

## Specifications

Power Supply	24VAC/DC External Power (20-45VDC), <2VA Use class 2 power supply
Voltage Measurement	15V, 25V, 50V, 150V, 300V and 600VDC
Output	4-20mA (capped at 24mA max) 0-5VDC (capped at 5.75VDC) 0-10VDC (capped at 11.5VDC)
Response Time	250 ms (to 90% value)
Accuracy	< 1% Full Scale
Linearity	< 0.5%
Loading	4-20mA: < 500 ohm 0-5/10V: >10K ohm
Isolation Voltage	2500 Volts
Frequency Range	DC
Operating Temp.	-20°C to 50°C (surrounding sensor)
Enclosure	UL94 V0 Rated
Environmental	-4 to 122 ° F (-20 to 50° C),0-95% RH Pollution Degree 2 Altitude to 2000 meters
Listings	UL/cUL Listed, CE

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

The VTD series comply with EN 61010-1 CAT III 600V max measurement category. Use 24 V input power and fuse at 5 amps. Power source overvoltage category I as defined per EN 61010-1

### 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 electrical shock



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

## Model Number Key

VTD 1 - 420 - 24U - DIN

CASE STYLE:  
DIN - DIN rail compatible

POWER SUPPLY:  
24U - Nominal 24 VAC/DC

OUTPUT:  
420 - 4-20mA  
005 - 0-5VDC  
010 - 0-10VDC

VOLTAGE INPUT RANGE:  
0 - 15V  
1 - 25V  
2 - 50V  
3 - 150V  
4 - 300V  
5 - 600V

### SENSOR TYPE:

VTD - DC Voltage Transducers

## Know Your Power



### Other NK Technologies Products Include:

AC & DC Current Transducers  
AC & DC Current Operated Switches  
1 $\phi$  & 3 $\phi$  Power Transducers  
Current & Potential Transformers (CTs & PTs)



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# INSTRUCTIONS



## VTD SERIES

### DC Voltage Transducers

Ranges 15, 25, 50, 150, 300 and 600 Volts  
4-20mA, 0-5/10VDC Outputs

## Quick "How To" Guide

1. Ensure correct sensor model was chosen for Input Voltage of application.
2. Mount the sensor to a DIN rail using integrated mounting clip on backside of transducer.
3. Connect input voltage -(5) & +(6) and output wiring using up to 14 AWG copper wires insulated to 75/90°. Refer to "Output Wiring" section for voltage and impedance recommendations.
4. Connect 24VAC or DC power supply fused to 5 amp to term. 3-4. Use twisted pair for CE compliance.

## Description

VTD Series Voltage Transducers are designed to monitor DC voltage and detect conditions where supply voltage is above or below normal. Detecting such conditions helps users to avoid problems commonly associated with voltage irregularities such as motor overheating, brownouts and conductor failure or poor connections. The VTD is available with 4-20mA, 0-5 or 0-10 VDC output options.

## Installation

VTD transducers feature a 35mm wide DIN rail compatible enclosure and are typically located in the same environment as motors, contactors, heaters, pull-boxes, and other electrical enclosures.

**To mount on DIN rail:** Orient transducer so that line voltage terminals -(5) and +(6) are upright/on top of unit and snap securely onto DIN rail. To remove, insert small screwdriver into depression on top of unit and pry orange mounting tab up until unit dislodges from DIN rail.

**To mount using screws:** Insert small screwdriver into depression in top of unit and pry orange mounting tab up to reveal mounting hole. Continue to pry tab up until it extends and snaps into place, about 0.25". Insert screws and mount to back plane or other suitably flat surface.

