

## Specifications

Power Supply	24 VAC/VDC External Power (22-26 VAC or VDC), <4 VA Power supply is isolated from monitored circuit and output signal Use Class 2 power supply
Voltage Measurement	0-800, 1000 or 1200 VAC or VDC
Output Signal	4-20 mA (capped at 24 mA max) 0-5 VDC 0-10 VDC
Response Time	100 ms (to 90% value)
Accuracy	< 1% Full Scale
Linearity	< 0.5%
Output Loading	4-20 mA: <400 Ω 0-5/0-10 VDC >100 KΩ
Isolation Voltage	UL listed to 4700 VAC
Frequency Range	0-400 Hz
Enclosure	UL94 V-0 Rated
Environmental	-4 to 140°F (-20 to 60°C) 0-95% RH Non-condensing Pollution Degree 2 Altitude to 2000 meters (6561 ft)
Listings	UL/cUL, CE

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

The VTU-OS series are designed to comply with EN 61010-1 CAT III 1000 V max measurement category. Power source over-voltage 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

VTU 10 - 420 - 24U - OS

CASE STYLE:  
OS - DIN rail compatible

POWER SUPPLY:  
24U - Nominal 24 VAC/VDC

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

VOLTAGE INPUT RANGE:  
8 - 800 V  
10 - 1000 V  
12 - 1200 V

SENSOR TYPE:  
VTU - AC/DC Voltage Transducers

## Know Your Power



### 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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# INSTRUCTIONS



## VTU SERIES AC/DC Voltage Transducers Ranges 800, 1000 and 1200 Volts 4-20 mA, 0-5/10 VDC 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 or secure using the tabs in each corner.
3. Connect monitored voltage (2) & (1) using 22-16 AWG copper wires insulated to 75/90°C. Lift the orange clip on the terminal, insert wire and allow it to clamp on the stripped end of the wire.  
  
Refer to "Output Wiring" section for voltage and impedance recommendations.
4. Connect 24 VAC or VDC power supply using 22-12 AWG copper wiring rated 75°C minimum and tighten to 6 in-lbs torques to terminals 3-4.
5. Connect output to the load using terminal 6 for the positive signal, and terminal 5 to common or ground.
6. Energize primary circuit and sensor power.

## Description

VTU Series Voltage Transducers are designed to monitor AC or 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 VTU is available with 4-20 mA, 0-5 or 0-10 VDC output options.

## Installation

VTU transducers feature a 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 (1) and (2) are upright/on top of unit and snap securely onto DIN rail. To remove, insert small screwdriver into the slots in the lower corners and pry the two mounting springs down until unit dislodges from DIN rail.

**To mount using screws:** Insert screws in the tabs in each corner and mount to back plane or other suitably flat surface.

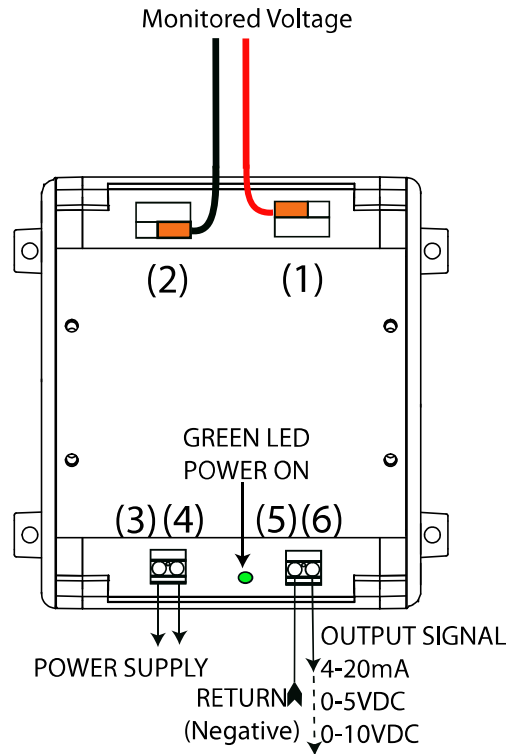
## Monitored Voltage Wiring Connection

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

Connect voltage to be monitored to terminals (1) and (2) on transducer using up to 22-16 AWG copper wires. Lift the orange clip, insert the stripped wire and release the clip. Proper torque will be applied.

## Output Wiring

Connect output signal wires to the sensor. Use 22-12 AWG copper wires insulated to 75°C minimum and tighten terminals 6 inch-pounds torque.



Note: The power supply is not polarity sensitive, as the unit can be powered with AC or DC voltage. The Monitored circuit input is also not polarity sensitive, and can measure either AC or DC voltages.

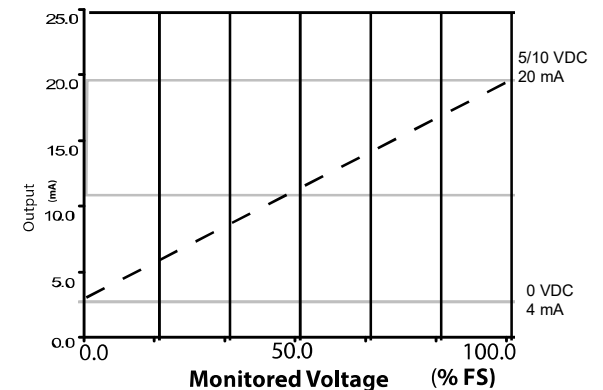
## Troubleshooting Tips

- 1. Transducer has no output**
  - A. Power supply is not properly sized. *Check power supply voltage and output rating. Each transducer requires less than 4 VA to operate.*
  - B. Green LED should be on when the power supply is energized.
- 2. Output Signal Too Low or Too High**
  - A. 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.*
  - B. Output load impedance is higher or lower than needed. *Check the settings of the controller or meter.*
- 3. Sensor is always at 4 mA (or zero voltage)**

Monitored circuit is not on. *Check that the monitored circuit is actually switched on, and that any fuses used are intact. Check the power supply if the sensor is designed for voltage output and the output is reading zero.*
- 4. Sensor is always at 20 mA (or 5/10 VDC)**

Monitored voltage is higher than transducer range. *Select a higher range product.*

## Transducer Output vs Monitored Voltage



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