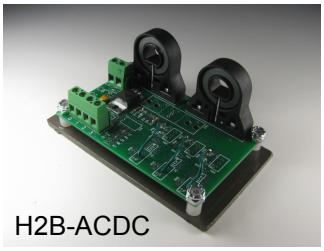
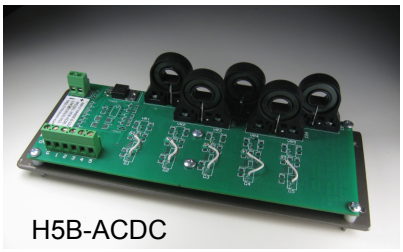
1 Channel Current Sensor



2 Channel Current Sensor

3 Channel Current Sensor



5 Channel Current Sensor

The HXB-ACDC-XX fixed offset, fixed gain series Hall effect current sensor transducer board delivers output voltage proportional to the amount of current detected in the wire being measured.

This type of sensor is often by system designers due to it's ability to provide electrical isolation from the line being monitored and also allows the end user to to strengthen the signal by simply looping the line through the sensor as many times is desired.

The HXB-ACDC-XX series differs from the HA-ACDC-XX series because it has a fixed offset / fixed gain output. It is a low cost solution and is well suited for data logging and instrumentation / data acquisition. This sensor is fed by a precision voltage regulator with a high quality linear response CSLA series Hall effect transducer made by Honeywell.

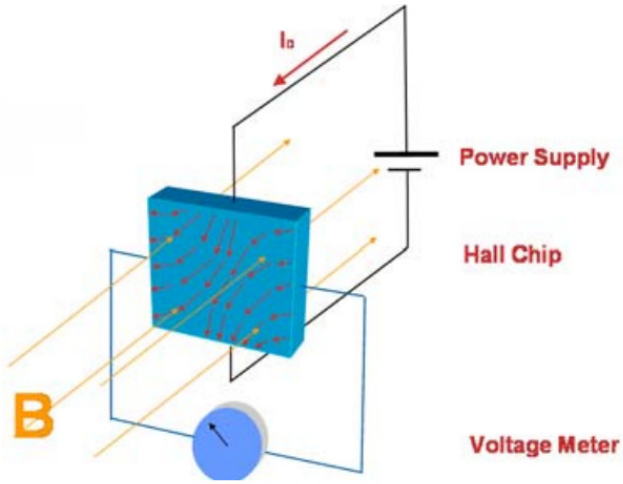
Assembled in the USA, Lead free ROHS compliant. Various mounting options are availble along with different options & Accessories available as a kit. Quantity discounts also available. (For more details see ordering guide)

Features

- Voltage polarity protection on supply excitation input.
- Wide input power range
- Linear output
- AC or DC current sensing
- Over current protection
- Fast response time
- Output voltage isolation from input
- Minimum energy dissipation
- Maximum current limited only by conductor size
- Adjustable performance and built-in temperature compensation assures reliable operation
- Accurate, low cost sensing
- Operating temperature range -25 °C to 85 °C
- Sturdy open frame mounting

Typical Applications

- Data Acquisiton hw / sw inlcuding LabVIEW
- Solar panel monitoring
- Bicycle generator monitoring
- Wind turbine monitoring
- Battery charging
- Variable speed drives
- Overcurrent protection
- Ground fault detectors
- Current feedback control systems
- Robotics
- UPS and telecommunication power supplies
- Welding power supplies
- Automotive - Battery management systems
- Wattmeters



