Specifications

Power Supply	24 VDC (20-26 VDC)
Power Consumption	<4 VA
Input Range	5 to 40 mA, customer specified
Setpoint Adjust	Factory set only
Isolation Voltage	Tested to 3 KV
Frequency Range	DC
Accuracy	+/-1 mA at any setpoint
Sensing Aperture	0.75” (19 mm)
Case	UL 94V-0 Flammability rated

Output Rating & Environmental

Operating Temp.	-20 to 50°C (-4 to 122°F)
Storage Temp.	-30 to 60°C (-22 to 140°F)
	0-95% RH, Non-condensing
SDT	SPDT (Form C) relay
	1 A general purpose @ 120 VAC
	2 A @ 30 VDC
LA	SPST relay latching
	1 A general purpose @ 120 VAC
	2 A @ 30 VDC

Note:
Product is sensitive to ambient magnetic fields. Provide four inches of space between the sensor and any device producing a magnetic field including relays, contactors, transformers and motors.

Switching Response Time

ON Delay (at 30 mA set point)

5% over Setpoint	55 ms max
50% over Setpoint	55 ms max
100% over Setpoint	55 ms max

Model Number Key

DG1 - SDT - 24D - DEN - 040

Setpoint:
005 = 5 mA, 040 = 40 mA

Contact Action:
DEN - Normally Deenergized, Auto Reset
ENE - Normally Energized, Auto Reset
LA - Latching (NCR or NOR)

Power Supply:
24D - 24 VDC

OUTPUT:
SDT - Single Pole Double Throw (SPDT or Form C) relay
NCR - Normally Closed (latches open on fault)
NOR - Normally Open (latches closed on fault)

SENSING RANGE:
1 - Factory Set 5 to 40 mA

SENSOR TYPE:
DG - DC ground fault relay with factory set trip point

Sensors and Transducers



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



DG SERIES
DC Ground Fault Relay

Quick “How To” Guide

1. Use 30-10 AWG copper conductor only and tighten to 5-7 in-lbs torque.
2. Run the current carrying conductors you are monitoring through aperture.
3. Mount the sensor.
4. Connect power & output wiring.
   A. Make sure power supply matches specifications.
   B. Make sure output load matches the output shown on the sensors’ label.
5. DG Series is intended for use on earth ground systems only.

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Description

DG Series are DC current operated relays designed to detect low level fault leakage from either positive or negative conductor to earth. They operate (switch) when the leakage current level through the hole exceeds the setpoint. They are powered from 24 VDC. The outputs are isolated from the monitored circuit and the power supply.

Installation

Run both the positive and negative conductors feeding the monitored circuit load through opening in the sensor.
The sensor can be attached to a panel using screws through the mounting holes in the tabs. Tighten to 5-7 in-lbs (snug will be fine, overtightening can damage the housing). Use the DIN-2 accessory kit for mounting to a DIN rail.
DG switches 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. **Leave at least four inch distance between sensor and other magnetic material.** Relays, contactors, motors and transformers can cause the sensor to trip if they are too close to the sensing window.

Power Wiring

Connect 24 VDC power to Terminals 1 and 2. Tighten to 5-7 in-lbs torque. The power supply connection is not polarity sensitive.

Output Wiring

Connect control or monitoring wires to the sensor. Use up to 30-10 AWG copper wire and tighten terminals to 5-7 in-lbs torque. Be sure the output load does not exceed the relay rating.

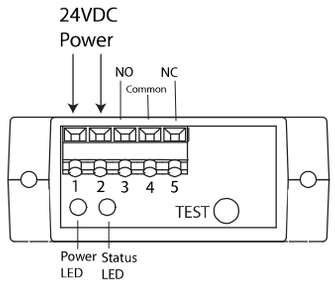
Incandescent lamps can have “Cold Filament Inrush” current of up to 10 times their rated amperage. Use caution when switching lamps.

Setpoint Selection

Range & Setpoint

DG relays are calibrated to operate at a set current value:
1. Determine what amount of fault current to be detected.
2. Chose auto reset or latching version.

Choosing a setpoint can be a challenge. Humans can usually feel 5 mA, but the most common setpoint to protect equipment (heat strips) is 30 mA. This sensor can be set to change contact state up to 40 mA.

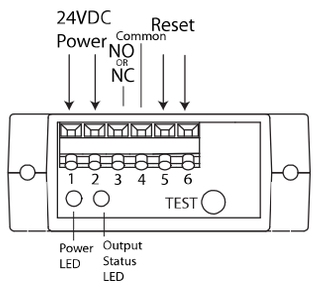


Auto reset connection.
Both NO and NC contacts can be used.

CONTACT ACTION TABLE

	No Power		Powered		Fault Detected	
	NO	NC	NO	NC	NO	NC
DEN	Open	Closed	Open	Closed	Closed	Open
ENE	Open	Closed	Closed	Open	Open	Closed
LA	Open	Closed	Open	Closed	Closed	Open
LED ACTION TABLE						
	Power	Status	Power	Status	Power	Status
DEN	Off	Off	On	Off	On	On
ENE	Off	Off	On	On	On	Off
LA	Off	Off	On	Off	On	On

Note that the Power LED indicates that the sensor is energized.
Note that the Status LED indicates that the output contacts have changed state: NO has closed, NC has opened.



Latching connection.
Order either NO or NC contacts. Reset by short across RESET terminals, do not apply voltage.

Trouble Shooting

1. Sensor is always tripped

A. The setpoint may be set too low for fault current being monitored. *Find the fault in the monitored circuit or return to the factory to reset the trip point.*

B. Relay has been overloaded and contacts are burned out. *Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).*

2. Sensor will not trip

A. Unit is not powered. *Check power supply and power wiring.*

B. The setpoint may be higher than the fault current. *Try the TEST button with no load connected to the output terminals.*

C. Relay has been overloaded and contacts are burned out. *Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).*

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