PDA6420

Split Core AC Current Transducer 30/60/120 AAC: 4-20 mA

FEATURES

- Loop-Powered
- Nonintrusive Conversion of 30/60/120 AAC to 4-20 mA
- Split Core Convenience
- Compact Design
- +/-2% Full Scale Accuracy from 10% to 100% of Selected Range
- Field Mounting Tabs Provided

c UL us LISTED CE

OVERVIEW

The PDA6420 loop-powered split core AC current transducer converts the AC current flowing through a cable or wire to a 4-20 mA signal and can be set up in the field to handle inputs of 30, 60, or 120 AAC. This nonintrusive device features split core convenience for easy installation and is a cost-effective solution for monitoring load or proof of operation. The current transducer is ideal for monitoring current loads on pumps, driving fans and blowers, and sensing the status of heating coils and lighting. When used for load trending over time, they are effective sensors for predictive maintenance programs. The PDA6420 is a loop-powered device requiring 24 VDC power that can be provided by many Precision Digital meters or by the Precision Digital PDA1024-01 24 VDC power supply.

IMPORTANT: The PDA6420 is intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the current transducer device could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn or protect against failure or malfunction of the current transducer device.

SPECIFICATIONS

Current Range: 30/60/120 AAC (selectable)
Continuous Operating Current: 30/60/120 AAC
Output: 4-20 mA
Accuracy: +/- 2% full scale from 10 to 100% of selected range
Response Time: 2 seconds to 100% of selected range
Transducer Power Requirement: 18 to 30 VDC
Wire Size: 12 to 22 AWG (2.1 to 0.6 mm) diameter recommended
Isolation Voltage: 600 VAC rms
Temperature Range: -15 to 60°C
Frequency Range: 50/60 Hz
Humidity Range: 0 to 95% RH, noncondensing
Screw Torque: 4 lb·in (0.5 N·m)
Dimensions: 2.56" x 2.72" x 1.06" (65 mm x 69 mm x 27 mm) (W x H x D)
Aperture (Sensing Hole) Size: 0.71" x 0.79" (18 mm x 20 mm)
Approvals:
United States: UL Listed, File E310692, CCN NRNT, Under UL 508 Industrial Control Equipment.
Canada: UL Listed, File E310692, CCN NRNT7, Under CAN/CSA C22.2 No. 14-05 Industrial Control Equipment.
CE: EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC
Weight: 4.8 oz (136 g)

INSTALLATION

WARNING: Risk of Electrical Shock. Disconnect the power supply before making electrical connections. Contact with components carrying hazardous voltage can cause electric shock and may result in severe personal injury or death.

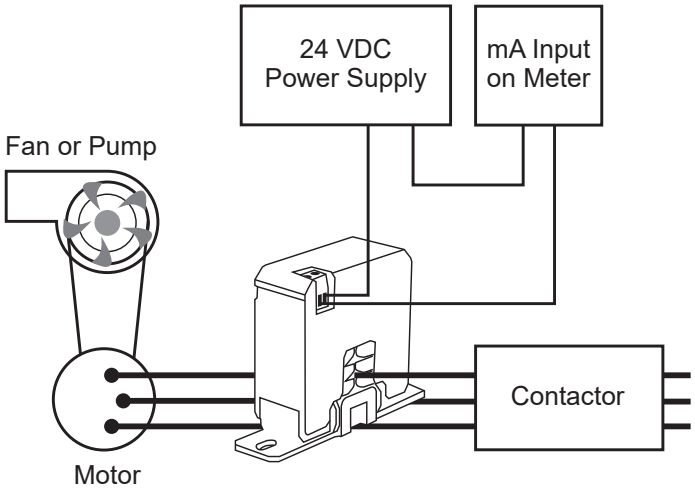


Figure 1: Measuring Current Using PDA6420 Current Transducer

WIRING

1. Disconnect the conductor cable from the power source.
2. Snap the split core around the power conductor cable and close the core until the core snaps shut.
3. Wire the PDA6420 4-20 mA output terminals to desired device per Figure 5 or 6.
4. Select the input current range at the front panel slide switch per Figure 4.
5. Reconnect the power conductor cable. See Figure 1 for a wiring example.