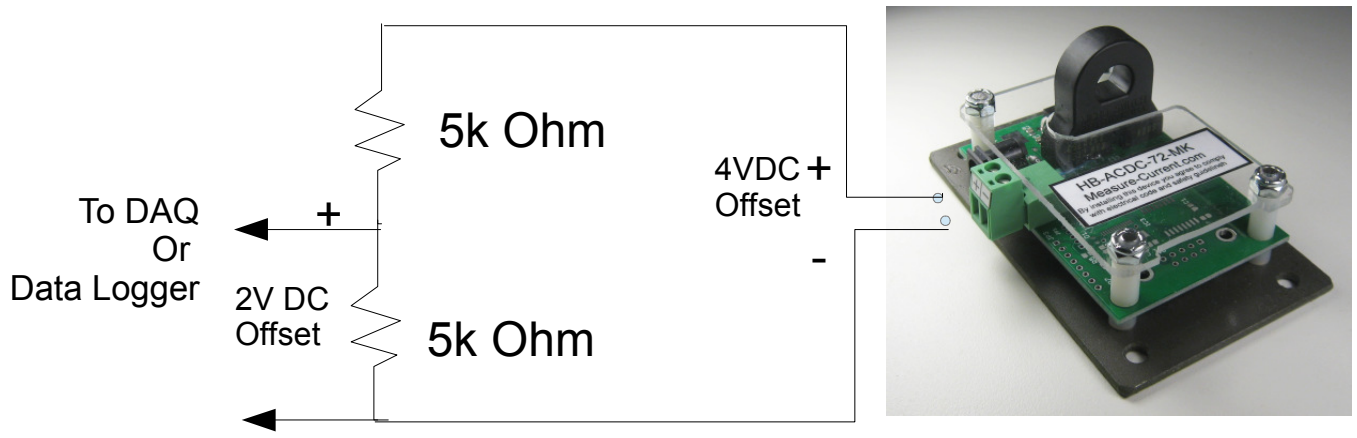
SPECIFICATIONS

Product Type	Inductive Analog Current Sensor
Sensed Current Type	ac or dc
Sensed Current Range	HxB-ACDC -72 ±72 A HxB-ACDC -125 ±125 A
Package Type	PCB Bottom Mount
Output Type	HxB-ACDC -72 ~ 1.64 to 6.35 HxB-ACDC -125 ~ 1.55 to 6.45
Sensitivity (N = Number of Turns)	HxB-ACDC -72 32.7 mV N ±3.0 mV N HxB-ACDC -125 19.6 mV N ±1.3 mV
Default Offset Output (Zero Amps)	4.0 DC ± 0.15
Supply Current	20 mA max.
Supply Voltage (Input excitation voltage range)	6.0 Vdc to 12.0 Vdc
Power Connector	2.5mm ID power plug or screw terminals
Offset Shift	±0.02
Response Time	3 µs
Operating Temperature	-25 °C to 85 °C [-13 °F to 185 °F]
Storage Temperature	-40 °C to 100°C [-40 °F to 212 °F]
Sensor Housing Material	PBT Polyester
Mounting	Screws into panel or DIN rail option
Availability	Global
Weight	3.4 oz mounted to plate 1.4 oz not mounted
Series Name	HB-ACDC-XX
Sensor Inside Dimensdion	0.43”

Note: This sensor outputs an AC signal for AC Current measurements.

APPLICATION NOTES:

- When monitoring purely AC current with zero DC component, a capacitor can be inserted in series with the output of the current sensor. The capacitor will block out the effect of the temperature variation of the offset voltage which increases the accuracy of the device.
- If your data acquisition has an analog input range smaller than the output range of the HB-ACDC sensor then you can use two 5k resistors in a voltage divider configuration to divide down the signal by half. Ses voltage divider schematic diagram below.



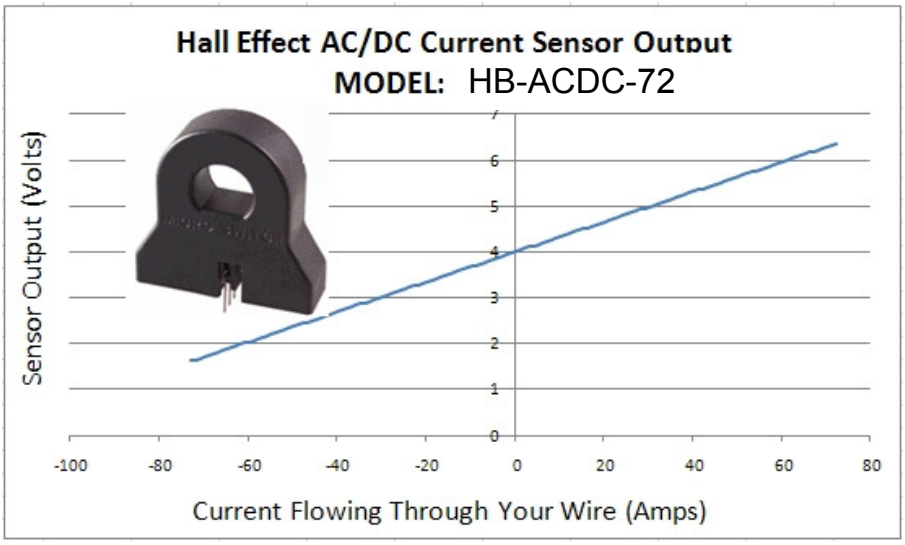
Dividing signal down using 10k Ohm voltage divider circuit

