Specifications

Power Supply	24 VAC/VDC (+/- 10%)
Power Consumption	<4.4 VA 0-5V, 0-10V output <6 VA 4-20 mA output
Input Range Line-Line	0-150, 0-300, 0-600 VAC
Line-Neutral	0-150, 0-300 VAC
Input Frequency Range	50-60 Hz
Input Impedance	400 KΩ
Output Signal	4–20 mA (capped at 20 mA max) 0-5 VDC (capped at 5 VDC max) 0-10 VDC (capped at 10 VDC max)
Output Loading	4-20 mA: <500 Ω 0-5/0-10 VDC: >10 KΩ
Phase Loss Threshold	0-150 VAC, Phase loss @ 90 VAC 0-300 VAC, Phase loss @ 180 VAC 0-600 VAC, Phase loss @ 360 VAC
Phase Loss Detection Relay	SPST Form A (NO) relay contact 0.5 A @ 125 VAC, 1 A @ 30 VDC
Response Time	200 ms (to 90% step change)
Accuracy	1% Full scale
Isolation Voltage	1250 VAC
Enclosure	UL94 V-0 Flammability rated thermoplastic
Case Dimension	2.59”H x 4.39”W x 4.36”D (65.8 x 111.5 x 110.7 mm)
Environmental	-4 to 140°F (-20 to 60°C) 0–95% RH Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)
Listings	UL/cUL (E129625), CE certified

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

VT3 - LL2 - 420 - 24U - OS

CASE STYLE:
OS - DIN rail compatible

POWER SUPPLY:
24U - 24 VAC/VDC

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

VOLTAGE INPUT RANGE:
LL1 - 0-150 VAC, Line-Line
LL2 - 0-300 VAC, Line-Line
LL3 - 0-600 VAC, Line-Line
LN1 - 0-150 VAC, Line-Neutral
LN2 - 0-300 VAC, Line-Neutral

SENSOR TYPE:
VT3 - 3-Phase AC Voltage Transducers

Know Your Power



Other NK Technologies Products Include:
AC & DC Current Transducers and Switches
1ϕ & 3ϕ Power Transducers
Current Transformers (CTs)
Ground Fault Protection Relays

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INSTRUCTIONS



VT3-OS SERIES

3-Phase AC Voltage Transducers
120, 240 and 480 Volts Nominal Input
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 3-phase line voltages, A/B/C (and N if used) using 30-10 AWG copper wires insulated to 75°C minimum and tighten to 5-7 in-lbs torques to terminals 1 to 4.

   Refer to “Specifications” section for voltage and impedance recommendations.
4. Connect 24 VAC/VDC power supply using 30-10 AWG copper wiring rated 75°C minimum and tighten to 5-7 in-lbs torques to terminals 5 and 6 (N-L).
5. Connect outputs to the load using terminals 9, 11, 13 and 15 for the positive signal, and terminals 10, 12, 14 and 16 to common or ground. Use 22-12 AWG copper wires insulated to 75°C minimum and tighten to 6 in-lbs torques.
6. Connect the phase loss monitor wires using 22-12 AWG copper wires insulated to 75°C minimum and tighten to 6 in-lbs torques to terminals 7-8. No polarity requirement on relay contacts.
7. Energize primary circuit and sensor power.

292180036 Rev 3

Description

VT3 Series 3-Phase Voltage Transducers are designed to monitor AC 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 VT3 is available with 4-20 mA, 0-5 or 0-10 VDC output options.

Installation

VT3 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 A/B/C and N (if used) 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.

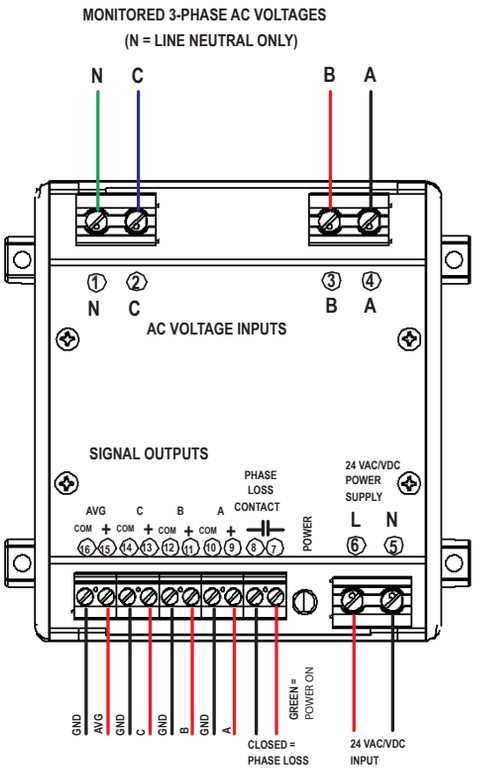
Monitored Voltage Wiring Connection

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 A/B/C and N (if used) on transducer using up to 30-10 AWG copper wires and tighten terminals to 5-7 in-lbs torque.

Output Wiring

Connect output signal wires A, B, C, AVG to the sensor as shown below. Use 22-12 AWG copper wires insulated to 75°C minimum and tighten terminals 6 inch-pounds torque.



Connect the phase loss relay contact wires to terminals 7-8. Use 22-12 AWG copper wires insulated to 75°C minimum and tighten to 6 in-lbs torques. The contact is normally open and changes to closed when the line voltage is less than the phase loss threshold.

Troubleshooting Tips

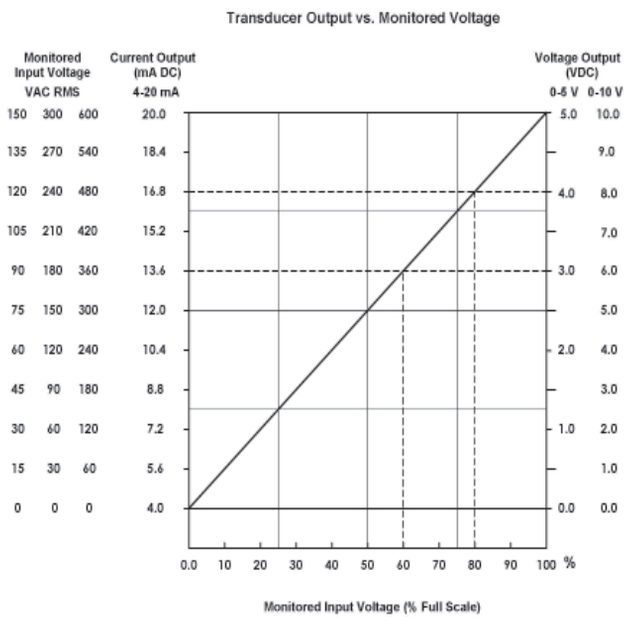
1. **Transducer has no output**
   A. Power supply is not properly sized. *Check power supply voltage and output rating. Each transducer requires less than 6 VA to operate.*
   B. Green LED should be on when the power supply is energized.

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



292180036 Rev 3