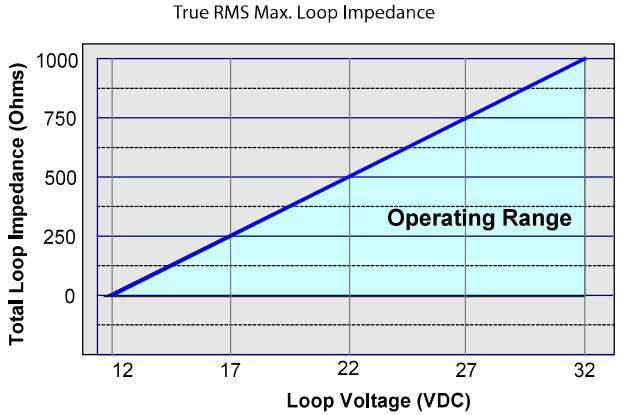
Specifications

Power Supply	24 VDC Nominal (see chart below) Use Class 2 or power limited supply only
Power Consumption	2 VA
Input Range	AGT1: 0-50 mA AGT2: 0-100 mA
Isolation Voltage	Up to 600 VAC (Monitored Circuit)
Frequency Range	40-400 Hz (Monitored Circuit)
Output Signal	4-20 mA loop powered
Output Loading	600 Ω maximum @ 24 VDC
Response Time	600 mS 90% step change
Dimensions	2.5”H x 3.86”W x 1.45”D (64 x 98 x 37 mm)
Sensing Aperture	0.75” (19 mm) diameter
Case	UL94 V-0 Flammability Rated
Environmental	-4 to104°F (-20 to 40°C), 0-95% RH, Non-condensing
Listings	UL/cUL

Power Supply Notes

All low-current Ground-Fault Sensors are sensitive devices that require reasonable care in system design to avoid false indication 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 sensor power isolated from noisy circuits.
2. Do not power the sensor with the same circuit that switches contactors or other high current, inductive loads.



System Grounding

Good design practice and code require that all AC power systems be grounded. AG Series sensors are designed to work on grounded AC power systems. They may not operate properly on ungrounded systems.

Model Number Key

AGT 1 - 420 - 24L - FL

Housing:
FL - Solid-Core

Power Supply:
24L - 24 VDC Loop Powered

Output Type:
420 - 4-20 mA proportional to fault current

Input Range:
1 - 0-50 mA
2 - 0-100 mA

AGT Series Ground Fault Indicator

Know Your Power

Other NK Technologies Products Include:
AC & DC Current Transducers
AC & DC Current Operated Switches
1ϕ & 3ϕ Power Transducers
Current & Potential Transformers (CTs & PTs)

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NK Technologies

INSTRUCTIONS

AGT SERIES

Ground Fault Indicator
Analog Output

Quick “How To” Guide

1. **Run all current carrying conductors through sensor window.**
   A. Use an auxiliary CT if conductors do not fit. Consult Factory for CT selection.

2. **Mount the indicator to a surface if needed.**

3. **Connect output & power wiring.**
   A. Use 30-12 AWG copper conductors only and tighten to 5-7 in-lbs torque.
   B. Make sure fault current levels match the output range shown on the sensors’ label.
      - Loop Powered 4-20 mA sensor output.
      - Connect power supply in series with the load as shown on next page.
   C. Make sure power supply voltage is no lower than 12 and not greater than 35 VDC at the sensor terminals.

292080302 Rev 3

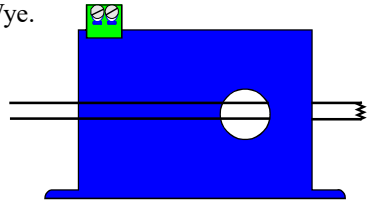
Description

AGT Series ground fault indicators monitor all current carrying wires in single or three phase systems to detect ground faults. They provide an analog output signal proportional to the sensed residual (earth fault) current. Used to operate a panel meter, PLC input or other system automation controller.