In the case above the default offset voltage will be ~2.0 VDC and the transducer sensitivity will be half of the value shown in the specifications. For example, if it is a HB-ACDC-72 we are looking at the following behavior will occur:

Sensor Output		Approx. Current
2.000 V	=	~0.0 Amps
2.016 V	=	~1.0 Amps
1.084 V	=	~-1.0 Amps
2.032 V	=	~2.0 Amps
2.320 V	=	~20 Amps

Note:

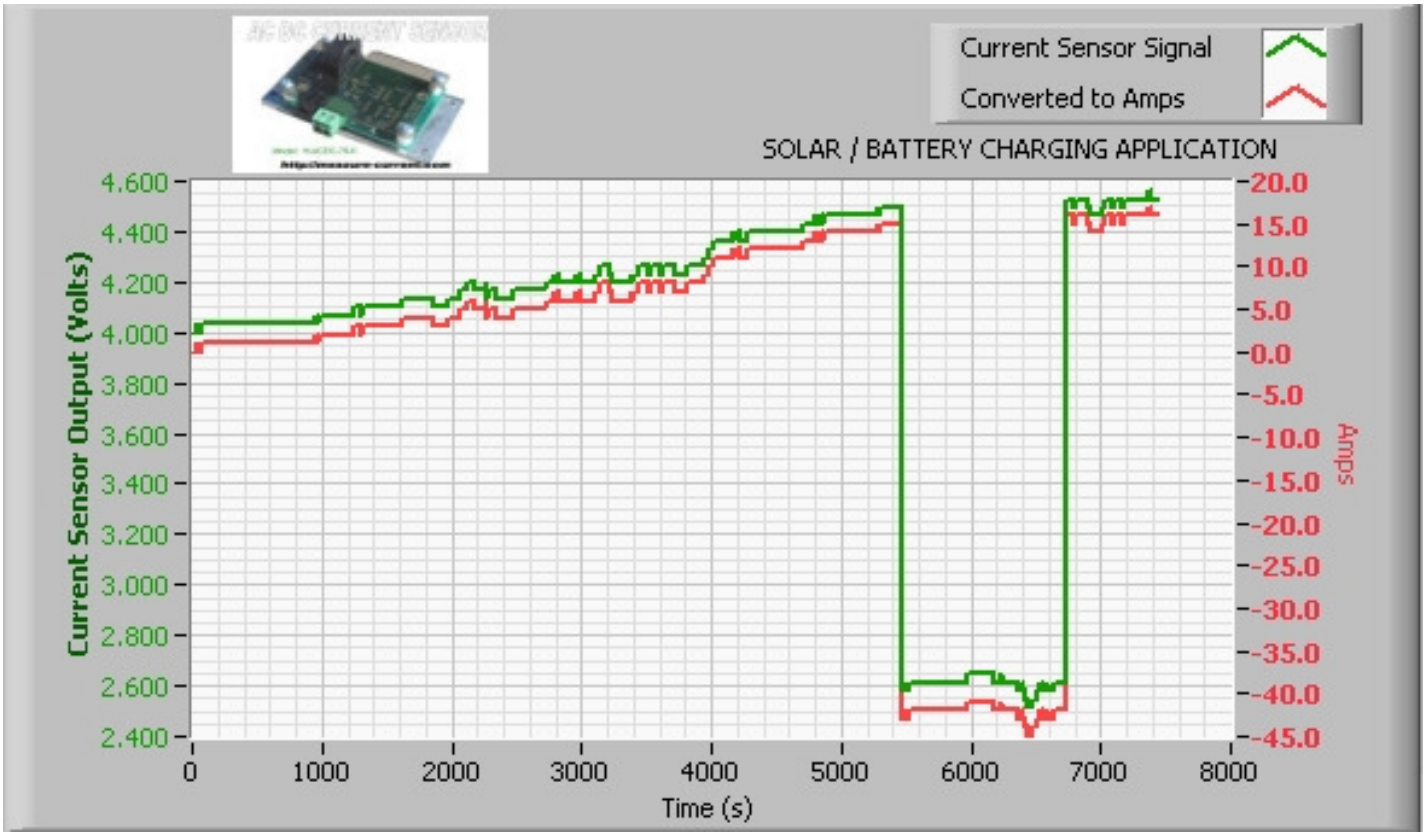
If a variable division control is desired then use a 10k potentiometer in the circuit above. If you need help with setting this up contact support@measure-current.com or dial the number on the website.



