

# APN-R SERIES

## Power Monitors

The APN-R Series Power Monitors measure three phases of current and voltage and computes 14 values necessary to track power usage. These monitors use flexible current sensors to measure the amperes, and the line voltage connects directly to the transducer, up to 600 VAC. The result is 14 data points in the RS485 **Modbus RTU** format. There is also a pulse contact which opens and closes as watt hours are accumulated. The APN-R is factory configured with specifically matched flexible coils. The ease of installation over multiple conductors or bus assemblies will speed installation and produce an accurate set of data to help you identify areas of excessive energy consumption and allow intervention to reduce demand.



### Power Monitoring Applications

#### Plant Energy Management

- Measure the power usage of a single piece of equipment, an area of a plant, or the entire facility.

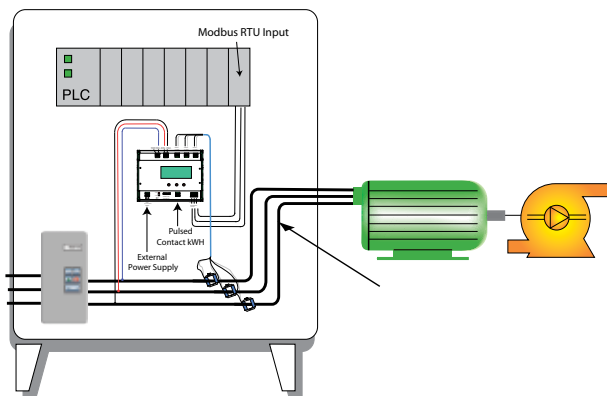
#### Conveyors

- Detect jams and overloads.
- Check that the belt is loaded properly by measuring the power consumption.

#### Pump Monitoring

- Detect dry run from clogged, intake, or discharge line.
- Monitor impeller cavitation and bearing wear.

Pump Jam & Suction Loss Protection



### Power Monitoring Features

#### Modbus RTU Output

- RS485 communication protocol reduces the cost involved with proprietary data logging software.
- Compatible with most automation systems.

#### Externally Powered

- Improves reliability when used in conditions where power interruptions and voltage sags are common.

#### Compact DIN Rail\* or Panel Mounted

- Clearly labeled terminals provide quick installation.
- Low profile reduces cabinet depth requirements.

#### LED Displays Network Communication

- Provides quick visual indication that network is operational.

#### Finger Safe Terminals

- Safe and secure connectors.

#### UL/cUL Approved

- Accepted worldwide.

\*For information on the DIN rail accessories kit, see page 147.

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

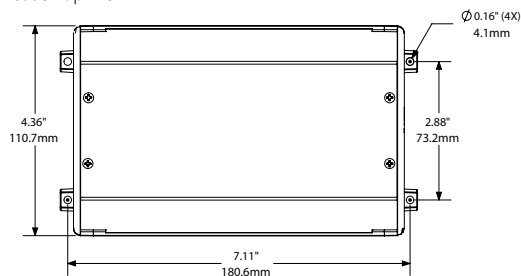


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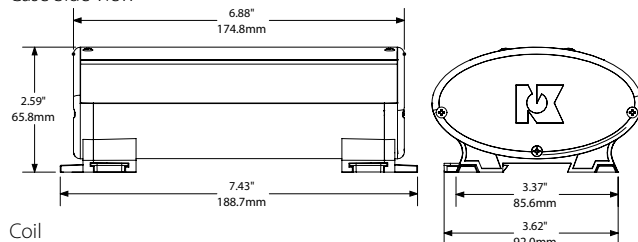
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### Power Monitoring Dimensions

