

## Specifications

Power Supply	24 VAC/VDC (20-45 VDC or 22-38 VAC) Power input and output signal are not isolated. Caution: Connecting AC supply to output negative may damage output. 24 VDC input: A fuse rated maximum 5 A shall be placed in series with the main input power terminal. 24 VAC input: A fuse rated maximum 2.75 A shall be placed in series with the main input power terminal.
Power Consumption	2 VA
Input Range	Field Selectable Ranges (See Model Number Key)
Output Signal	0-20 mA, 4-20 mA: 23 mA 500 Ω max 0-5 VDC: 5.75 VDC 25 KΩ min 0-10 VDC: 11.5 VDC 50 KΩ min
Measured Input	Copper busbars shall be sized at 1000 amperes per square inch
Output Polarity	Unipolar: Current magnitude only Bipolar: Current direction indication
Accuracy	2.0% FS
Repeatability	1.0% FS
Linearity	0.75% FS
Frequency Range	DC
Response Time	60 ms (to 90% of step change)
Isolation Voltage	Tested to 3 KV (Monitored line to output)
Sensing Aperture	0.85" (21.6 mm) square
Case	UL94 V-0 Flammability rated thermoplastic
Environmental	-4 to 122°F (-20 to 50°C) 0-95% RH, Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)
Listings	UL, cUL, CE

**For products intended for the EU market, the following is applicable to the CE compliance of the product:**

The 24 V DT series comply with EN 61010-1 CAT III 300 V max measurement category.



### Warning! Risk of Danger

Safe operation can only be guaranteed if the transducer is used for the purpose for which it was designed and within the limits of the technical specifications. When this symbol is used, it means you must consult all documentation to understand the nature of potential hazards and the action required to avoid them.

### Warning! Risk of Shock

When operating the transducer certain parts may carry hazardous live voltage (e.g. Primary conductor, power supply). The transducer should not be put into operation if the installation is not complete.



## Model Number Key

DT 1 - 420 - 24U - U - SP

### CASE STYLE:

SP - Split-Core

### OUTPUT POLARITY:

U - Unipolar (Magnitude)

BP - BiPolar

### POWER SUPPLY:

24U - 24 VAC or VDC (Universal)

### OUTPUT:

005 - 0-5 VDC

010 - 10 VDC

020 - 20 mA

420 - 4-20 mA

### RANGE:

1 - 50, 75, 100 A

2 - 100, 150, 200 A

3 - 150, 225, 300 A

4 - 200, 300, 400 A

### SENSOR TYPE:

DT - DC current sensor with analog output

## Know Your Power



### Other NK Technologies Products Include:

DC Current Switches, Ground Fault Sensors

AC & DC Current Switches

Power Transducers

Current & Potential Transformers (CTs & PTs)



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# INSTRUCTIONS



## DT SERIES

Uni-Polar or BiPolar

0-20/4-20 mA or 0-5/0-10 VDC Output

## Quick "How To" Guide

1. Route wire to be monitored through aperture. Ensure current flow matches any arrow on sensor.
2. Mount the sensor to a surface if needed.
3. Connect output wiring.  
**Caution: Do not connect grounded AC supply to Output negative terminal. This may damage sensor output circuitry.**
  - A. Use 30-12 AWG copper wires rated 75°C minimum. Tighten terminals to 5-7 in-lbs torque.
  - B. For mA output models, make sure output load is no more than 500 Ω.
  - C. For VDC output models, make sure output load is at least 25 KΩ for the 5 VDC output and 50 KΩ for the 10 VDC output models.
4. Connect Power.
  - A. Connect the appropriate power supply.
5. Select Range.
  - A. Choose correct range by positioning the Range Jumper.

## Description

DT Series transducers combine a Hall Effect sensor and a signal conditioner into a single package. This provides higher accuracy, lower wiring costs, easier installation and saves valuable panel space. DT Series are available in Split-Core with 0-20 mA, 4-20 mA, 0-5 VDC or 0-10 VDC outputs.

## Installation

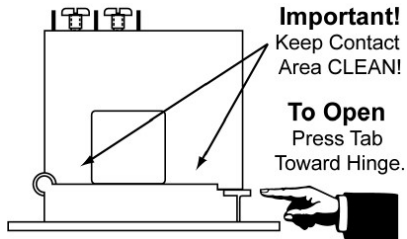
### For All Versions

Run wire to be monitored through opening in the sensor. Be sure the monitored current flows in the same direction as indicated by arrow on sensor. The arrow is just above the hinge, with the “+” symbol on the left, the “-” symbol on the right on the unipolar designs; bipolar models accept current flow in both directions.