ANALYSIS of EXAMPLE DATA FROM SENSOR

Below you can see data from a solar panel / battery charging application. The green trend line represents data from the sensor. The red trend line has been converted to Amps using the following linear equation. Amps = (Vsensor - 4.0) / ~32mV for the HB-ACDC-72 model.

As the sun comes up, current slowly flows into the batteries rising from 4 Volts DC to 4.5V DC. This corresponds to a current range of Zero amps up to 16 Amps shown in red on the right side of the graph.



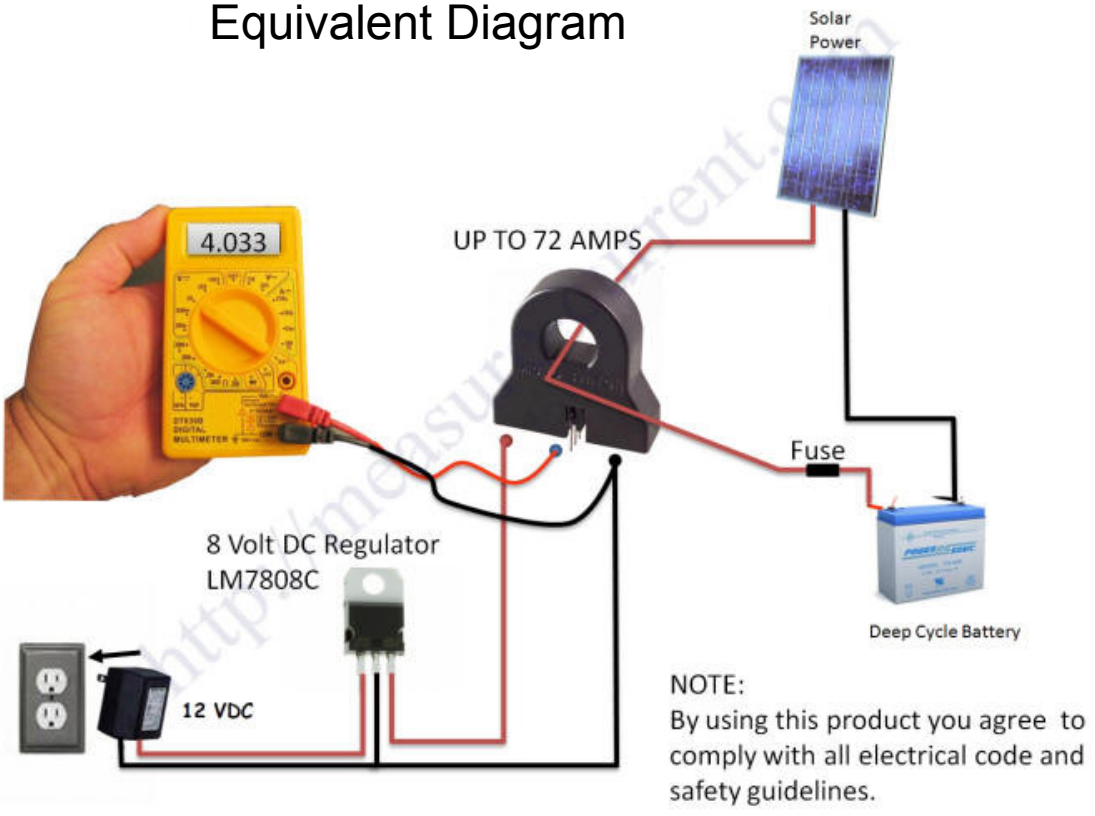
Example Data Cont'd

When someone in the home turns on an electric appliance then the current goes negative down to 2.6 Volts DC because it changes direction as it flows from the batteries into the House AC inverter which could be powering something like a refrigerator or washing machine.

A value of 2.6 Volts DC output converts to a current value of ~ -45 Amps. Assuming these batteries are setup in a 24 Volt configuration, then you could use this current measurement to approximate how much power your batteries are putting out. In this case it would be about 1,080 Watt power output to the inverter.