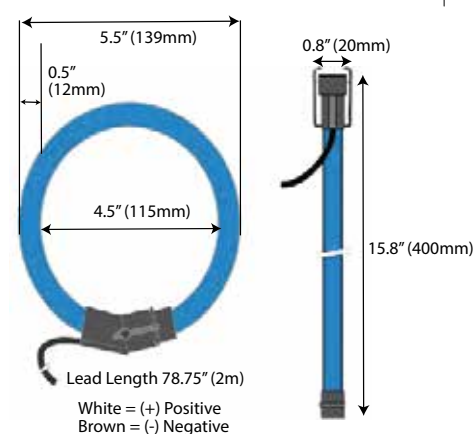
Case Top View



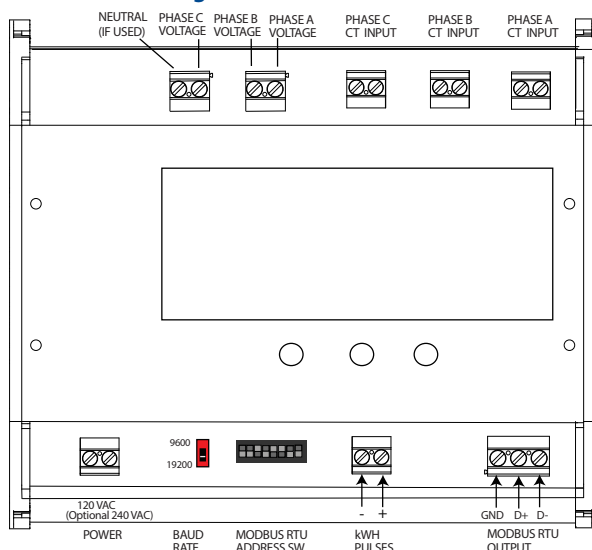
Case Side View



Coil



### Power Monitoring Connections



### Power Monitoring Specifications



<b>Power Supply</b>	<ul style="list-style-type: none"> <li>• 24 VAC/VDC +/-10%</li> <li>• 120 VAC +/-10%</li> <li>• 240 VAC +/-10%</li> </ul>
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>• 24 VAC/VDC: &lt;180 mA</li> <li>• 120 VAC: &lt;50 mA</li> <li>• 240 VAC: &lt;25 mA</li> </ul>
<b>Measurement</b>	2000 A
<b>Primary Voltage</b>	100 to 600 VAC
<b>Output</b>	<ul style="list-style-type: none"> <li>• <b>Modbus RTU</b> - 14 Data Points</li> <li>• Pulsed Contact KWH</li> </ul>
<b>Accuracy</b>	<1% (10 – 100% of range)
<b>Response Time</b>	120 ms
<b>Isolation Voltage</b>	UL listed to 5400 VAC
<b>Frequency Range</b>	50/60 Hz
<b>Case</b>	UL94 V-0 Flammability Rated
<b>Environmental</b>	-4 to 122°F (-20 to 50°C) 0–95% RH, non-condensing
<b>Listings</b>	UL/cUL

### Power Monitoring Data Point Table (Modbus)

	Phase A	Phase B	Phase C	Type
<b>Current</b>	●	●	●	RMS
<b>Voltage</b>	●	●	●	RMS
<b>kW</b>	●	●	●	Active
<b>Power Factor</b>	●	●	●	Instantaneous
<b>Power Factor</b>	–	–	–	Average
<b>kWH</b>	–	–	–	Total

### Power Monitoring Ordering Information

Sample Model Number: APN-600-RC1-120-MOD  
 AC power monitor, 600 VAC maximum input, flexible current inputs (0–500 A range), 120 VAC powered, RS485 **Modbus** output with pulse contact for kWH.

APN – (1) 6 0 0 – (2) – (3) – (4) M O D

(1) Maximum Primary Voltage

600	600 VAC
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(2) Current Input Type

RC1	Flexible coil sensors 0–500 A range
RC2	Flexible coil sensors 0–2000 A range

(3) Rating Power Supply

24U	24 VAC/VDC
120	120 VAC
240	240 VAC

(4) Output Type

MOD	<b>Modbus RTU</b> (RS485), pulse contact for kWH
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#### Test & Evaluation Units for OEMs

Free program expedites evaluation process. See page 3 for details.