Specifications

Power Supply	120 VAC +/- 10 %, 50/60 Hz
Setpoint	5 mA
Power Consumption	2.3 VA
Monitored Circuit	600 VAC max, 50/60 Hz
Isolation Voltage	2200 VAC
Output Rating	SPST wet contact auto-reset relay (Form A- NO) 2 A @ 120 VAC general use
Remote Test Terminals	Use dry contact external TEST button (rated ≥ 5 V, 50 mA), < 100 Ω loop resistance
Response Time	150 ms @ 5% over setpoint 100 ms @ 50% over setpoint 50 ms @ 500% over setpoint
Power (Green) LED	Power supply energized
Status (Red) LED	Fault detected; Tripped
Case Dimensions	3.54"H x 3.22"W x 2.96"D (89.9 x 81.8 x 75.2 mm)
Sensing Aperture	Aperture 1.25" (31.8 mm) inside diameter
Case	UL94 V-0 Flammability rated
Terminal Torque	6 inch-pounds
Environmental	-4 to 122°F (-20 to 50°C) 0-95% RH, Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)
Listings	UL/cUL, CE

For products intended for the EU market, the following is applicable to the CE compliance of the product:
The AGK- FM series complies with EN 61010-1 CAT III 300 V max. line-to-neutral measurement category. Use twisted pair for output connection.

120 VAC 50/60 Hz Power Supply
Fuse at 5 amps maximum
Overvoltage Category II

Warning! Risk of electric shock or personal injury

Safe operation can only be guaranteed if the relay is used for the purpose for which it was designed and within the limits of the technical specifications. When this symbol is used, it means you must consult all documentation to understand the nature of potential hazards and the action required to avoid them.

Warning! Risk of hazardous voltage

When operating the relay, certain parts may carry hazardous live voltage (e. g. primary conductors, power supply). The relay should not be put into service if the installation is not complete.

Model Number Key

AGK - SSTPR - 120 - DEN - 005 - FM

Case Style:
FM - Solid-Core

Setpoint:
005 - Factory Set 5 mA

Options:
DEN - Normally De-energized

Power Supply:
120 - 120 VAC (line polarity sensitive)

Output Type:
SSTPR - SST: SPST (Form A) wet relay (Auto-reset)
P: 120 VAC powered wet relay
R: Remote TEST terminals

Setpoint:
K - 5 mA

AGK-FM Series Ground Fault Relay

Description

AGK-FM Series relays monitor all current-carrying wires in single or three-phase systems to detect ground faults. The AGK provides a POWERED 120 VAC output that directly attaches to circuit breakers (up to 600 VAC) with 120 VAC shunt trip accessories.

Know Your Power



Other NK Technologies Products Include:
AC & DC Current Transducers and Switches
1ϕ & 3ϕ Voltage and Power Transducers
Current Transformers (CTs)
Ground Fault Protection Relays

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INSTRUCTIONS



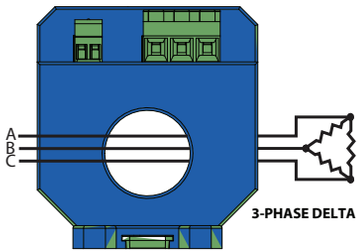
AGK-FM SERIES

Ground Fault Relays
For shunt trip applications

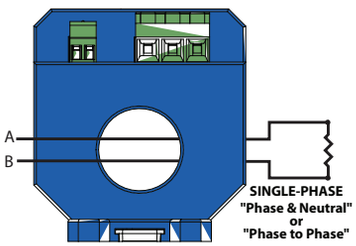
Quick "How To" Guide

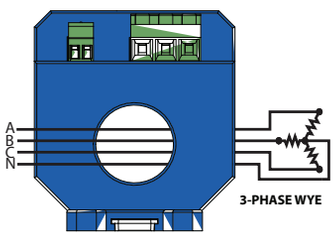
1. Run all current carrying conductors through relay aperture.
2. Mount the detector to a surface if needed.
3. Connect output & power wiring.
   A. Make sure power (120 VAC) and load matches those shown on the sensor's label. Power is line polarity sensitive. An external 5 A max fuse is recommended.
   B. Connect remote TEST button if used (not included).
4. Test.
   A. Pressing the TEST button tests the relay's internal circuits. CAUTION: The output and any connected loads will switch!

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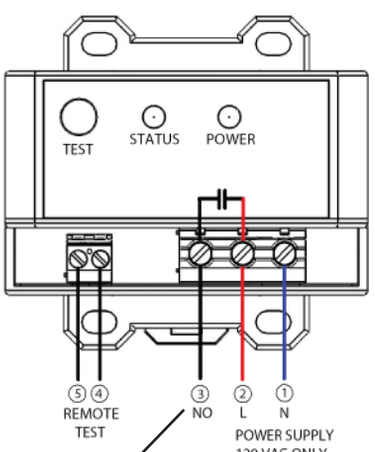
Note: For 4-wire delta source (i.e. high-leg delta, wild-leg or stinger leg delta) include the neutral if the delta load has a neutral connection.





Note: Omit neutral if the load has no neutral connection.

AGK-FM with Remote Test (SSTPR)



To shunt trip accessory control signal

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 AGK-FM relay 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. **The sensor is not designed for use on ungrounded systems.**

Power Supply Notes

All low-current Ground-Fault Relays 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 AGK unit power isolated from noisy circuits.

Installation & Wiring

AGK-FM Series relays should be mounted within an electrical enclosure. Leave at least one inch distance between relay and other magnetic devices. AGK-FM relays can be placed immediately next to each other.

Run all current-carrying conductors through the aperture in the relay. (See "Principal of Operation") Be sure all wires are oriented so current flows in the same direction.

Connect 120 VAC power to the relay. Take care in connecting line and neutral power to the correct terminals.

Connect 120 VAC shunt trip accessory control wiring to the NO relay. Actual breaker can be rated for higher voltage, but shunt trip accessory should be rated for 120 VAC.

AGK-FM relays are designed to mount securely to a standard DIN rail or by using 4 sheet metal screws to hold the sensor in place. NK Technologies can also provide our DINKIT, including a 175 mm long piece of rail and two end stops for added convenience when installing.

Wiring
Use 22-12 AWG 75°C minimum copper wire and tighten terminals to 6 inch-pounds torque. See Diagram.

Power (line polarity sensitive)
- Attach Neutral to terminal 1
- Attach 120 VAC line power to terminal 2
- An external 5 A max fuse is recommended

Shunt Trip Connection (output relay)
- Connect shunt trip control signal to terminal 3

Remote TEST Button (optional, not included)
- Attach an external remote TEST button to terminals 4 & 5 Twisted pair wiring is recommended.

Pressing the TEST button will simulate a fault, and trip the output relay.

Operation

AGK-FM Series auto-reset ground fault relays operate in one of two states: Normal or Tripped/Fault. The AGK-FM trips the output if the fault current exceeds the 5 mA setpoint.

Upon fault, the AGK-FM trips and routes the 120 VAC line power to the attached shunt trip accessory.

To test operation, gently press the TEST button. This simulates a fault and tests the internal switching circuits.

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

Output Type (DEN)	No Power	Power Applied: Normal	Power Applied: Fault
Terminal 3 (NO)	Open	Open	120 VAC
Red LED (Fault)	Off	Off	On
Geen LED (Power)	Off	On	On

Relay output and status LED conditions

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