

# ATR SERIES

## AC Current Transducers

ATR Series AC Current Transducers combine a current transformer and a True RMS signal conditioner into a single package. The ATR Series AC Current Transducers provide True RMS output on distorted waveforms found on VFD or SCR outputs, and on linear loads in “noisy” power environments. The ATR Series AC Current Transducers are available in a solid- or split-core case.



### AC Current Transducer Applications

#### VFD Controlled Loads

- Monitoring VFD output indicates how the motor and attached load are operating.

#### SCR Controlled Loads

- Accurate measurement of phase angle fired (time proportioned) SCRs.
- Current measurement gives faster response than temperature measurement.

#### Switching Power Supplies and Electronic Ballasts

- True RMS sensing is the most accurate way to measure power supply or ballast input power.

### AC Current Transducer Features

#### True RMS Output

- True RMS technology is accurate on distorted waveforms like VFD or SCR outputs.

#### Jumper-selectable Ranges

- Reduces inventory.
- Eliminates zero and span pots.

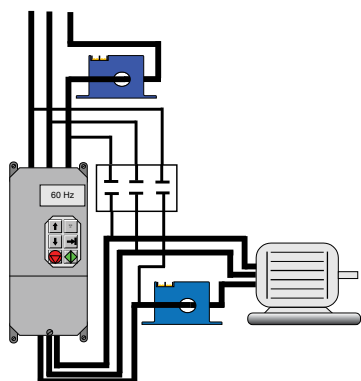
#### Isolation

- Output is magnetically isolated from the input for safety.
- Eliminates insertion loss (voltage drop).

#### UL, CUL and CE Approval

- Accepted worldwide.

Monitoring  
a Motor  
Driven with  
a VFD



Use the ATR current transducer on the line or load side of the drive and the signal will be accurate in either position.

- For additional Application Examples, go to [www.nktechnologies.com/applications](http://www.nktechnologies.com/applications)

### Selecting the right transducer:

The current waveform of a typical linear load is a pure sine wave. In VFD and SCR applications, however, output waveforms are rough approximations of a sine wave. There are numerous spikes and dips in each cycle. ATR transducers use a mathematical algorithm called “True RMS” which integrates the actual waveform over time. The output is the amperage component of the true power (heating value) of the AC current waveform. True RMS is the only way to accurately measure distorted AC waveforms. **Select ATR transducers for nonlinear loads in “noisy” power environments.**

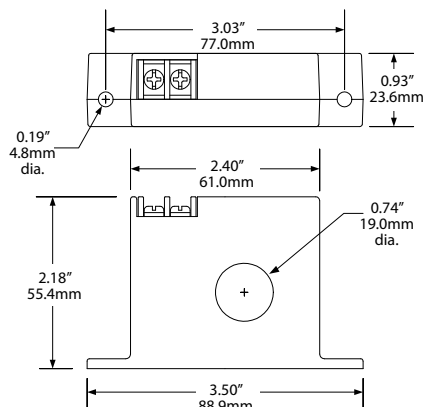
OEMs

**Test & Evaluation Units for OEMs**

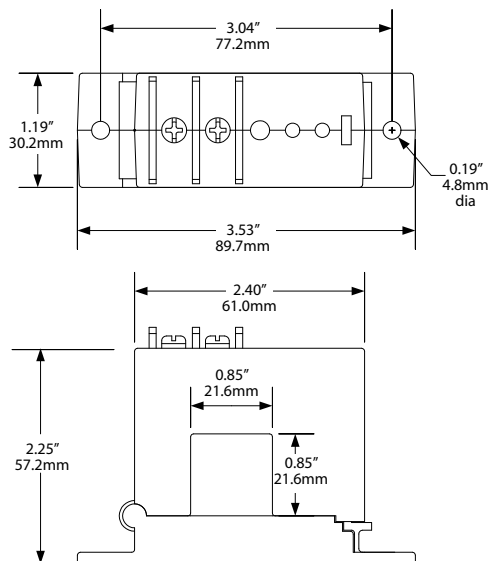
Free program expedites evaluation process. See page 1 for details.

## AC Current Transducer Dimensions

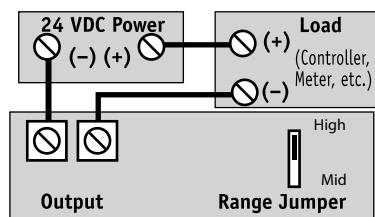
FT Case



SP Case



## AC Current Transducer Connections



4-20mA

Notes:

Deadfront captive screw terminals (-SP case).

12-22 AWG solid or stranded.

Observe polarity.

## AC Current Transducer Specifications



|                          |                                                                                                                       |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Output Signal</b>     | 4-20 mA, Loop-powered, True RMS                                                                                       |
| <b>Output Limit</b>      | 23 mA                                                                                                                 |
| <b>Accuracy</b>          | 1.0% FS                                                                                                               |
| <b>Response Time</b>     | 600 ms (to 90% step change)                                                                                           |
| <b>Frequency Range</b>   | 10-400 Hz                                                                                                             |
| <b>Power Supply</b>      | 24 VDC nominal, 12-40 VDC max.                                                                                        |
| <b>Isolation Voltage</b> | UL listed to 1270 VAC, tested to 5 KV                                                                                 |
| <b>Input Ranges</b>      | Field-selectable ranges from 0-200 A; custom ranges available; consult factory.                                       |
| <b>Sensing Aperture</b>  | <ul style="list-style-type: none"> <li>-FT Case: 0.74" (19 mm) dia.</li> <li>-SP Case: 0.85" (21.6 mm) sq.</li> </ul> |
| <b>Case</b>              | UL94 V0 Flammability Rated                                                                                            |
| <b>Environmental</b>     | -4 to 122°F (-20 to 50°C)<br>0-95% RH, non-condensing                                                                 |
| <b>Listings</b>          | UL 508 Industrial Control Equipment (USA & Canada), CE                                                                |

## AC Current Transducer Ordering Information

Sample Model Number: ATR1-420-24L-SP

True RMS AC current transducer, 10/20/50 A ranges, 4-20 mA output, 24 VDC loop-powered in a split-core case.

ATR (1) - (2) - (3) - (4)

(1) Full Scale Range

|   |                 |
|---|-----------------|
| 0 | 2, 5 A          |
| 1 | 10, 20, 50 A    |
| 2 | 100, 150, 200 A |

(2) Output Signal

|     |         |
|-----|---------|
| 420 | 4-20 mA |
|-----|---------|

(3) Power Supply

|     |                                           |
|-----|-------------------------------------------|
| 24L | 24 VDC Loop-powered (4-20 mA output ONLY) |
|-----|-------------------------------------------|

(4) Case Style

|    |                       |
|----|-----------------------|
| FT | Solid-core, Top Term. |
| SP | Split-core            |

