Specifications

Power Supply	24 VAC/VDC (+/-10%)* 120 VAC (+/- 10%)**
Input Range	0-200 A, 600 VAC line-to-line
Power Consumption	< 6.0 VA
Output Signal	Four outputs, three proportional to the current in that phase, one an average of all three.

Output Loading

Signal Type	*Loading*
4-20 mA	<500 Ω
0-5 VDC	>2 K Ω
0-10 VDC	>2 K Ω

Accuracy	1% FS
Response Time	220 ms (to 90% of step change)
Frequency Range	AT: 50-60 Hz (Avg) ATR: 30-100 Hz (RMS)
Sensed Current Limit	1.1x range continuous 3x range for 6 seconds 6x range for 1 second
Terminals	Finger-safe captive screw, 22-12 AWG Torque to 6 inch-pounds
Isolation Voltage	2200 VAC
Sensing Aperture	0.84" (21.3 mm) ID
Case	UL94 V-0 Flammability rated thermoplastic
Environmental	-4 to 122°F (-20 to 50°C) 0-95% RH, Non-condensing Pollution Degree 2 Altitude to 6561 ft (2000 meters)
Listings	UL/cUL listed E342812, CE

* Power supply is not isolated from the output. DO NOT connect the negatives to a common point when using the 24 Volt option. 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.

** Power supply is isolated from output.

For products intended for the EU market, the following is applicable to the CE compliance of the product:

The AT/ATR-TH Series may comply with EN 61010-1 CAT III 300 V max line to neutral measurement category. The voltage rating of the measurement category can be improved according to the characteristics given by the cable manufacturer. Use twisted pair for all connections.

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 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

ATR 3 - 420 - 24U - TH

Housing Type:
TH - Three Hole

Power Supply:
24U - 24 VAC/VDC (non-isolated)
120 - 120 VAC (isolated)

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

Current Ranges:
1 - 0-10, 0-15 and 0-30 A
2 - 0-30, 0-50 and 0-100 A
3 - 0-100, 0-150 and 0-200 A

AT - Average Responding
ATR - True RMS

Know Your Power



Other NK Technologies Products Include:

AC & DC Current Transducers and Switches
1ϕ & 3ϕ Voltage and Power Transducers
Current Transformers (CTs)
Ground Fault Protection Relays

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INSTRUCTIONS



AT/ATR-TH Series

AC Current Transducer w/Proportional Analog Outputs

Quick "How To" Guide

1. Mount AT/ATR-TH Current Transducer to DIN rail or panel in suitable enclosure.
2. With monitored load off, install each phase through the sensing windows. Designate one phase as A, B and C.
3. Select the current range using the slide switch.
4. Connect output terminals + and - using 22-12 AWG copper wires rated 75°C minimum. Tighten to 6 inch-pounds torque.
5. Connect power supply voltage to terminals 9-10.
6. The output will be proportional to the current in each phase, plus one which is the average of the three.
7. Any of four analog signals can be used independently or all four can be used at the same time.

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Description

AT/ATR-TH Series current transducers are intended to monitor consumption of three phase loads. They provide an analog signal proportional to the current in each of the three phases, and another which will be proportional to the average of the three phase currents. The transducer can be mounted on a back panel using screws through the mounting holes in the base or snapped onto a DIN rail. Each model can be set for three current measurement ranges.

Wiring

Power Supply:

Connect power supply to transducer as shown in wiring diagram. Use 75°C minimum rated copper wire. The power supply terminals are not polarity sensitive. Tighten terminals to 6 inch-pounds torque. For 24 volt powered models, use a Class 2 power limited source. For 120 volt powered models, fuse at 5 amps maximum.

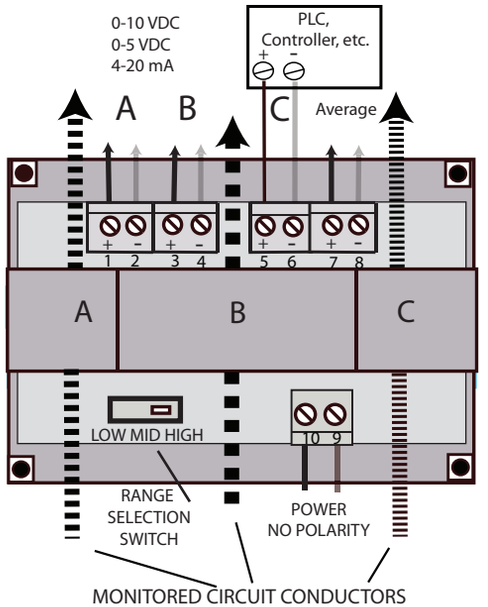
Output Signal:

Connect positive signal to controller or display using 75°C minimum rated copper wire, tighten the terminals on the transducer to 6 inch-pounds torque. Confirm that the connected load impedance is less than 500 Ω for current signals or at least 2 K Ω for voltage signals.

Monitored Circuit:

Each of the three phases pass through the three windows of the top section. All conductors should pass through the sensor in the same direction (from the front or the back) for appearance, but not required for accuracy or reliability. If the phases use multiple conductors, all wires of one phase must pass through the same sensing window or aperture. The transducer is designed to monitor circuits to 600 VAC line-to-line, whether the conductor is insulated or bare. Each aperture is large enough to allow 4/0 THHN (120 mm²) to pass through easily. Centering the conductor in the aperture is not necessary.

Wiring Schematic Diagram



Top View

Application:

Monitoring current is a great tool to use in a preventative maintenance program. All loads are protected against high level of over current with a circuit breaker or fuses, but monitoring over time can detect small increases in current which point to failing bearings or the need for lubrication. Detecting under current conditions is just as important, but much more complicated than over current detection. If a pump has a blocked or restricted intact or discharge, the drive motor will draw less than normal current. The pump is not pushing the product as it was designed, but moving only the product in the impeller cavity. A pump with an open intake or discharge will also draw less than normal current. Either condition can cause a lot of damage, but when the discharge is open, some very hazardous material can be spread quickly.
Under current is also seen when a belt breaks, comes off the sheave grooves or needs to be tightened; or if a coupling shears or is loose.

Troubleshooting

1. **Sensor has no output**

A. Power source is not energized or connected to the transducer. *Check voltage at terminals 9 and 10.24 V models do not have isolation between the power and the output signals.*

B. The monitored circuit is not energized or drawing current. *Check that the monitored circuit is energized.*

C. Polarity is not properly matched. *The output signals are polarity sensitive, and the result would be no signal through the HMI or whatever is reading the transducer outputs.*

2. Output Signal Too Low

A. The transducer range may be too high to read the monitored circuit current. *Select a model with a lower range, or loop each conductor through the sensing windows to increase the current through each aperture.*

B. Power supply may not have enough capacity to operate the transducer outputs. U*se a power supply with at least 6 VA available to operate the transducer.*

3. Outputs are always at the minimum (4 mA or zero volts)

A. The Monitored load is not energized or is not AC. *Be sure that the monitored circuit is AC with a frequency between the model limits (AT average responding 50 to 60 hertz, RMS models 30 to 100 hertz).*

4. Outputs are always at the maximum (20 mA or 5 or 10 volts)

A. The Monitored load is drawing more current than the transducer range. *Select a model with a higher range, or set the range selection to a higher range. Be very careful when selecting the model to suit the application. Check the range selection slide switch. Check the actual current used with a hand held ammeter, and set the range accordingly.*

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