

AC Current Transducer Specifications

Power Supply	24 VDC nominal, loop powered (12–36 VDC) Use Class 2 power supply or limited power supply only
Output Signal	4–20 mA loop-powered, True RMS
Output Limit	23 mA
Output Loading	<600 Ω @ 24 VDC (see “Output Loading” chart)
Accuracy	1.0% FS from 10–100% of range
Response Time	600 ms (90% step change)
Frequency Range	50/60 Hz
Isolation Voltage	3.5 kV
Sensing Aperture	Outer Diameter: 5.96" (15.2 cm) Inner Diameter: 5.3" (13.5 cm) Length: 17" (43 cm) with 118" (3 m) lead
Input Range	0 to 500, 1000, 1500 or 2000 A @ 600 VAC max
Case	UL94 V-0 Flammability Rated
Environmental	–4 to 122°F (–20 to 50°C) 0–95% RH, non-condensing Altitude to 6561 ft (2000 meters) Pollution Degree 2
Listings	UL Listed to UL 508 (E342812), CE

Monitored Circuit Maximum (Amps)

Continuous	6 sec.	1 sec.
4000	4400	5000

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

The ATR series comply with EN 61010-1 CAT III 600 Vrms max line-to-neutral measurement category. The voltage rating can be improved according to the insulation characteristics given by the cable manufacturer. Power source over-voltage category I as defined per EN 61010-1.



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 voltage (e.g. primary conductor, power supply). The transducer should not be put into operation if the installation is not complete.

AC Current Transducer Ordering Information

Sample Model Number: ATR1-420-24L-D
True RMS AC current transducer, 500 A range, 4–20 mA output, 24 VDC loop-powered, coil sensor connected to DIN rail or panel mounted case.



(1) Full Scale Range	
1	500 A
2	1000 A
3	1500 A
4	2000 A
(2) Output Signal	
420	4–20 mA
(3) Power Supply	
24L	24 VDC loop-powered
(4) Case Style	
D	Coil connected to DIN rail or panel mounted case

Know Your Power



Other NK Technologies Products Include:

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



INSTRUCTIONS



*DIN Rail Kit available separately

NK Technologies
ATCR SERIES
Flex Coil AC Current Transducers
4-20 mA Output True RMS

Quick “How To” Guide

1. Wrap the sensing coil around the conductor you are monitoring, and snap the loose end into the block.
2. Mount the base integrator to DIN rail or similar method.
3. Connect output wiring.
 - A. Use 22-12 AWG 75°C minimum copper conductors only.
 - B. Make sure output load does not exceed product specifications.
 - C. Connect proper power supply and load in series.
 - D. Tighten screw terminals to 6 in-lbs.

Description

ATCR Series transducers utilize a flexible coil to surround the conductor(s), connected as a matched set with a factory calibrated integrating signal conditioner. This provides high accuracy, lower wiring costs, easier installation and saves valuable panel space. ATCR Series products are available in flexible core with 4-20 mA outputs. ATCR Series products feature a True RMS output designed for applications with sinusoidal or distorted waveforms often found in VFD environments.

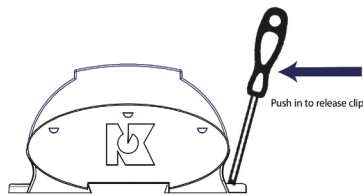
Installation

Wrap the flexible sensing coil around the conductor(s), once and reconnect the open end to the connecting block on the cable.

ATCR Series transducers are designed for use in the same environment as motors, contactors, heaters, pull-boxes, and other electrical enclosures.

Mount ATCR transducer using a standard DIN rail, taking care to maintain at least one-inch clearance in all directions between the sensing coil and other magnetic devices for proper operation. Note: The transducer coil is not sensitive to current flow direction, so the transducer label side can face either the source or the load, and the transducer base can be mounted in any position.

To mount on DIN rail: Orient transducer so that current sensing cable enters the top of unit and snap securely onto DIN rail. To remove, insert small screwdriver into the lower mounting hole of the spring-loaded clip, and push the handle end of the screwdriver toward the sensor base to release the tension on the rail.



To mount using screws: Insert screws and mount to back plane or other suitably flat surface.

Notes

It is not recommended to wrap the sensing coil around the conductor more than once. Multiple wraps of the coil around the conductor will decrease the sensor accuracy, and may produce an unreliable output signal. *The protection provided by this device may be impaired if it is used in a manner not specified by Neilsen-Kuljian, Inc.*

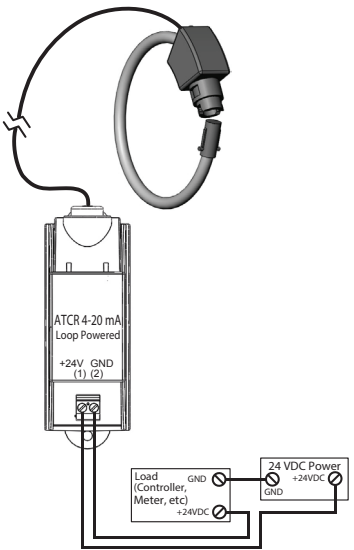
Output Wiring

Connect control or monitoring wires to the sensor. Use 22-12 AWG copper wire and tighten terminals to 6 inch-pounds torque. Be sure the output load does not exceed 600 ohms for product with the 4-20 mA output at 24 VDC.

Connection Notes:

- Captive screw terminals
- 22-12 AWG solid or stranded
- Observe Polarity of Output Connections
- See label for range limitations

Note: The coil and the signal conditioner are matched and calibrated at the factory. If the coil is damaged in the field, please return both pieces as a set to the factory after obtaining authorization.



ATCR Series transducers feature a single, factory calibrated range. There is no need for time consuming and inaccurate field setting of zero or span.

1. Determine the normal operating amperage of your monitored circuit.
2. Select the model with a range that is equal to or higher than the normal operating amperage.

Troubleshooting

1. Sensor has low or 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. Monitored load is not AC or is not on. *Check that the monitored load is AC and that it is actually turned on.*

2. Output Signal Too Low

- A. Range may be too high for the current being monitored. *Select model carefully.*
- B. Input load (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 constant at 20 mA

- A. Range may be too low for current being monitored. *Select different ATCR model with higher range.*

4. Output Signal is constant at 4 mA

- A. Double check the output wiring. Reversed polarity may cause this result.

Output Loading

Rogowski Coil 4-20 mA Output Loading