## Line Voltage Wiring Connection

**CAUTION: TO AVOID ANY POTENTIAL FOR SHOCK OR SAFETY HAZARD, ENSURE LINE VOLTAGE IS DISCONNECTED AT SOURCE BEFORE WIRING TO UNIT.**

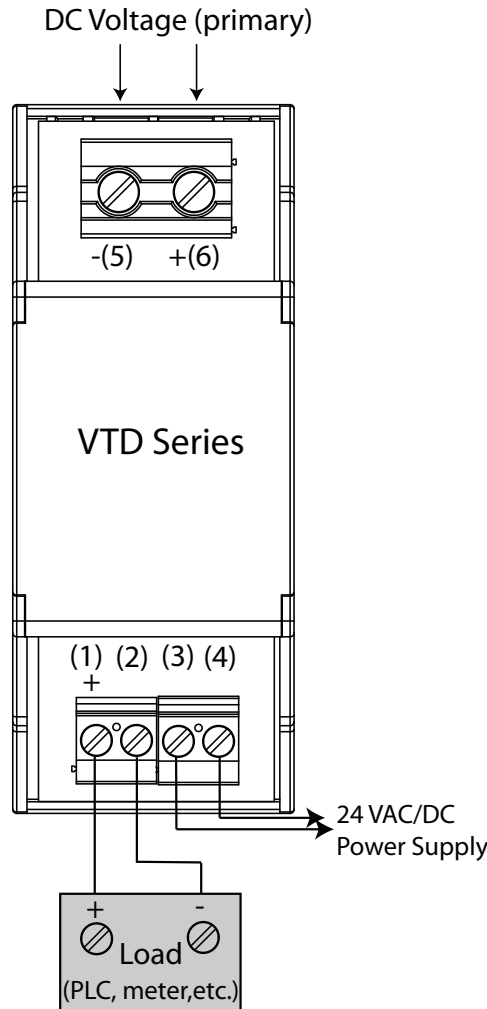
Connect input voltage to be monitored to terminals -(5) and +(6) on transducer using up to 10 AWG copper wires and tighten terminals to 7 inch-pounds torque.

**If the primary voltage is 24 volts DC nominal, it can be used to power the transducer. If desired, and isolation between output signal and power supply is not needed, connecting the negative of the output (2) with power supply terminal is allowable.**

**Use twisted pair for power supply conductors for full compliance with CE directives.**

## Output Wiring

Connect control or monitoring wires to the sensor. Use up to 14 AWG copper wire insulated to 75/90°C and tighten terminals to 7 inch-pounds torque.



## Troubleshooting Tips

### 1. Transducer has no output

- Power supply is not properly sized. *Check power supply voltage and output rating. Each transducer requires less than 2VA to operate.*
- Polarity is not properly matched. *Check and correct wiring polarity.*

### 2. Output Signal Too Low or Too High

Transducer model improperly sized for application. *Determine the normal operating voltage of your monitored circuit and ensure transducer selected is equal to or slightly higher than the normal operating voltage.*

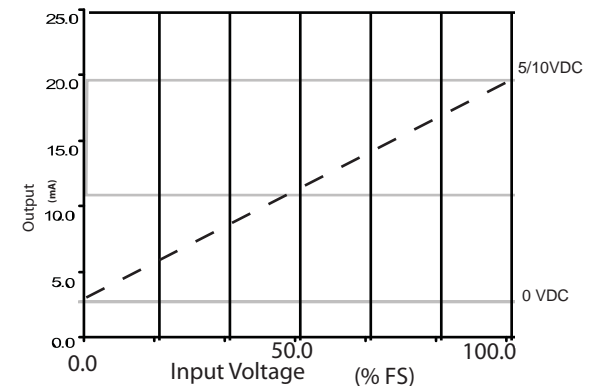
### 3. Sensor is always at 4mA (or zero voltage)

Primary circuit is not DC or is not on. *Check that the monitored load is DC and that it is actually on.*

### 4. Sensor is always at 20mA (or 5/10VDC)

Voltage is higher than transducer range. *Select a higher range product.*

## Transducer Output vs. Input Voltage



Note: Voltage output will be linear in the same manner, with zero at zero primary voltage and 5 or 10 VDC at the full range measured voltage.