If the measured current is too low to be detected or it is higher than the maximum current rating of the PDA6420, use the following methods to increase or decrease the current:

If Measured Current is Too Low to Be Detected

Wrap the conductor (wire) through the sensing hole and around the PDA6420 body to produce multiple turns to increase the measured current. The measured current is equal to the actual current multiplied by the number of turns (Figure 2).

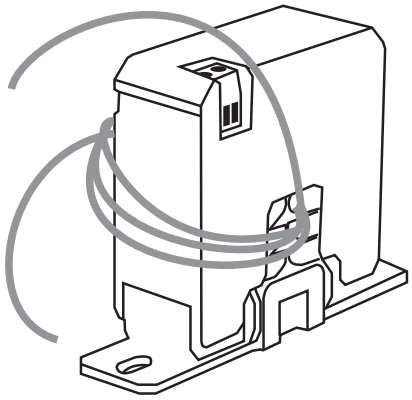


Figure 2: PDA6420 Current Transducer Shown with Four Turns

The controller must be scaled to account for the extra turns. If four turns pass through the transducer as shown in Figure 2, the normal controller reading must be divided by 4.

IMPORTANT: Failure to derate the current capacity could result in damage to the PDA6420 when using multiple turns to increase the measured current. Use the following formula to determine the new maximum current:

Example: *If the new maximum current is equal to the PDA6420 current rating of 120 A, then:*

Maximum Current = 120 A / 4 = 30 A

To Monitor Currents Exceeding the Maximum Current Rating of the PDA6420

For currents greater than 120 A, proceed as follows:

1. Use the appropriate Precision Digital Model PDA6405 5 A Current Transformer to reduce the current passing through the PDA6420 Current Transducer. (Figure 3)
2. Run the PDA6405 secondary wire through the sensing hole.
3. Terminate the two secondary wires of the PDA6405 5 A Current Transformer to each other, and then install the PDA6405 on the monitored conductor.
4. Set the PDA6420 to the lowest current range (30 A).

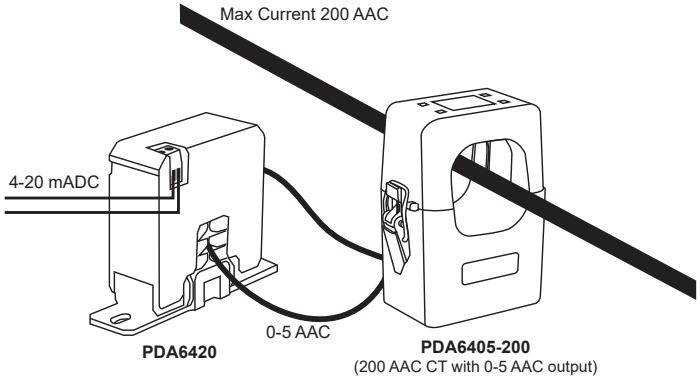


Figure 3: PDA6405-200 stepping down 135 AAC to 5 AAC and sending that signal to PDA6420 Current Transducer where it is converted to 4-20 mA signal

PDA6420 Split Core AC Current Transducer 30/60/120 AAC: 4-20 mA

SETUP

Setting the Current Range

Position the current range slide switch to a level consistent with the load:

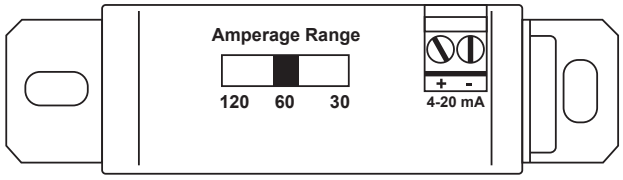


Figure 4: Current Setting Switch

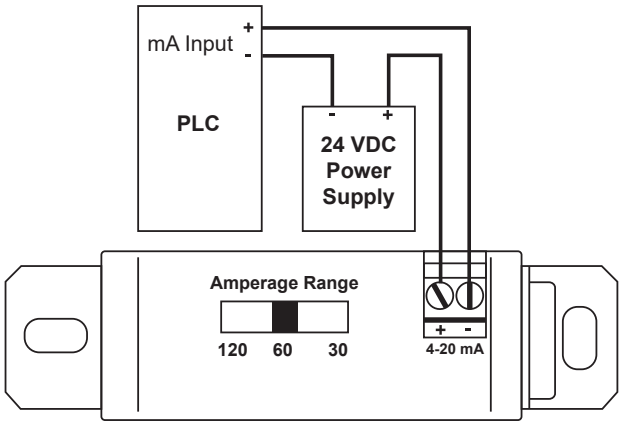


Figure 5: PDA6420 being powered by external 24 VDC power supply such as Precision Digital model PDA1024-01.

