Specifications

Power Supply	12 VDC nominal (10-28 VDC) (Note: Degraded performance below 10 V, permanent damage above 30 V)
Power Consumption	<2 VA
Setpoint Range	Trips at 0.75 ADC
Response Time	On: 600 ms (max) Off: 500 ms (max)
Isolation Voltage	3 KV
Frequency Range	DC (Bidirectional)
Sensing Aperture	0.54" (13.7 mm)
Case	UL94 V-0 Flammability rated

Output Rating & Environmental

Output Rating	Solid State Switch 1.0 A @ 30 VDC Maximum
Off State Leakage	<1 uA
Environmental	-20 to 50ºC (-4 to 122ºF) 0-95% RH, Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)
Listings	Designed to meet UL/cUL and CE approval

Overload Capacity

MAX 5 SEC.	MAX CONTINUOUS
1000 A	500 A

Model Number Key

DS1 - NODC - FF

CASE STYLE:
FF - Front terminal housing, solid-core

OUTPUT:
NODC - Normally Open Solid State Switch, 1 A @ 30 VDC Maximum

SENSOR TYPE:
DS1 - DC current sensing switch closes at or above 0.75 ADC, current in either direction

Sensors and Transducers

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

DS1 SERIES

DC Current Operated Switch

Quick "How To" Guide

1. Run the wire you are monitoring through aperture.
2. Mount the sensor.
3. Connect power & output wiring.
   A. Make sure power supply matches specifications.
   B. Make sure output load matches the output shown on the sensors' label.
4. Energize the monitored load. There will be a 5 seconds delay before output changes state upon first power on.

393000104 Rev 5

Description

DS1 is a DC current operated switch. They operate (switch) when the current level through the hole exceeds a minimum level of 0.75 amps DC. They accept regulated supply voltage between 10 and 28 VDC. The output is not isolated from the power supply. The sensor is supplied with a normally open solid-state output (-NODC) closing on current presence.

Installation

Run wire to be monitored through opening in the sensor. The direction of current does not matter.
DS1 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. Just leave at least one inch distance between sensor and other magnetic devices.
Two circuits can be monitored with one sensor. If the total of both circuits exceeds 0.75 amps the output will be tripped. The direction of current flow must be the same in all conductors.

Power Wiring

Connect the voltage (10-28 VDC) to Terminals COM and 2. Tighten to 9 in-lbs torque.
The connection is polarity sensitive.
Terminals are nickel plated to reduce the chance of corrosion.

Output Wiring

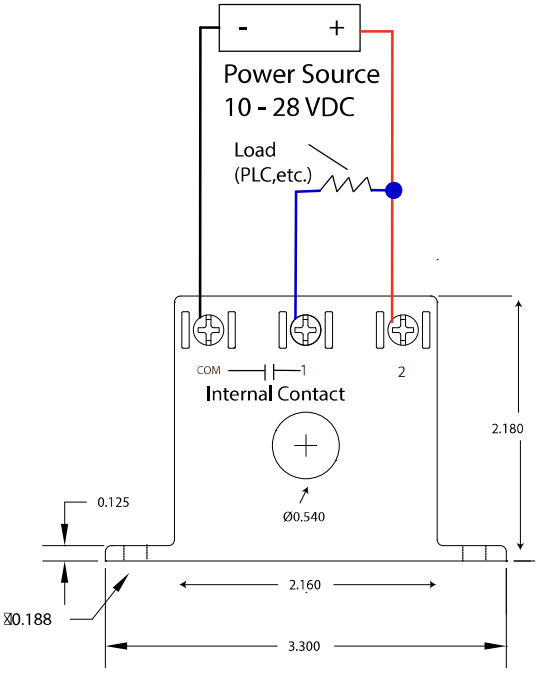
Connect control or monitoring wires to the sensor. Connect the controlled load between COM and terminal 1. Use up to 22-14 AWG copper conductors only and tighten terminals to 9 in-lbs torque. Be sure the output load does not exceed the switch rating of 1 amp, up to 30 VDC.

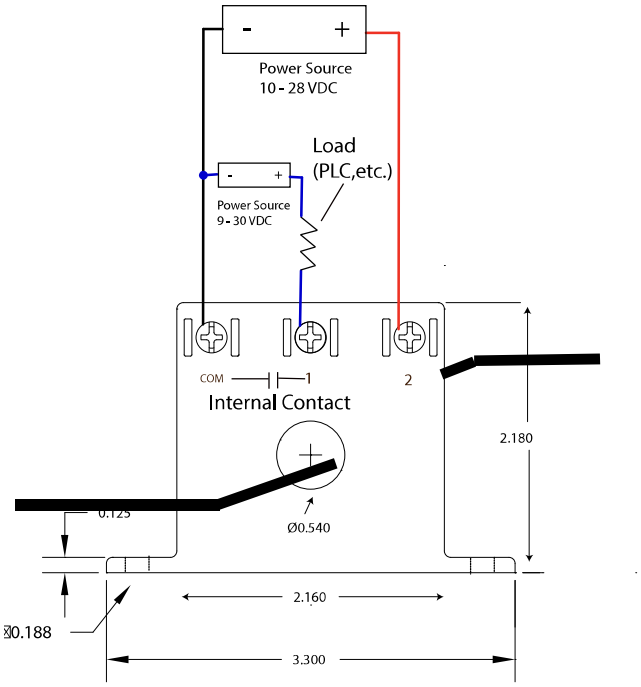
Incandescent lamps can have "Cold Filament Inrush" current of up to 10 times their rated amperage. Use caution when switching lamps.

The solid state output is well suited to be used as an input to a PLC or other solid state controller.

Once powered, there is a factory set delay of about FIVE seconds before the output changes state. Once energized, the output will open and close as quickly as possible, notifying the absence or presence of DC current.

Installation





MONITORED AMPS	OUTPUT TYPE Normally Open
None or below range	OPEN
Below trip level	OPEN
Above trip level	CLOSED

Trouble Shooting

1. **Sensor is always tripped**
   A. There may be some leakage current in the circuit being monitored. If this is the case, this sensor will not work, and a sensor with an adjustable trip point like the DS3 series should be considered.
2. **Sensor will not trip**
   A. Unit is not powered. *Check wiring.*
   B. The trip point may be too high. *Try looping the conductor through the sensing window a few times.*
   C. Switch has been overloaded and contacts are burned out. *Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).*
3. **Contact is not closing or will not open**
   A. The output can control a DC circuit only, up to one amp and between 10 and 30 volts. Check the controlled circuit voltage.