(24V X 45A = 1080 Watts)

Equivalent Diagram



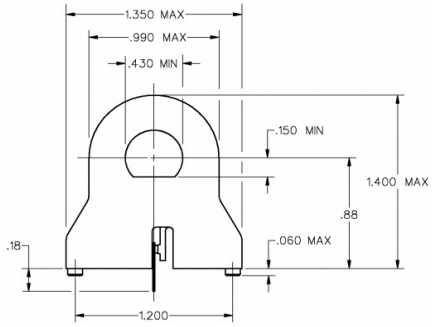
In this diagram the HB5-ACDC-72 is connected to a Volt meter which reads 4.033 which is the equivalent of about 1 Amp of current.

HB SERIES – FIXED OFFSET, FIXED GAIN ORDERING GUIDE

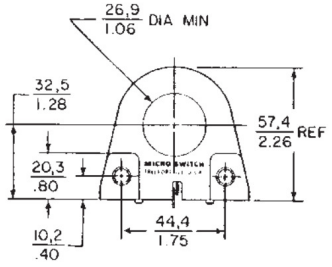
Model (Part Number)	Current Range	Number of Sensor Channels	Includes Mounting Kit Plate (MK)	Includes 12DC Power Supply (PS)	Din Rail Compaitible PSE-BRKT-2 (DIN)
HB-ACDC-72	-72 to +72	1			
HB-ACDC-72-MK	-72 to +72	1	✔		
HB-ACDC-72-MK-PS	-72 to +72	1	✔	✔	
HB-ACDC-72-DIN	-72 to +72	1			✔
HB-ACDC-125	-125 to +125	1			
HB-ACDC-125-MK	-125 to +125	1	✔		
HB-ACDC-125-MK-PS	-125 to +125	1	✔	✔	
HB-ACDC-125-DIN	-125 to +125	1			✔
HB-ACDC-950	-950 to +950	1			
H2B-ACDC-72-MK	-72 to +72	2	✔		
H2B-ACDC-125-MK	-125 to +125	2	✔		
H3B-ACDC-72-MK	-72 to +72	3	✔		
H3B-ACDC-125-MK	-125 to +125	3	✔		
H5B-ACDC-72-MK	-72 to +72	5	✔		
H5B-ACDC-125-MK	-125 to +125	5	✔		

Hall Effect Sensor Dimensions

HxB-ACDC-72
HxB-ACDC-125
(0.43” inside diameter)