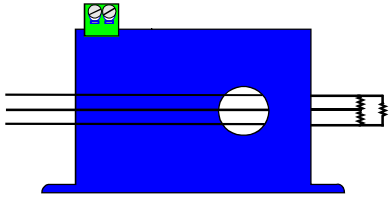
Principal of Operation

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 AGT sensor detects this minute field and produces a signal representing the fault current magnitude. This concept extends to three phase systems such as 3 wire Delta and to 4 wire Wye.

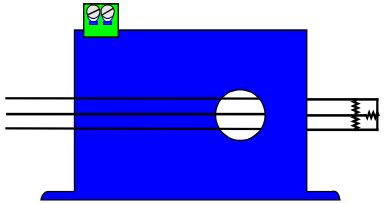
Single Phase (Phase & Neutral or Phase to Phase)

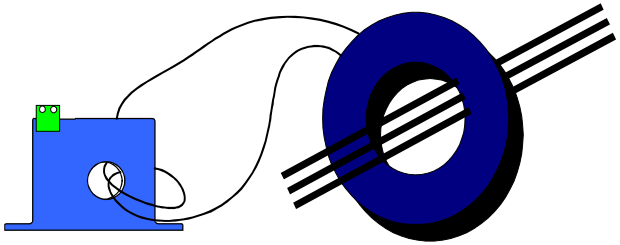


3 Phase Delta (Include neutral if the load uses neutral)



3 Phase Wye (Include neutral if load uses neutral)





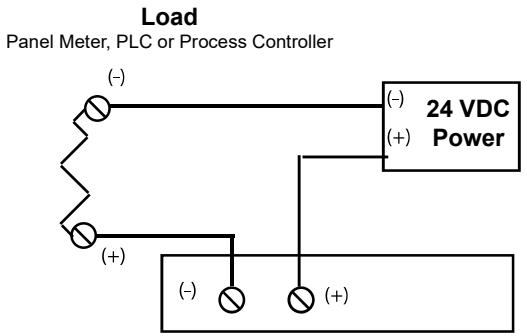
3 Phase Load, using an auxiliary Current Transformer. Contact factory for details.

Installation & Wiring

AGT Series sensors work in the same environment as motors, contactors, heaters, pull-boxes, and other electrical enclosures. They can be mounted in any position or hung directly on wires with a wire tie. Just leave at least one inch distance between sensor and other magnetic devices.

Run all current carrying conductors through the sensor aperture in the same direction. (See "Principal of Operation")

Connect loop power wiring to the sensor. Be sure that the power supply matches the power rating on the sensor label. Use up to 30-12 AWG copper wire and tighten terminals to 5-7 inch-pounds torque. Wiring polarity is critical.



Operation

The AGT sensor can be used to monitor residual (earth leakage) current by passing all of the current carrying conductors (not the ground wire) through the sensing aperture. It can also be used to monitor circuits of varying frequencies or distorted wave shapes, but very low current usage. Circuit voltage has no bearing on the sensor if the primary conductors are insulated to contain the primary circuit potential. The sensor output is capped at 23 mA, but the accuracy specification is stated only within the range limitations.

Transducer Adjustment

AGT Series ground fault indicators are factory calibrated and should never require field calibration adjustments.

Troubleshooting

1. Sensor has no output.

A. Power supply is not properly sized. *Check voltage and current rating.*

B. Polarity is not properly matched. *Check and correct wiring polarity.*

2. Output signal is always at 4 mA.

A. Monitored circuit is not AC, or there is zero leakage current. *Check to be sure that the monitored circuit is alternating current.*

3. Output signal is always at 20 mA.

A. There is leakage current in the system over the sensor range. *Check wiring for insulation integrity, Remove any faults to earth.*

B. Not all current carrying conductors are passed through the sensor aperture. *All wires connected to the monitored load must pass through the sensing window, including the neutral if it is used, but not the ground conductor.*