5 mA Ground Fault Protection — Frequently Asked Questions

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What is the difference between the AGU and the AGL Series?

The AGU and AGL Series are UL Listed to UL 508. The main difference between the two ground fault relays is the aperture diameter. All current carrying conductors to the load must be able to pass through aperture. The AGU accommodates most wire bundles, so switch to the AGL for larger bundle sizes that exceed 0.75" diameter.

- AGU aperture diameter is 0.75"
- AGL aperture diameter is 1.76"

Which devices do I need to purchase?

The 5 mA ground fault circuit interrupter solution has two readily available devices.

- Quantity 1, AC ground fault relay; recommend AGU or AGL series
  - The AGU Series is a panel mount device and can be screwed directly to the panel.
    - ▶ AGU1-SDT-120-DEN-005-FL
      - Powered by 120 VAC
      - Mechanical Relay (SDT) with both NO & NC wiring options. 5 mA trip point.
  - The AGL Series is a DIN rail mount device, and attaches to an existing DIN rail within the electrical panel. If the panel does not have a DIN rail, we offer an optional DIN Rail Kit (Model #DINKIT) which includes a single 175 mm wide DIN rail and two end stops to keep the device from sliding on the rail.
    - ▶ AGL1-SDT1-120-DEN-005
      - Powered by 120 VAC
      - Mechanical Relay (SDT1) with both NO & NC wiring options. 5 mA trip point.
- Quantity 1, Circuit-Interrupter; choose MCB circuit breaker with shunt trip option suitable for required branch circuit amperage capacity.
  - NK's ground fault relays have user selectable options to ensure compatibility across all OEM's shunt trip breakers, contactors, and relays.

What is "established period of time" and do AGU and AGL comply?

"Established period of time" is a NEC undefined term. "Established period of time" is found within the NEC's defined term "GFCI". This definition refers to de-energizing the branch circuit within an "established period of time". NEC provides an informal note to clarify "established period of time" by referring to UL 943.

Yes, both the AGU and AGL series response time is within the response time requirement defined by UL 943. To learn more review the application note 5 mA Ground Fault Circuit Interrupter Solution.

Does AGU or AGL trip within ground fault current range 4 mA to 6 mA, per NEC defined term GFCI?

Yes.

The AGU1 comes from the factory with a 5 mA trip point.

The AGL1 comes from the factory at a fixed trip point. Order the -005 option for a 5 mA trip point.

- ▶ AGL1-SDT1-120-DEN-005

Does AGU or AGL trip have manual push to test feature and visual indicators?

Yes, both the AGU or and AGL have a user accessible manual push-to-test button to verify operation of the relay and two visual indicators for power and ground fault trip status.

Do you have more information on how to wire a ground fault relay with a shunt trip breaker?

Yes. See our guide for How to make a shunt trip connection.

What is the difference between the AG3 and the AGU Series?

The AGU is designed for GFCI applications with a 5 mA setpoint from the factory and is UL Listed to UL 508. The AG3 has a field selectable jumper for GFCI and Process/Equipment Protection (5 mA, 10 mA and 30 mA) and is UL Recognized to UL 1053. For a full comparison, see our guide.

APPLICATION NOTE

5 mA Ground Fault Circuit Interrupter Solutions for Single or Three Phase Circuits up to 100 Amps

Cost Effective, Readily Available, Designed and Assembled in the USA

NK Technologies 5 mA Ground Fault Circuit Interrupter Solution Benefits

- Meets intent of 2020 & 2023 NEC 210.8 defined term ground fault circuit interrupter.
- Compact relay size allows for multiple mounting opportunities anywhere from the breaker to the appliance.
- Inventory and unrivaled in-house expertise within the USA.
- When you call, chat or email our application support team will answer promptly.
- Industry leading 5-year warranty.

Resources & Downloads

How to Select a Ground Fault Relay »»

Choose a Ground Fault in 4 Easy Steps »»

Ground Fault Relay Part Number Selection »»

Shunt Trip Breaker Selection »»

2020 & 2023 NEC Impact to the Market »»

What is a 5 mA Ground Fault Interrupter Solution? »»

Calculating a Wire Size Bundle »»

How to Wire a Shunt Trip »»

Frequently Asked Questions »»

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FIVE YEAR 5 WARRANTY

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