Specifications

External Power Supply	24 VAC/ VDC (22-26 V)
Power Consumption	<2 VA Use Class 2 power supply
Voltage Measurement	0-15, 25, 50, 150, 300 or 600 VDC
Input Impedance	>160 KΩ
Output Signal	+/-5 VDC +/-10 VDC
Response Time	500 mS (10% to 90% value)
Accuracy	< 1% Full scale
Output Loading	>10 KΩ for stated accuracy
Isolation Voltage	UL listed to 2200 VAC
Frequency Range	DC only
Enclosure	UL94 V-0 Rated Use copper conductors only.
Environmental	-4 to 122°F (-20 to 50°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 VTD-BD series are designed to comply with EN 61010-1 CAT III 600V max measurement category. Use 24 V input power and fuse at max 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 is 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 - 010 - 24U - BD - OS

SENSOR TYPE:
VTD - DC Voltage Transducers

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

OUTPUT:
005 - +/-5 VDC
010 - +/-10 VDC

POWER SUPPLY:
24U - 24 VAC/VDC

OUTPUT TYPE:
BD - Bidirectional

HOUSING:
OS - Oval DIN Mtg.

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



VTD-BD SERIES

Bidirectional DC Voltage Transducers
+/-5 or +/-10 VDC Output

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 to input terminals (2) & (1) and output wiring using 22-16 AWG copper wires insulated to 60/75°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.

IMPORTANT: Monitored voltage (V1/V2) polarity sensitive for output polarity.

4. Connect 24 VAC or VDC power supply fused to 5 amp using 22-12 AWG copper wiring rated 60/75°C and tighten to 6 in-lbs torque to terminals 3-4 (not polarity sensistive).
5. Connect output to the load using terminal 6 for the output signal, and terminal 5 to common
6. Energize primary circuit and sensor power.

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Description

VTD-BD Series Voltage Transducers are designed to monitor DC voltage and detect conditions where monitored 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-BD is available with +/-5 or +/-10 VDC output options, so it will produce a signal proportional to the voltage when the DC voltage polarity is standard or reversed.

Installation

VTD-BD 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 and pry the two mounting springs down until unit dislodges from DIN rail.

To mount using screws: Insert screws and mount to back plane or other suitably flat surface.

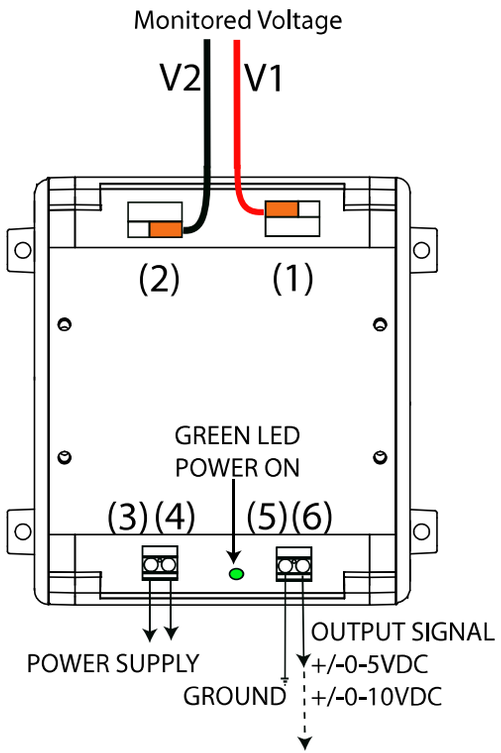
Line Voltage Wiring Connection

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 input terminals (1) and (2) on transducer using 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 control and monitoring wires to the sensor. Use 22-12 AWG copper wire insulated to 60/75°C and tighten terminals 3 through 6 to 6 inch-pounds torque. Terminals 1 and 2 are self tightening.



With positive of the monitored voltage attached to terminal one, the output will be positive. With negative attached to terminal one, the output will be negative.

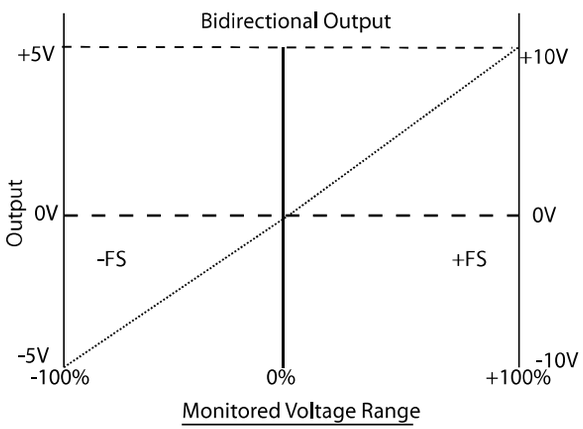
Troubleshooting Tips

1. **Transducer has no output**
   Power supply is not properly sized. *Check power supply voltage and output rating. Each transducer requires less than 2 VA to operate.*

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 has a range equal to or slightly higher than the normal operating voltage.*

3. **Sensor output is always at zero voltage:**
   Primary circuit is not on. *Check that the monitored voltage is actually switched on, and that any fuses used are intact.*

4. **Sensor is always at or 5/10 VDC**
   Voltage is higher than transducer range. Select a higher range product.



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, depending on the primary voltage polarity.

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