PANUCATT DEVICES
meters | controllers | sensors

WWW.PANUCATT.COM

CS-45AL

Open Loop Hall-Effect Current Sensorl

The CS-45AL is a Hall effect current sensor capable of measuring Bi-directional current flow. These devices can be used in AC and DC systems requiring isolation from the measured circuit. It features zero insertion loss and very small footprint. It's non-invasive type of measuring make it extremely easy to deploy in most applications.

Features and Benefits

- Measures Bi-directional AC and DC currents
- Fast response time
- High isolation from measured circuit
- 5V single supply operation
- Non-Invasive installation
- Analog output proportional to measured current
- Zero insertion loss
- Easy to deploy with most uController systems

Applications

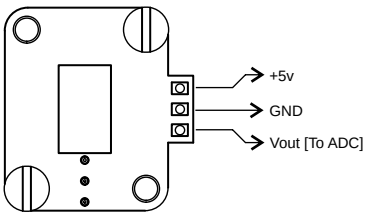
- Battery Chargers and Power supplies
- High current RC and Robotic battery systems
- Motor Control and Load detection
- Solar / Wind powered systems
- Automotive audio equipment
- Telecom Power supplies
- 2-way radio equipment
- Power management systems
- RV and other recreational vehicle battery systems

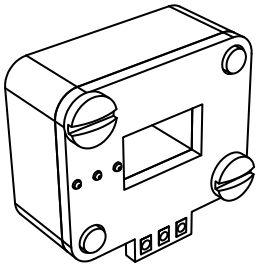
Typical Characteristics

- Product Type: Inductive Analog Current Sensor
- Sensed Current Type: AC/DC
- Current Range: ±45Amps
- Sensitivity: 17mv/A/pass ±3.5 mV @5v Vcc
- Supply Current: 11ma
- Supply Voltage: 4.5 to 10.5 VDC
- Offset Voltage: Vcc/2
- Response Time: 3uS
- Operating Temperature: -25 °C to 85 °C
- Max Wire Gauge Accepted: AWG #8

Sensitivity of the device is referenced from a supply of 5volts, if a different voltage is used the sensitivity can be calculated by feeding a known current source and using the formula on the next page.

Product Views





CS-45AL
Open Loop Hall-Effect Current Sensorl

Typical Application

The CS_45AL current sensor outputs an analog voltage(Vout) in linear proportion to the current flowing across the sensor. This output voltage can then be monitored by an Analog to Digital converter (ADC). Vout is typically ½ that of the Vsupply(Vcc) with zero current flowing through the board, Vout increases from ½ Vcc with a forward current flow and decreases with reversed flow (see FIG. 1). The amount of voltage increment per Ampere of flowing current is the device Sensitivity.

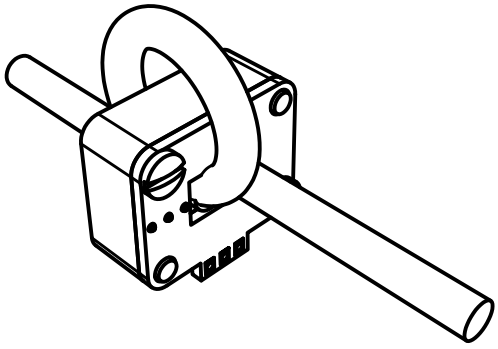
Vout = 1/2(Vcc) + (Current)Sensitivity or Current = Vout - 1/2(Vcc) / Sensitivity

Example: Vcc=5v, Current=40Amps, Sensitivity=17mv/Amp/pass

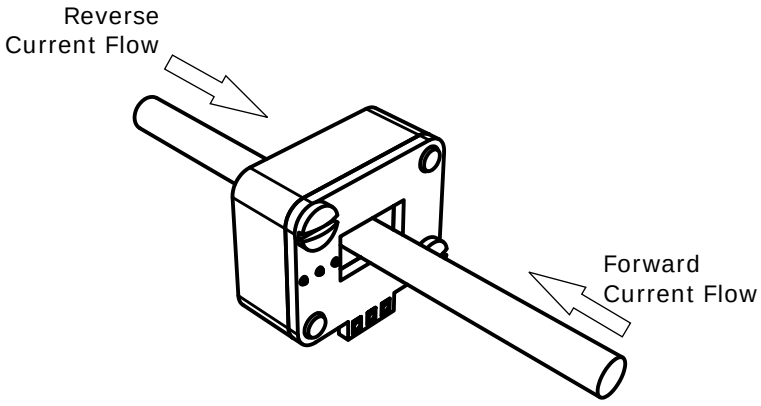
Vout = 1/2(5) + (40)(0.017) = 3.18 volts

Simple code for reading current in Arduino™ Environment. Vout connected to ADC1, Vcc=5v

```
Current = ((analogRead(1)*(5.00/1024))- 2.5)/ .017;
```



Multi-Pass wiring(2 pass)



Current Flow Direction
(Single Pass)
FIG. 1

Maximum Wire size: The opening for wire insertion can accept up to #8 Standard gauge wire. Some wires with thicker insulation may not fit.