AG1-FM SERIES
Ground Fault Sensor

AG1-FM Series Ground Fault Sensors protect equipment from damage by monitoring ground fault leakage current of 30 mA to 100 mA. The larger 1.25" aperture monitors current-carrying conductors in grounded, three-phase delta or wye configured equipment.

The AG1-FM Series is UL Listed and designed to meet NEC 500 (Special Occupancies), NEC 600 (Special Equipment) and NEC Article 555 (Marinas & Docks) applications for GFPE protection when combined with a shunt trip accessory.

Ground Fault Protection Applications

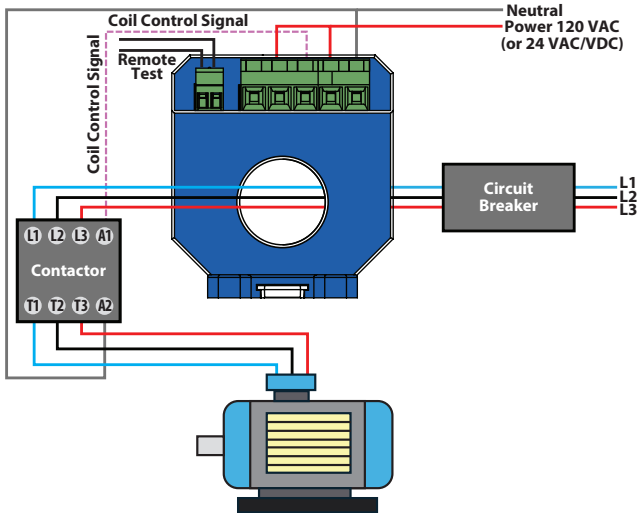
Equipment Protection

The AG1-FM Series is ideal for equipment protection (GFPE) where ground fault detection is required to prevent equipment damage, fire risk, or service interruptions. The 30 mA to 100 mA trip range is well-suited for the following applications:

- Pumps and Motors
- Panelboards and Distribution Systems
- Manufacturing Equipment
- Industrial Motors
- Outdoor electric deicing and snow-melting equipment
- Marina Ground Fault Protection (Land to Shore Power)
- Special Equipment, Electric Signs and Outline Lighting
- Special Equipment, Disconnects

UL/cUL Listed and CE Certified

- UL Listed to UL 508. Accepted worldwide




AG1-FM with Remote TEST Terminals

Ground Fault Protection Features

The AG1-FM Series is designed for GFPE applications with 30 to 100 mA trip points. The 1.25" aperture supports typical wire bundles for single-phase and three-phase branch circuits up to 100 amps and 600 VAC. See NK Technologies "Ground Fault Considerations: Tech Guide" for further details.

Key Features Maximize Ease of Use

- Factory-calibrated GFPE setpoints available from 30 mA to 100 mA for equipment protection.
- N.O./N.C. mechanical relay outputs with 2A general use rating.
- Normally energized or normally de-energized models.
- Auto-Reset or Latching relay models.
- Green "power" LED indicates device powered.
- Red "status" LED indicates fault.
- Manual test button simulates fault to confirm functionality of the ground fault relay and separate shunt trip breaker.
- Auto-reset model includes terminals for adding a remote TEST button.
- Latching model includes terminals for RESET button.

Compatible with Standard Equipment

- Ideal for use with 120 VAC shunt trip accessories and contactors.

"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. AG1-FM Series detectors monitor this field and trip alarm contacts when the leakage rises above the setpoint.

NK Technologies



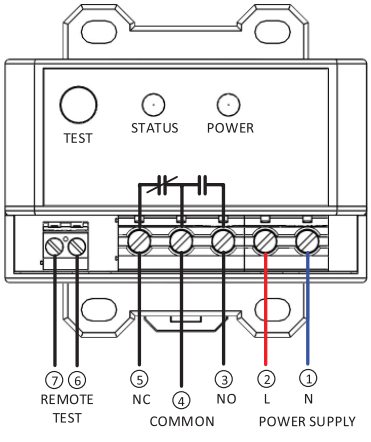
AG1-FM Latching Relay with manual RESET

Available Models

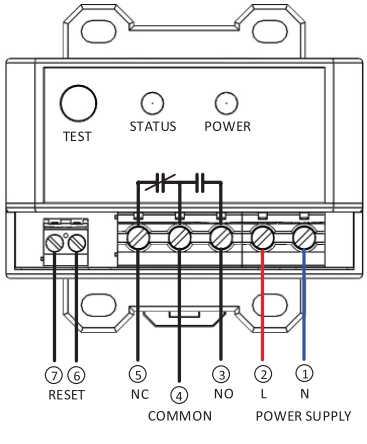
AG1-FM Series with Mechanical Outputs are available in solid-core cases and N.O. or N.C. SPDT Form C relay with a choice between auto-reset or latching options. All models must be ordered with factory-set setpoint.

