AGV SERIES

Ground Fault (Earth Leakage) Relay Designed for Variable Speed Driven Loads

AGV Series Ground Fault Detectors help protect products and processes from damage due to ground fault conditions by monitoring all current-carrying conductors in grounded single- and three-phase delta or wye systems.



Ground Fault Relay Applications

Process Protection

- Detect sensitive ground fault conditions, which may be injurious to processes.
- Functions as sensor and alarm trigger when part of an overall ground fault protection system.

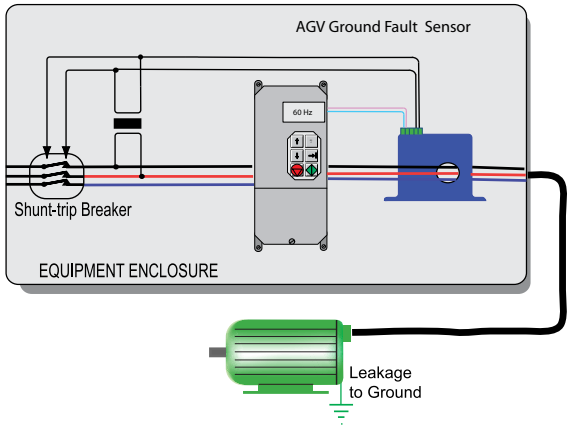
Equipment Protection

- For applications where equipment protection is desired, a higher setpoint capability and a settable delay from 0-10 seconds 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 When Using A VFD



With the growing number of motors driven with a variable frequency drive, detecting low level ground fault current to protect the equipment being used is growing. Whether the motor is driving a submersible pump or a conveyor belt, large faults to earth are all that a drive system alone can detect. Insulation deterioration and moisture ingress produce much smaller currents to earth which are dangerous to personnel and can cause arcing in equipment. Adding an NK Technologies ground fault sensor will help keep the process as safe as possible without the spurious tripping that occurs when other ground fault detection products are used.

Ground Fault Relay Features

Broad Range of Options to Match Application Needs

- N.O./N.C. mechanical relay outputs.
- Normally energized or normally de-energized contacts.
- Latching or automatically resetting outputs available.

Setpoint Options Maximize Ease-of-Use

- Field-selectable 30 mA, 50 mA, or 100 mA setpoints makes user adjustments fast, sure and convenient.

Compatible with Standard Equipment

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

UL/cUL

- Accepted worldwide.

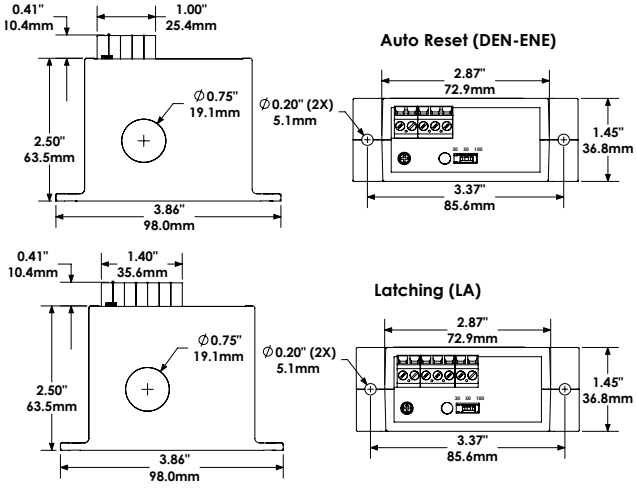
"Zero Sum" Operating Principle:

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. AGV Series detectors monitor this field and trip alarm contacts when the leakage rises above the setpoint.

Note: Only the current carrying conductors pass through the sensing window, not the grounding bond wire.

NK Technologies

Ground Fault Relay Dimensions



Output Tables

Normally Energized 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 Models (-DEN Options)

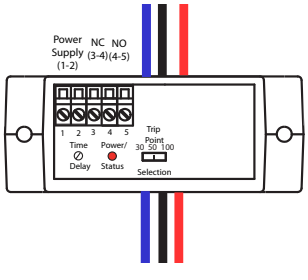
Protection from faults only when power is applied.

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

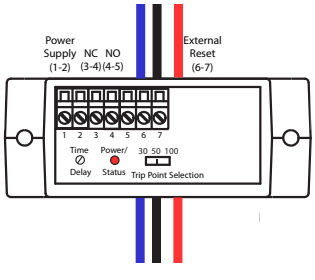
Latching Models (-LA Option) From factory, power up initially in the reset (normal) mode. If there is a fault condition or the test button is pushed, the output contacts will change state and latch. The output will remain latched regardless of whether the fault is cleared or control power is removed. To reset the output apply a momentary contact across "reset" terminals. Do not apply voltage to reset terminals.

Ground Fault Relay Connections

Auto-Reset Connection



Latching Connection



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

Ground Fault Relay Specifications

Power Supply	• 120 VAC (90–130 V) • 24 VAC/VDC (19–24 V)
LED Display	• Green LED: Power untripped • Red LED: Output tripped
Power Consumption	2.4 VA max. 24 V powered 3.0 VA max. 120 V powered
Setpoint Range	TR3 "Tri-set" models (field switch select): AGV3: 30, 50, or 100 mA
Output Switch	Electromechanical SPDT relay
Output Rating	SPDT Relay 1 A @ 125 VAC, 2 A @ 30 VDC resistive
Off-state Leakage	None
Response Time	• <17 Hz: <140 ms • 17–32 Hz: <75 ms • >32 Hz: <45 ms
Time Delay	0–10 seconds plus response time
Isolation Voltage	1250 VAC, tested to 5 KV
Frequency Range	12–398 Hz (monitored circuit)
EMC/Immunity	Power supply and monitored circuit filtering
Case	UL94 V-0 Flammability Rated
Environmental	-4 to 122°F (-20 to 50°C) 0–95% RH, non-condensing
Listings	UL/cUL

Ground Fault Relay Ordering Information

Sample Model Number: AGV3-SDT-120-LA-TR3
Ground fault detector with SPDT latching relay output, 120 VAC power supply and 30/50/100 mA trip point.

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(1) Setpoint Range

3	30/50/100 mA slide switch set

(2) Output Type

SDT	SPDT Relay (Form C)

(3) Power Supply

120	120 VAC
24U	24 VAC/VDC

(4) Options

ENE	Normally energized, auto-reset
DEN	Normally de-energized, auto-reset
LA	Latching

(5) Setpoint

TR3	Tri-set 30/50/100 mA