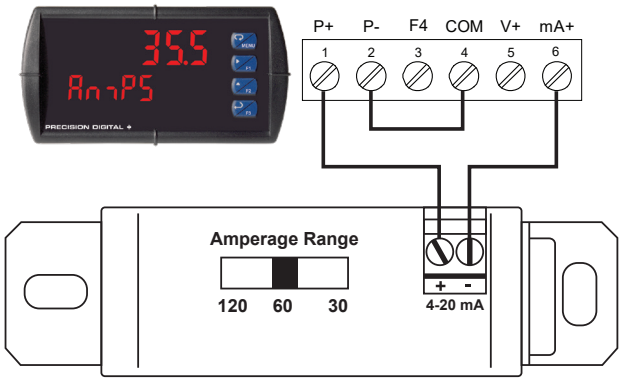
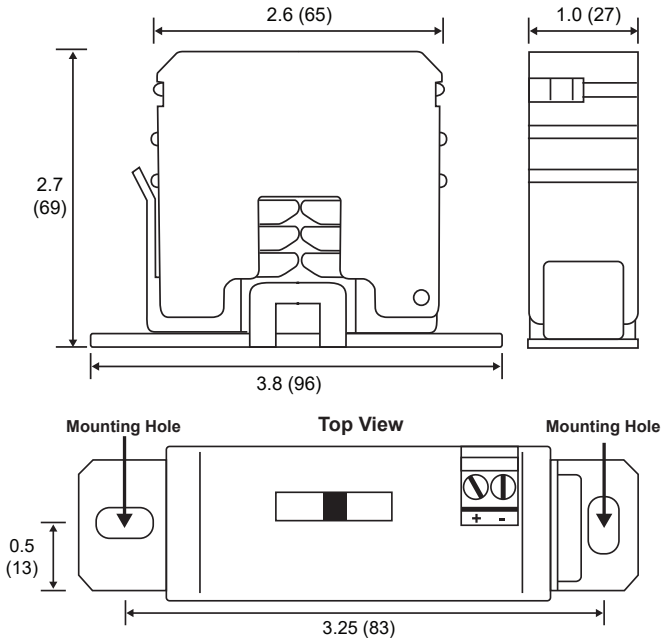


Figure 6: PDA6420 being powered by the Precision Digital PD6000. PD6000 is displaying the current being measured by the PDA6420.

DIMENSIONS

Units: Inches (mm)



Mounting

1. Use the two screws (included) to attach the mounting bracket to the back of the electrical enclosure.
2. Snap the PDA6420 into place on the mounting bracket.

ACCESSORIES

24 VDC Transmitter Power Supply

Precision Digital meters can provide the 24 VDC to power the PDA6420 Current Transducer. However, for applications where an external power supply is preferred, Precision Digital offers the PDA1024-01 24 VDC power supply.

Split Core AC Current Transformers

For applications to measure more current than the PDA6420 can handle, Precision Digital offers the PDA6405 line of Current Transformers to step down the current to 5 AAC.

ORDERING INFORMATION

Model	Description
PDA6420	Current Transducer 30/60/120 AAC: 4-20mA

Accessories	
Model	**Description**
PDA1024-01	24 VDC Power Supply for DIN Rail
PDA6405-XXX*	Current Transformer with 0-5 AAC Output

*See data sheet for Current Transformer ranges

LIM6420_A 02/19

PRECISION DIGITAL CORPORATION
233 South Street • Hopkinton MA 01748 USA • Tel (800) 343-1001 • Fax (508) 655-8990
www.predig.com