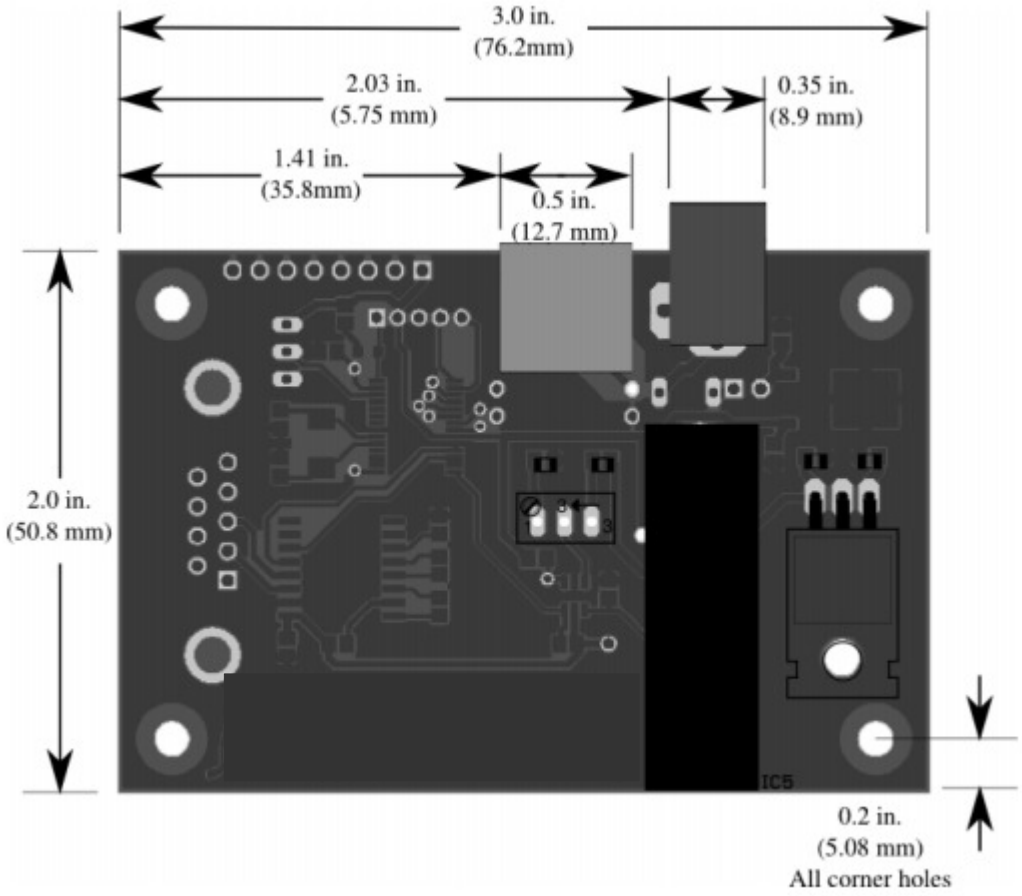


HxB-ACDC-950
(1” inside diameter)



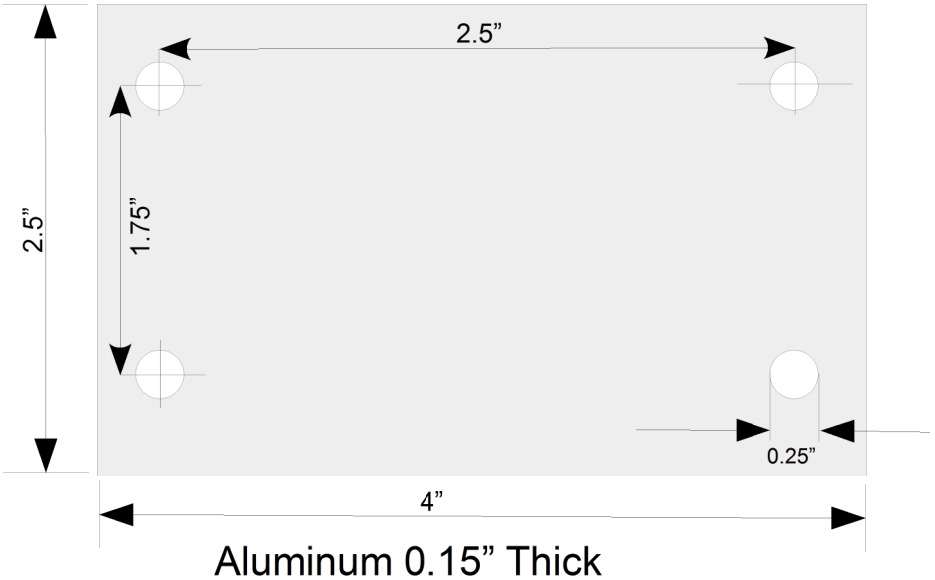
DIMENSIONS

HB-ACDC-72
HB-ACDC-125



MOUNTING PLATE DIMENSIONS

HB-ACDC-72
HB-ACDC-125



Aluminum 0.15” Thick

Engineering Sales & Support

CUTOM CIRCUIT BOARD DESIGN AND PRODUCTION

Measure.com is owned and operated by BDW Enterprises Llc. which delivers custom circuit board design with embedded options such as FPGA compact Rio or PIC micro controller. If you would like one circuit board with 10 current sensors, 20 current sensors, or even more, we can accommodate your need.

CUSTOM VOLTAGE MONITORING CAPABILITY

We also offer isolated voltage monitoring using off the shelf isolation componets. This would allow you to monitor voltage and current to get Watts (Power measurement). More information listed at http://WattsVIEW.com

CUSTOM LabVIEW SOFTWARE APPLICATION DEVELOPMENT

LabVIEW development services are also available for creating robust monitoring and control applications for Windows, MAC, or Linux. These include but are not limited to:

- Real time data acquisition and signal processing
- Data streaming to structured log files or SQL database
- Power factor power analysis, Volts, Amps, Watts, Amp Hours, KWH calculations
- High speed data manipulation
- Solar power monitoring
- Wind Turbine power monitoring.

Contact us now by going to http://measure-current.com and call the number listed under “Contact”