## Specifications

| | |
|---|---|
| Power Supply | 24 VDC nominal (12-32 VDC)<br>100 VA maximum or Class 2 |
| Input Range | 0-200, 0-300 and 0-400 A<br>(See Model Number Key) |
| Output Signal | 4-20 mA, Loop powered |
| Output Limit | 28 mA |
| Accuracy | 1.0% FS |
| Measurement | True RMS or Average Responding |
| Frequency Range | ATR: 20-400 Hz<br>AT: 40-400 Hz, Sinusoidal |
| Isolation Voltage | UL listed to 500 VAC |
| Response Time | ATR Models: 1.4 sec max<br>AT Models: 0.30 sec<br>(10-90% of step change) |
| Sensing Aperture | 1.30" (33.0 mm) diameter |
| Environmental | -20 to 50°C (-4 to 122°F)<br>0-95% RH Non-condensing<br>Pollution Degree 2<br>Altitude to 6561 ft (2000 meters) |
| Listings | UL/cUL, CE<br>RoHS compliant |

**For products intended for the EU market, the following is applicable to the CE compliance of the product:**
The AT and ATR-FD series comply with EN 61010-1 CAT III 300 Vrms max line-to-neutral measurement category. If insulated cable is used for the primary circuit, the voltage rating of the measurement category can be improved according to the insulation characteristics given by the cable manufacturer.

**Warning! Risk of danger**

Safe operation can only be guaranteed if the transducer is used for the purpose it was designed for and within 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 sensor 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

**AT R 3 - 420 - 24L - FD**

**CASE STYLE:**
FD - Solid-core, DIN or

**POWER SUPPLY:**
24L - 24 VDC Loop Powered

**OUTPUT:**
420 - 4-20 mA

**RANGE:**
2 - 200 A
3 - 300 A
4 - 400 A

**Measurement**
R - True RMS
(Blank) Average Responding

**SENSOR TYPE:**
AT - AC current sensor, 4-20 mA output loop powered

## 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



## AT & ATR 2, 3 & 4 SERIES

### AC Current Transducers

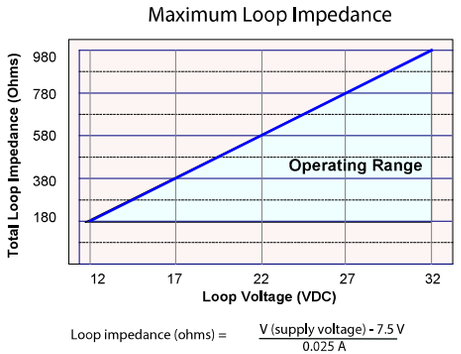
**4-20 mA Output**
**True RMS or Average Responding**

## Quick "How To" Guide

1. Run the wire you are monitoring through aperture.
2. Mount the sensor to a DIN rail or panel, or suspend from wire with cable ties.
3. Connect output wiring.
   A. Use 30-12 AWG copper conductors only rated minimum 75°C and tighten to 5-7 in-lbs torque.
   B. Make sure loop impedance does not exceed product specifications. See graph below.
   C. Connect 24 VDC power supply, sensor and load (PLC, panel meter, etc.) in series.
4. Energize monitored circuit.
   A. 4 mA output shows zero current, 20 mA represents current at full range.


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## Power Supply




Loop impedance (ohms) = $\frac{\text{V (supply voltage)} - 7.5\text{ V}}{0.025\text{ A}}$

Intended for use with a Class 2 source or max 40 VDC source with the secondary fused to limit power to a maximum of 100 VA.

## Description

AT and ATR-FD Series transducers combine a current transformer and a signal conditioner into a single package. This provides higher accuracy, lower wiring costs, easier installation and save valuable panel space. AT Series are available in solid core with 4-20 mA outputs.

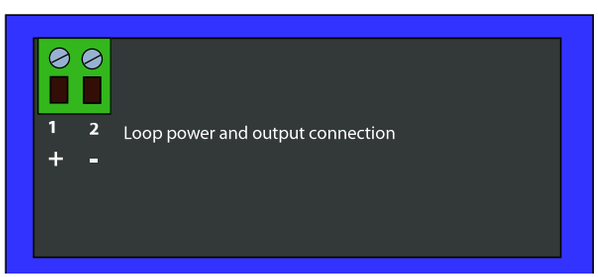
ATR Series feature a True RMS output. They are designed for application on distorted current waveforms such as VFD outputs.

## Installation

Run wire(s) to be monitored through the sensing aperture. Use only one phase with all conductors of that phase passing through the sensing aperture.

AT and ATR 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.

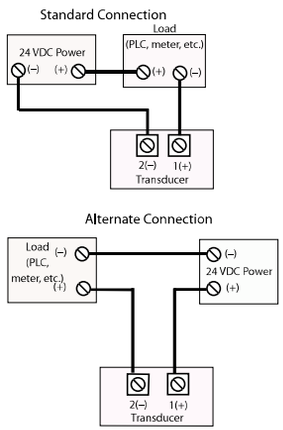
The housing is designed to fit onto a DIN rail or attached to a back panel with screws through the holes in the mounting tabs.

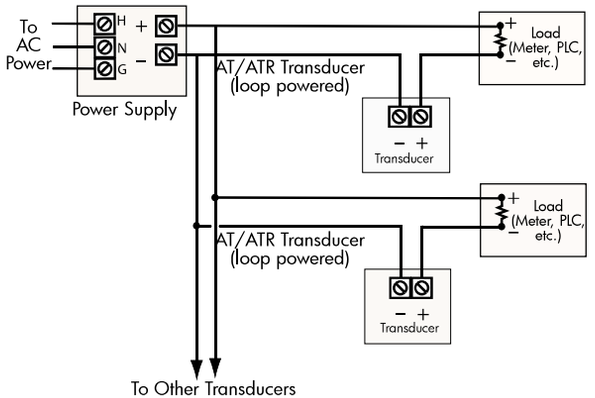



## Output Wiring

Connect control or monitoring wires to the sensor. Use 30-12 AWG copper wire rated for 75°C minimum, and tighten terminals to 5-7 inch-pounds torque. See the graph on the first page to be certain the loop voltage is sufficient for the connected loop impedance (burden including losses in the wire and connected PLC, panel meter, etc.).

Single Transducer Installation




**Connection Notes:**

- Fingersafe terminals
- 30-12 AWG solid or stranded, copper only
- Observe polarity
- See label for model range

## Range Select

AT and ATR Series transducers feature a small, compact housing with ranges to 400 A. The range is 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 model that is equal to or slightly higher than the normal operating amperage.

## Trouble Shooting

**1. Transducer has no output**

A. Power supply is not properly sized. *Check power supply voltage at sensor and output rating.*

B. Polarity is reversed. *Check and correct wiring polarity.*

C. Loop connections are not secure. *Check tightness of all terminations.*

**2. Output Signal Too Low**

A. The model selected may have a range that is too high for current being monitored. *Replace with the correct sensor range.*

B. Monitored current current is well below the sensor range. *Loop the monitored wire several times through the aperture until the "sensed" current rises sufficiently. Sensed Amps = (Actual Amps) x (Number of Loops). Count loops on the inside of the aperture.*

**3. Transducer is always at 4 mA**

A. Monitored current is not AC or is not on. *Check that the monitored current is AC and that it is actually on.*

**4. Output Signal is always at 20 mA**

A. The range is too low for current being monitored. *Select a sensor with a range higher than the current used.*

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