

AG SERIES

Ground Fault (Earth Leakage) Relay

AG Series Ground Fault Detectors 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.

Ground Fault Protection Applications

Personnel Protection (typically 5 mA)

- 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 10 mA or 30 mA)

- 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.



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

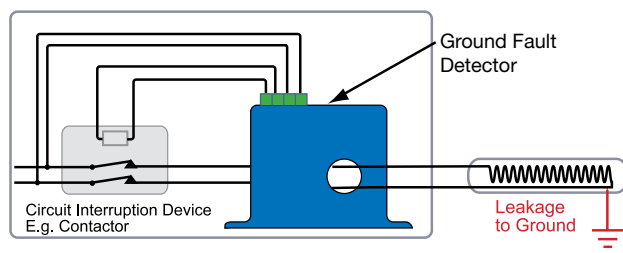
Compatible with Standard Equipment

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

UR/cUR and CE Approved

- Accepted worldwide.

Insulation Breakdown Monitoring



- For additional Application Examples, go to www.nktechnologies.com/applications

“Zero Sum” Operating Principle:

In single- and three-phase AC systems, under normal conditions current flows from the power source to the load and back to the source. As a result, the electromagnetic fields surrounding the conductors cancel, producing a “zero sum current” even when the current in each phase are not equal. As soon as current leaks to ground (fault condition) the current become imbalanced and a net magnetic field results. AG Series detectors monitor this field and trip alarm contacts when the leakage rises above the setpoint.

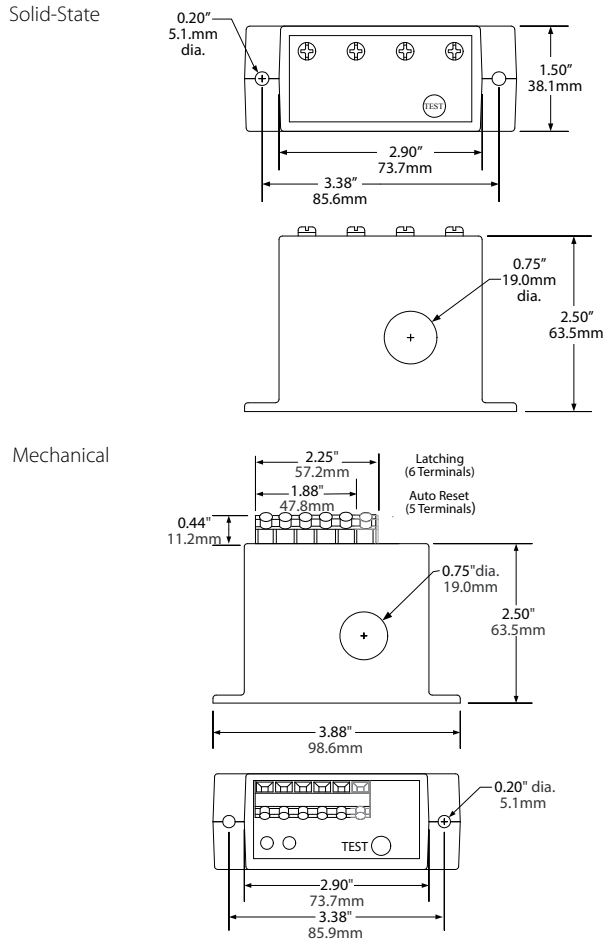
OEMs

Test & Evaluation Units for OEMs

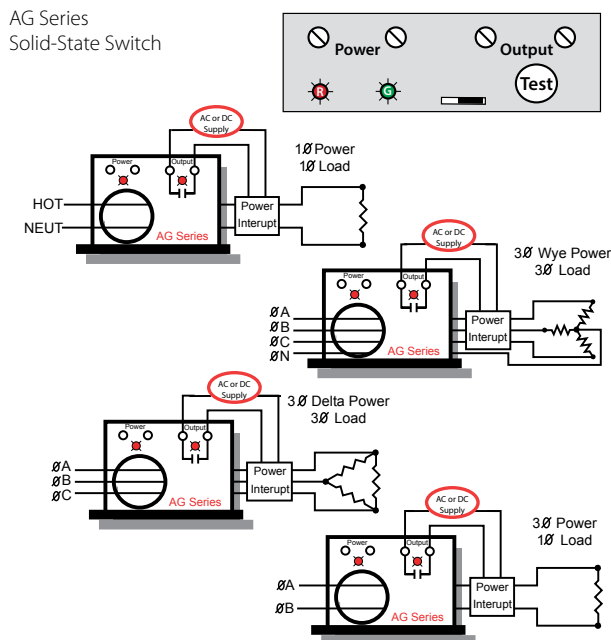
Free program expedites evaluation process. See page 3 for details.



