

## Specifications

Output Signal	0-5VDC or 0-10 VDC or 4-20mA (See Model Number Key)
Output Limit	
ATx-005	8.2 VDC
ATx-010	15 VDC
ATx-420	32mA
ATRx-420	23mA
Frequency Range	
ATx-005 & -010	50-60 Hz (Sinusoidal)
ATx-420	20-100 Hz (Sinusoidal)
ATRx-420	10-400 Hz (All Waveforms)
Response Time	To 90% of step change.
ATx-005 & -010	100mS
ATx-420	300mS
ATRx-420	600mS
Accuracy	
ATx-005 & -010	1% FS
ATx-420	1.0% FS
ATRx-420	1.0% FS
Power Supply, -420	24VDC Nominal, 40 VDC Max. See "Output Wiring" section.
Output Load, -005, -010	1MΩ recommended, 100KΩ add 1.3% error. See "Output Wiring" section.
Isolation Voltage	3kV
Case	UL 94V-0 Flammability rated thermoplastic
Environmental	-20 to 50 Deg. C, (-4-122 Deg F) 0-95% RH, non-condensing
Torque Ratings	7 in-lbs on -FT modles; 9 in-lbs on -FF and -SP models
Listing	UL and ULC Listed, CE Certified

## Input Maximums

MODEL	RANGE	MAXIMUM INPUT AMPS		
		CONTINUOUS	6 SEC.	1 SEC.
AT0 &	0-2A	80	125	250
ATR0	0-5A	100	125	250
AT1 &	0-10 A	80	125	250
ATR1	0-20 A	110	150	300
	0-50 A	175	215	400
AT2 &	0-100 A	200	300	600
ATR2	0-150 A	300	450	800
	0-200 A	400	500	1,000

## Model Number Key

<b>AT</b>	<b>1</b>	<b>420</b>	<b>24L</b>	<b>SP</b>
				<b>CASE STYLE</b>
				<u>FF</u> - Fixed core, Front Terminals <sup>1</sup>
				<u>FT</u> - Fixed Core Top Terminals
				<u>SP</u> - Split Core
				<b>POWER SUPPLY:</b>
				<u>000</u> - None Required (Self Powered) <sup>2</sup>
				<u>24L</u> - Nominal 24 VDC <sup>3</sup>
				<b>OUTPUT:</b>
				<u>420</u> - 4-20mA
				<u>005</u> - 0-5 VDC
				<u>010</u> 0-10 VDC
				<b>RANGE</b>
				<u>0</u> - 2 or 5 Amps <sup>3</sup>
				<u>1</u> - 10, 20 or 50 Amps
				<u>2</u> - 100, 150 or 200 Amps

### SENSOR TYPE:

AT - AC current transducers, average responding  
ATR- AC current transducers, True RMS, 4-20mA Output

### Notes

- 1 AT Series, all outputs.
- 2 AT Series with 0-5 or 0-10 VDC output.
- 3 AT or ATR Series with 4-20mA output.

## 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)



## NK Technologies

3511 Charter Park Drive, San Jose CA 95136800-959-4014  
 or +1-408-871-7510 Phone  
 +1-408-871-7515 FAX  
 sales@nktechnologies.com, www.nktechnologies.com



# INSTRUCTIONS



## AT & ATR SERIES

### AC Current Transducers

#### Ranges 0, 1 & 2

4-20mA, 0-5 or 0-10 VDC Outputs  
 Average Responding or True RMS

## Quick "How To" Guide

1. Run the wire you are monitoring through aperture.
2. Mount the sensor to a surface if needed.
3. Connect output wiring.
  - A. Use up to 14 AWG copper wires.
  - B. 0-5/10 VDC Models: Make sure output load is at least 1 Meg Ω.
  - 4-20mA Models: Make sure loop voltage is correct (see "Output Wiring" section).
4. Select Range
  - A. Chose correct range by positioning the Range Jumper.

## Description

AT 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 or split core with 4-20ma, 0-5VDC or 0-10 VDC outputs. Select AT Series for constant speed loads or On/Off loads

ATR Series are available in 4-20mA output only. ATR Series provide a “True RMS” output. Select ATR Series for variable speed or SCR controlled loads.