DT Series transducers 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.

### Split-Core

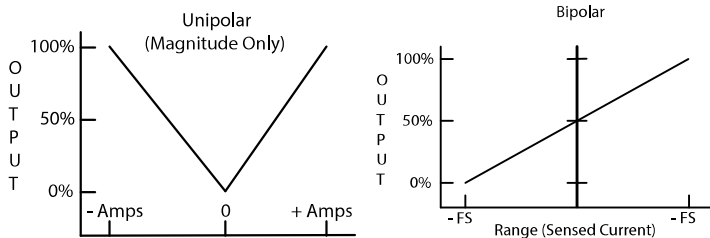
Press the tab in the direction as shown to open the sensor. After placing the wire in the opening, press the hinged portion firmly downward until a definite click is heard and the tab pops out fully.



### KEEP SPLIT-CORE SENSORS CLEAN.

Silicone grease is factory applied on the mating surfaces to prevent rust and improve performance. Be careful not to allow grit or dirt onto the grease in the contact area. Operation can be impaired if the mating surfaces do not have good contact. Check visually before closing.

## Output Polarity



## Output Wiring

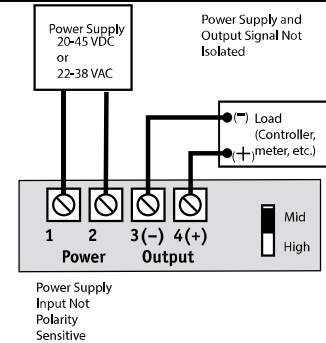
Connect control or monitoring wires to the sensor. Use 30-12 AWG copper wire and tighten terminals to 5-7 inch-pounds torque.

### 0-20 mA & 4-20 mA:

The current loop is powered by the DT Transducer. Maximum loop impedance is 500  $\Omega$ .

### 0-5 VDC & 0-10 VDC:

Signal is powered by the DT Transducer. Minimum output load (impedance) is 25 K $\Omega$  for the 5 V and 50 K $\Omega$  for the 10 volt models.



## Range Select

DT Series transducers feature field selectable ranges. The ranges are factory calibrated, eliminating time consuming and inaccurate field setting of zero or span.

1. Determine the normal operating amperage of your monitored circuit

2. Select the range that is equal to or slightly higher than the normal operating amperage.
3. Place the range jumper in the appropriate position.
4. If the sensor uses three pins, low range is selected by removing the jumper. If it uses four pins, the label will indicate where to place the jumper for each range.

## Trouble Shooting - 0-20 & 4-20 mA Models

### 1. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. *Move jumper to the correct range.*
- B. Power supply is inadequate. *Check power supply. Make sure it is of sufficient voltage with all loads at maximum. DT Series draw 2.0 VA.*
- C. Output load too high *Check output load, be sure it is no more than 500  $\Omega$  for current output models.*

### 2. Output Signal is always at maximum

- A. The jumper may be set in a range that is too low for current being monitored. *Move jumper to the correct range.*

### 3. Sensor has no output

- A. Polarity is not properly matched. *Check and correct wiring polarity.*
- B. Monitored load is not DC or is not on. *Check that the monitored load is DC and that it is actually on.*
- C. Split-Core models: The core contact area may be dirty. *Open the sensor and clean the contact area.*

## Trouble Shooting - 0-5 & 0-10 VDC Models

### 1. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. *Move jumper to the correct range.*
- B. Power supply is inadequate. *Check power supply. Make sure it is of sufficient voltage with all loads at maximum. DT Series draw 2.0 VA.*
- C. Output load too low. *Check output load, be sure it is at least 25K  $\Omega$  for 5VDC or 50K  $\Omega$  for 10 VDC.*

### 2. Output Signal is always at maximum

- A. The jumper may be set in a range that is too low for current being monitored. *Move jumper to the correct range.*

### 3. Sensor has no output

- A. Polarity is not properly matched. *Check and correct wiring polarity*
- B. Monitored load is not DC or is not on. *Check that the monitored load is DC and that it is actually on.*
- C. Split-Core models: The core contact area may be dirty. *Open the sensor and clean the contact area.*