Ground Fault Protection Dimensions



Ground Fault Protection Connections

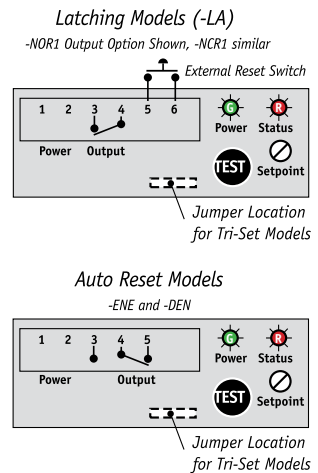


Ground Fault Protection Specifications



Power Supply	<ul style="list-style-type: none"> • 120 VAC (66–132 V) • 24 VAC/DC (19–29 V) • Green LED = Power On indication 	
Power Consumption	2 VA max.	
Setpoint Range	Factory-calibrated models (specify when ordering): <ul style="list-style-type: none"> • AG1: 5–100 mA (005–100) • AG2: 80–950 mA (080–950) TR3 “Tri-set” models (field jumper select): <ul style="list-style-type: none"> • AG3: 5, 10, or 30 mA 	
	SOLID-STATE OUTPUT MODELS	MECHANICAL OUTPUT MODELS
Output	Isolated solid-state relay	Electromechanical SPDT relay
Output Rating	<ul style="list-style-type: none"> • Solid-state AC Switch 1 A @ 240 VAC • Solid-state DC Switch 0.15 A @ 30 VDC 	<ul style="list-style-type: none"> • Auto Reset: SPDT Relay 1 A @ 125 VAC, 2 A @ 30 VDC • Latching: SPDT Relay 1 A @ 125 VAC, 2 A @ 30 VDC
Off-state Leakage	<ul style="list-style-type: none"> • <10 micro A (N.O.) • <2.5 mA (N.C.) 	none
Response Time	<ul style="list-style-type: none"> • 200 ms @ 5% above trip point • 60 ms @ 50% above trip point • 15 ms @ 500% above trip point 	
Time Delay	None	
Isolation Voltage	UL tested at 1270 VAC	
Frequency Range	50–400 Hz (monitored circuit)	
Noise Immunity	N/A <ul style="list-style-type: none"> • EMI/RFI shielding • Power supply noise filtering 	
Case	UL94 V-0 Flammability Rated	
Environmental	-4 to 122°F (-20 to 50°C) 0–95% RH, non-condensing	
Listings	UR/cUR, CE	

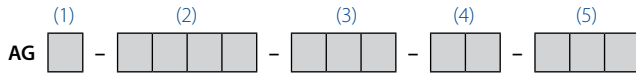
AG Series Mechanical Relay



Ground Fault Protection Ordering Information

Solid-state Output Models

Sample Model Number: AG1-NOAC-120-NF-005
 Ground fault detector with normally open solid-state contact output, 120 VAC power supply, 5 mA trip point.



(1) Setpoint Range

1	5–100 mA factory set
2*	80–950 mA factory set
3	5/10/30 mA jumper set

*Not UL recognized in any configuration.

(2) Output Type

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

(3) Power Supply

120	120 VAC
24U*	24 VAC/DC
240*	240 VAC

*Not UL recognized in any configuration.

(4) Options

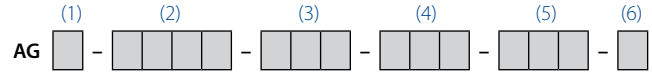
FS	Normally energized
NF	Normally de-energized

(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 detector with normally open SPST latching relay output, 120 VAC power supply and 5 mA trip point.



(1) Setpoint Range

1	5–100 mA factory set
2	80–950 mA factory set
3	5/10/30 mA jumper set

(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	120 VAC
24U	24 VAC/DC

(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)

OEMs Test & Evaluation Units for OEMs
 Free program expedites evaluation process. See page 3 for details.