## Installation

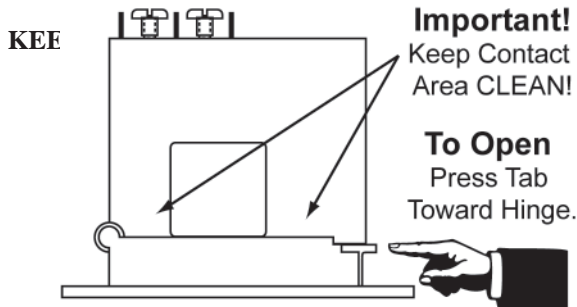
### For All Versions

Run wire to be monitored through opening in the sensor.

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.

### Split-Core Versions (SP Suffix)

Press the tab in the direction as shown to open the sensor. After placing the wire in the opening, press the hinged portion firmly downward until a definite click is heard and the tab pops out fully.



Silicone grease is factory applied on the mating surfaces to prevent rust and improve performance. Be careful not to allow grit or dirt onto the grease in the contact area. Operation can be impaired if the mating surfaces do not have good contact. Check visually before closing.

## Output Wiring

Connect control or monitoring wires to the sensor. Use up to 14 AWG copper wire and tighten terminals to 7 inch-pounds torque for -FT models and 9 inch-pounds torque for -FF and -SP models. Be sure the output load or loop power requirements are met (see diagram at right).

### Connection Notes:

- Captive screw terminals.
- 14-22 AWG solid or stranded.
- Observe Polarity
- See label for ranges & jumper positions

## Range Select

AT Series transducers feature field selectable ranges. The ranges are 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 range that is equal to or slightly higher than the normal operating amperage.
3. Place the range jumper in the appropriate position.

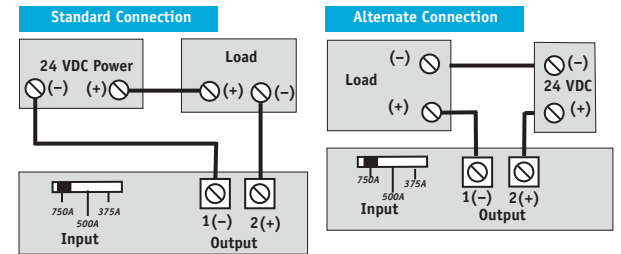
## Trouble Shooting, 0-5 and 0-10 VDC Models

### 1. Sensor has no output

- A. Polarity is not properly matched. *Check and correct wiring polarity*
- B. Monitored load is not AC or is not on. *Check that the monitored load is AC and that it is actually on.*
- C. Split Core models: The core contact area may be dirty. *Open the sensor and clean the contact area.*

### 2. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. *Move jumper to the correct range.*

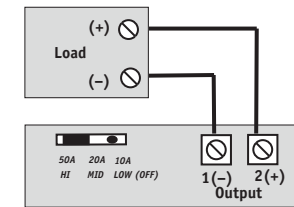


Loop Voltage Requirements: AT Series:  $V_L = 5V + (R_L \times 20mA)$

ATR Series:  $V_L = 12V + (R_L \times 20mA)$

Where:  $V_L$  = Min. Loop voltage &  $R_L$  = Loop Resistance

### Voltage Output Connection



1MΩ recommended for output load.  
Add 1.3% error for 100KW

## Trouble Shooting, 4-20mA Models

### 1. Sensor has no output

- A. Power supply is not properly sized *Check power supply voltage and current rating.*
- B. Polarity is not properly matched. *Check and correct wiring polarity*
- C. Split Core models: The core contact area may be dirty. *Open the sensor and clean the contact area.*

### 2. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. *Move jumper to the correct range.*
- B. The load current is not sinusoidal (AT only). *Select an ATR transducer that works on distorted waveforms*

- B. Output load too low *Check output load, be sure it is at least 100KΩ and preferably 1 MegΩ.*

- C. Monitored current is below minimum required. *Loop the monitored wire several times through the aperture until the “sensed” current rises above minimum. Sensed Amps = (Actual Amps) x (Number of Loops). Count loops on the inside of the aperture.*

### 3. Output Signal is always at maximum

- A. The jumper may be set in a range that is too low for current being monitored. *Move jumper to the correct range.*

- C. Monitored current is below minimum required. *Loop the monitored wire several times through the aperture until the “sensed” current rises above minimum. Sensed Amps = (Actual Amps) x (Number of Loops). Count loops on the inside of the aperture.*

### 3. Sensor is always at 4mA

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

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

- A. The jumper may be set in a range that is too low for current being monitored. *Move jumper to the correct range.*