Ground Fault Connections

AG1-FM Auto-Reset Relay with Remote TEST



AG1-FM Latching Relay with Manual RESET



Ground Fault Sensor Output Tables

Normally Energized Auto-Reset Models (-ENE Option)

Protection from faults and control power loss.

		Control Power Applied	
	No Power	**No Fault**	**Fault**
N.C. Normally Closed	closed	open	closed
N.O. Normally Open	open	closed	open

Normally De-energized Auto-Reset Models (-DEN Option)

Protection from faults only when power is applied

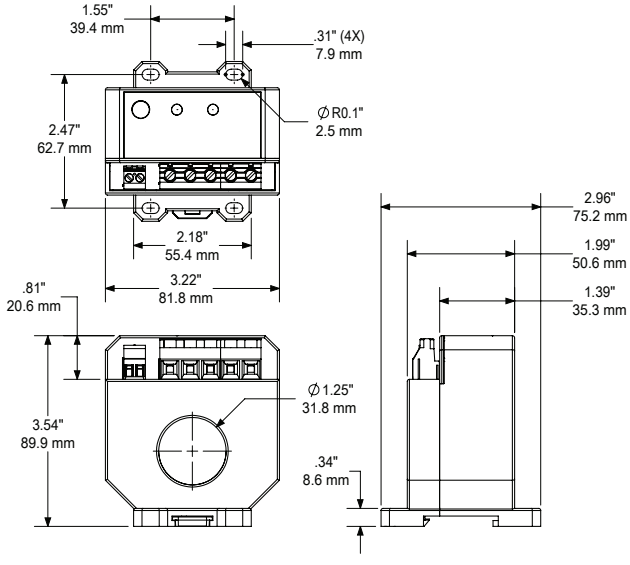
		Control Power Applied	
	No Power	**No Fault**	**Fault**
N.C. Normally Closed	closed	closed	open
N.O. Normally Open	open	open	closed

Latching Models (-LA Option) Upon first powerup, the device is in an unknown state and should be reset to put it into the normal "no fault" state. If there is a fault condition or the test button is pushed, the output contacts will change state and latch in the "fault" state. 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 the RESET terminals with power to the AG1-FM unit.

		After RESET	
	First Powerup	**No Fault (Normal)**	**Fault (Latched)**
N.C. Normally Closed	unknown	closed	open
N.O. Normally Open	unknown	open	closed

Ground Fault Sensor Dimensions

AG1 with Remote TEST or Latching RESET Terminals



Ground Fault Sensor Specifications

Power Supply	120 VAC ±10% 24 VAC/VDC ±10%
Power Consumption	2.3 VA max.
Setpoint Range	30-100 mA factory calibrated. Specify when ordering.
Output	SPDT Dry Contact Relay (Form C) auto-reset or latching
Output Rating	2 A @ 120 VAC, 2 A @ 30 VDC general use
Response Time	150 ms @ 5% above setpoint 100 ms @ 50% over setpoint 50 ms @ 500% over setpoint
Monitored Circuit	Up to 600 VAC, 50/60 Hz
Isolation Voltage	2200 VAC
Remote Test & Reset Terminals	Use dry contact test button (rated ≥5 V, 50 mA), <100 Ω loop resistance
Case	UL94 V-0 Flammability Rated
Environmental	-4 to 122°F (-20 to 50°C) 0–95% RH, non-condensing
Listings	UL Listed to UL 508 as an industrial control switch (NRNT.E129625), CE

Ground Fault Sensor Ordering Information

Mechanical Output Models

Sample Model Number: AG1-SDTR-120-ENE-030-FM

Ground fault sensor with SPDT auto-reset relay output, 120 VAC power supply and 30 mA trip point.

(1)	(2)	(3)	(4)	(5)	(6)
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(2) Output Type

SDT	SPDT Relay (Form C)
SDTR	SPDT Relay (Form C) with remote TEST terminals

(3) Power Supply

120	120 VAC
24U	24 VAC/VDC

(4) Options

ENE	Normally energized, auto-reset relay (SDTR only)
DEN	Normally de-energized, auto-reset relay (SDTR only)
LA	Latching relay with manual RESET terminals (SDT only)

(5) Setpoint

030 to 100	Factory set trip point in mA*

* Latching model (LA) is available from 5-100 mA