Specifications

	ATx-005	ATx-010	ATx-420	ATRx-420
Output Signal	0-5 VDC	0-10 VDC	4-20 mA	4-20 mA
Output Limit	8.2 VDC	15 VDC	32 mA	23 mA
Frequency Range	50-60 Hz (Sinusoidal)	50-60 Hz (Sinusoidal)	20-100 Hz (Sinusoidal)	10-400 Hz (All Waveform)
Response Time (90% step change)	100 ms	100 ms	300 ms	600 ms
Accuracy	1.0% FS	1.0% FS	1.0% FS	1.0% FS
Power Supply	None, self-powered	None, self-powered	24 VDC nom 40 VDC max*	24 VDC nom 35 VDC max*
Output Loading	-005 & -010 1 MΩ recommended, 100 KΩ add 1.3% error* -420 See "Output Wiring" section			
Isolation Voltage	Tested to 1.5 KV			
Case	UL 94 V-0 Flammability rated thermoplastic			
Sensing Aperture	-FF 0.54" (13.7 mm) -FT 0.74" (18.8 mm) -SP 0.85" (21.6 mm)			
Environmental	-4 to 122°F (-20 to 50°C) 0-95% RH, Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)			
Torque Ratings	7 in-lbs on -FT models; 9 in-lbs on -FF and -SP models			
Listings	UL/cUL, CE *See "Output Wiring" Section			

For products intended for the EU market, the following is applicable to the CE compliance of the product:
The AT & ATR series comply with EN 61010-1 CAT III 300 Vrms max. line-to-neutral measurement category. 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 current transducer is used for the purpose it has been designed for and within the limits of the technical specification. 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 current transducer, certain parts of the module may carry hazardous live voltage (e.g. primary conductor, controlled load). The switch should not be put into operation if the installation is not complete.

Input Maximums

MODEL	RANGE	MAXIMUM INPUT AMPS CONTINUOUS	6 SEC.	1 SEC.
AT0 & ATR0	0-2A	40	60	100
	0-5A	100	125	250
AT1 & ATR1	0-10 A	80	125	250
	0-20 A	110	150	300
	0-50 A	175	215	400
AT2 & ATR2	0-100 A	200	300	600
	0-150 A	300	450	800
	0-200 A	400	500	1000

Model Number Key

AT 1 - 420 - 24L - SP

CASE STYLE:
FF - Solid-Core, Front Terminals[1]
FT - Solid-Core Top Terminals
SP - Split-Core

POWER SUPPLY:
000 - None Required (Self Powered)[2]
24L - Nominal 24 VDC[3]

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

RANGE:
0 - 2 or 5 Amps[3]
1 - 10, 20 or 50 Amps
2 - 100, 150 or 200 Amps

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

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

Know Your Power

Other NK Technologies Products Include:
AC & DC Current Transducers
AC & DC Current Operated Switches
1ϕ & 3ϕPower Transducers
Current & Potential Transformers (CTs&PTs)

NK Technologies
3511 Charter Park Drive, San Jose, CA 95136
Phone: 800-959-4014 or 408-871-7510
Fax: 408-871-7515
sales@nktechnologies.com, www.nktechnologies.com

NK Technologies

INSTRUCTIONS

AT & ATR SERIES

AC Current Transducers
Ranges 0, 1 & 2
4-20 mA, 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 14-22 AWG copper wires only rated 75°C minimum.
   B. 0-5/10 VDC Models: Make sure output load is at least 1 MegΩ.
   4-20 mA Models: Make sure loop voltage is correct (see "Output Wiring" section).
4. Select Range.
   A. Choose 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 4-20 mA, 0-5 VDC or 0-10 VDC outputs. Select AT Series for constant speed loads or On/Off loads.

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

Installation

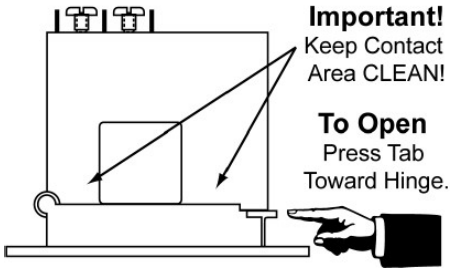
For All Versions

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.

Solid-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.



KEEP SPLIT-CORE SENSORS CLEAN.

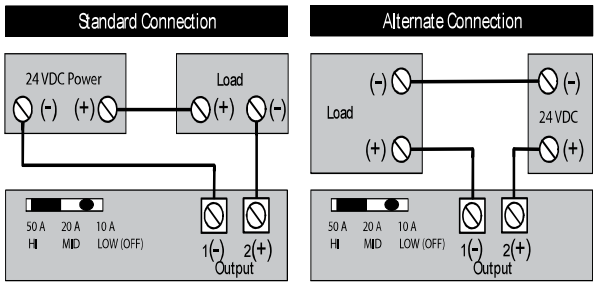
Silicone grease is factory applied on the mating surfaces to prevent rust and improve performance. Be careful not to allow grit or dirt onto the grease in the contact area. Operation can be impaired if the mating surfaces do not have good contact. Check visually before closing.

Output Wiring

Connect control or monitoring wires to the sensor. Use up to 14-22 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

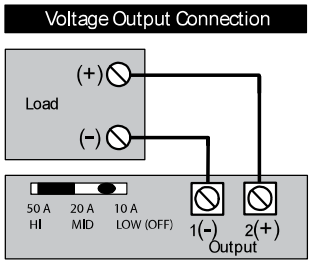


Loop Voltage Requirements: AT Series: VL = 5 V + (RL X 20 mA)
ATR Series: VL = 12 V + (RL X 20 mA)
Where: VL = Min. Loop voltage & RL=Loop Resistance

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.



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

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

Trouble Shooting, 4-20 mA 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.*
   - 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 4 mA**
   - 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 20 mA**
   - A. The jumper may be set in a range that is too low for current being monitored. *Move jumper to the correct range.*