| Power Supply | <ul style="list-style-type: none">● 120VAC (55–110% of nominal voltage)● 24VAC/VDC (+/- 20%)● Green LED = Power On indication | |
| Loading | 2VA Max. | |
| Case | UL94 V0 Flammability Rated | |
| Environmental | -4 to 122°F (-20 to 50°C), 0–95% RH, non-condensing | |
| Listings | UL 1053, Class 1 Recognized, CE | |



AG Series



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Solid-state Outputs



Mechanical Outputs

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AG SERIES Ground Fault (Earth Leakage) Sensors

Output Tables

Normally Energized Models (-FS Option and -ENE Option)

Protection from faults and control power loss.

| | 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 and -DEN Options)

Protection from faults only when 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 |

Latching Models (-LA Option)

Latching models power up initially in the rest (normal) mode. If there is a fault condition or the test button is pushed, the output contacts will change state and latch. The output will remain latched regardless of whether the fault is cleared or control power is removed. To reset the output apply a momentary contact across "reset" terminals.

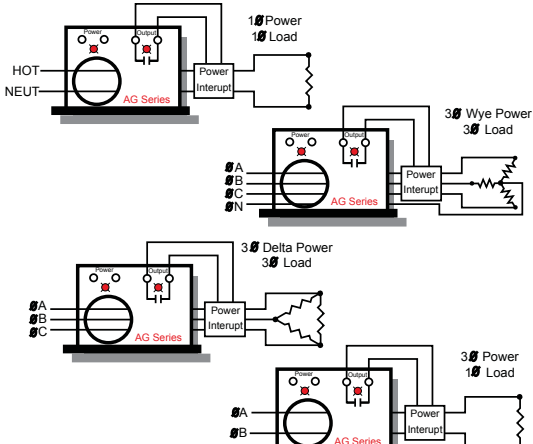
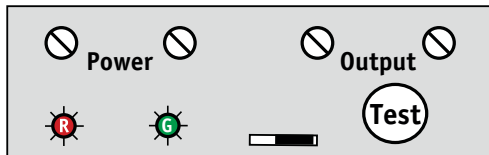
AG Series with Solid-state Outputs offer the benefit of reliable, long-lasting solid-state switches. Solid-state design provides unlimited switch operating life, superior resistance to shock and vibration, zero off-state leakage, high switch speeds and high input-output isolation. Available in solid-core case with screw terminals.

AG Series with Mechanical Outputs are available in solid-core enclosures with 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 factory adjustable setpoint or with a "Tri-set" option, which provides three factory-set, field adjustable setpoints. A noise immunity option is available for applications in harsh EMI/RFI environments.



Connections

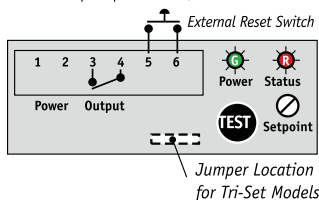
AG Series Solid-State Sensor



AG Series Mechanical Relay

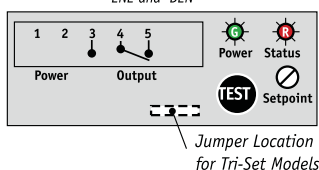
Latching Models (-LA)

-NOR1 Output Option Shown, -NCR1 similar



Auto Reset Models

-ENE and -DEN



Ordering Information

Solid-state Output Models

Sample Model Number: AG1-NOAC-120-FS-005

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



(1) Setpoint Range

| | |
|----|---------------------------------|
| 1 | 5–100mA factory set |
| 2* | 80–950mA factory set |
| 3 | 5/10/30mA jumper set (TR3 only) |

*Not UL recognized in any configuration.

(2) Output Type

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

(3) Power Supply

| | |
|------|-----------|
| 120 | 120VAC |
| 24U* | 24VAC/VDC |

*Not UL recognized in any configuration.

(4) Options

| | |
|----|-----------------------|
| FS | Normally Energized |
| NF | Normally De-energized |

(5) Setpoint

| | |
|------------|------------------------------|
| TR3 | Tri-set |
| 005 to 950 | Factory set trip point in mA |

Mechanical Output Models

Sample Model Number: AG1-NOR1-120-LA-005

Ground fault sensor with normally open SPST latching relay output, 120VAC power supply and 5mA trip point.



(1) Setpoint Range

| | |
|---|---------------------------------|
| 1 | 5–100mA factory set |
| 2 | 80–950mA factory set |
| 3 | 5/10/30mA jumper set (TR3 only) |

(2) Output Type

| | |
|------|---|
| NCR1 | Normally Closed SPST Relay Form B (Available only with -LA option) |
| NOR1 | Normally Open SPST Relay Form A (Available only with -LA option) |
| SDT1 | SPDT Relay (Form C) with auto-reset (available only with -DEN and -ENE options) |

(3) Power Supply

| | |
|-----|-----------|
| 120 | 120VAC |
| 24U | 24VAC/VDC |

(4) Options

| | |
|-----|--|
| ENE | Normally Energized, auto-reset (SDT1 output only) |
| DEN | Normally De-energized, auto-reset (SDT1 output only) |
| LA | Latching (NOR1 and NCR1) |

(5) Setpoint

| | |
|------------|------------------------------|
| TR3 | Tri-set |
| 005 to 950 | Factory set trip point in mA |

(6) Noise Immunity

| | |
|---|----------------|
| N | Noise Immunity |
| | None (blank) |