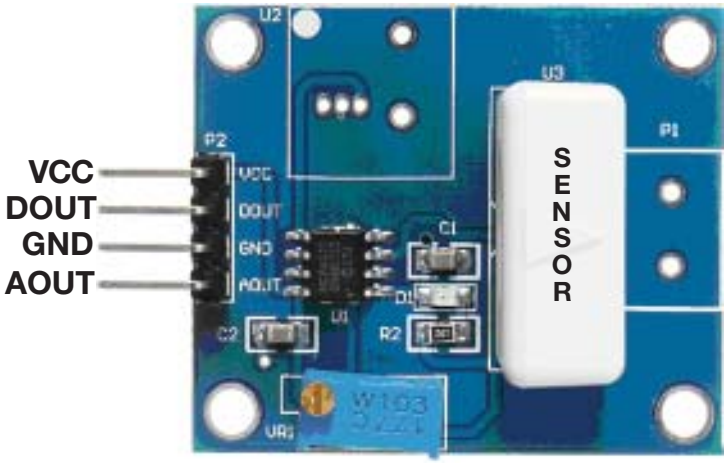
# 36213-MP

**WCS1800 ± 35A DC, 25A RMS Over Current Sensor & Alarm**

## 1: Specifications

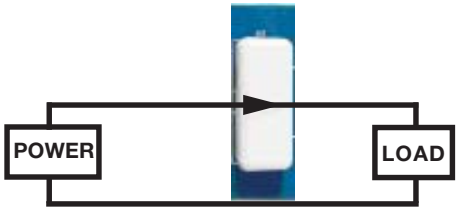
Power: 5VDC
Current Detection Range: ± 35A DC/25A AC RMS
Analog Output: +- 60mV/A Centered on 1/2 Vcc
(Gnd. + 0.03mV to Vcc-0.3mV)
Sensitivity: K = 60mV/A;
Current Alarm Range: Adjustable 0.5A-35A
Digital Out: ~15mA/TTL level with LED Indicator
Sensor Isolation Voltage: 4KV
Temperature Range: -20°C to +125°C

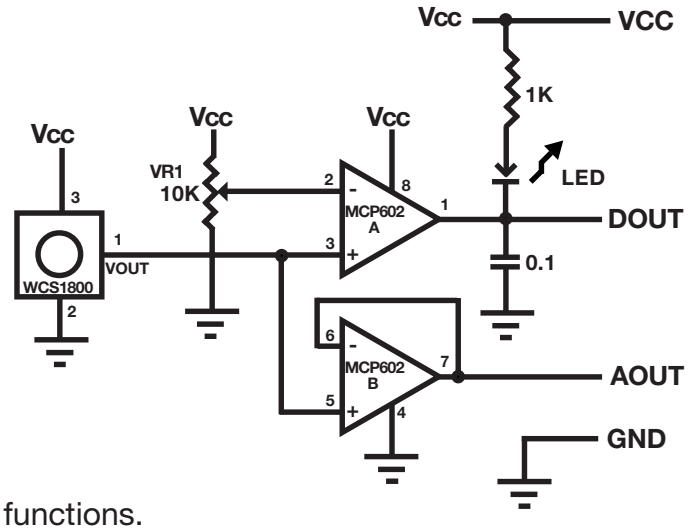



## 2: Connections:

**VCC:** Positive of power supply
**DOUT:** TTL level signal output
**GND:** Negative of power supply
**AOUT:** Analog Output
(mV/A Signal Voltage output)

**SENSOR: Place a lead from the Load You want to monitor Through the Hole in the Sensor**




## 3: Overview

The WCS1800 Hall current sensor module has two functions.

1: Generate an analog signal for external A/D conversion (Arduino, Raspberry-Pi etc.).
2: Output an Digital TTL signal, when a preset adjustable current limit is exceded.
The Digital output, can be connected to a microcontroller I/O port
When the actual current value is greater than the preset current value (Current > than Set Value), DOUT will switch from low to a high level and the LED indicator will go **OUT**

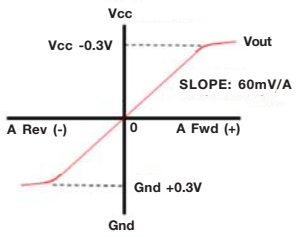


**MARLIN P. JONES & ASSOC., INC.**
P.O. Box 530400 Lake Park, Fl 33403
800-652-6733 FAX 561-844-8764
WWW.MPJA.COM

# 36213-MP

**WCS1800 ± 35A DC, 25A RMS Over Current Sensor & Alarm**

**ANALOG TRANSFER FUNCTION**




## 4: Operation

### 1: Analog Output (AOUT):

**Suitable as Input Signal for microcontroller ADCs**

The relationship between the detection current & the analog signal output:

Analog signal output: V0 = Vcc/2 ± Ia x K

(Ia is the current flowing through the Sensor, K is Sensitivity);

**1:** Using an input current of 1A as an example: Vcc = 5V, the Sensitivity of WCS1800 is 60mV/A

A: When current flows in the Positive direction:

V0 = Vcc/2 +Ia x K, Output: V0 = (2.5 + 0.06) V = 2.56V)

B: When current flows in the opposite direction:

V0 = Vcc/2 -Ia x K. (Output: V0 = (2.5-0.06) V = 2.44V)

C: When current is AC RMS : V0 = Vcc/2 +- Ia * K,

V0 corresponds to the output range: 2.44V-2.56V

The above are ideal values, actual values will have a slight accuracy error.

### 2: Digital Output (DOUT)

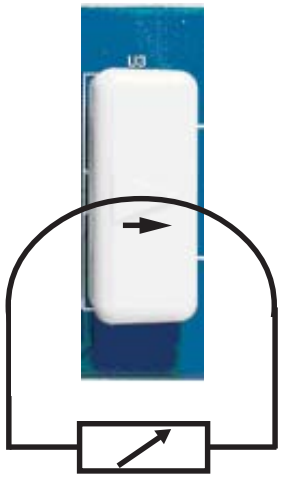
**Simple Setup:**

**1:** Connect to your load operating at normal current

**2:** Turn the adjustable resistor (VR1) counterclockwise until the Red LED goes Out (Over Current)

**3:** Back VR1 off slightly until the LED Comes back On

If the current increases above nominal current DOUT goes High & LED goes Out




**Calibrated Setup:**

To adjust the trigger level to a prescise value:

**1:** Pass a calibration (Cal) wire through the Sensor center hole.

NOTE the direction Arrow on the Sensor. This will be the Forward direction

**2:** Power the Module

Apply a current to the Cal wire from an external source, equal to the trip point you want.

Turn the adjustable resistor (VR1) counterclockwise until the Red LED Lights.

This completes High Current Alarm Setup. turn off all power and remove Cal. wire.

**3:** Install in the circuit you wish to monitor.

**4:** When the current exceeds the reference value you have set, The LED will go out.

DOUT will switch from a Low to a High.


**MARLIN P. JONES & ASSOC., INC.**

P.O. Box 530400 Lake Park, Fl 33403

800-652-6733 FAX 561-844-8764

WWW.MPJA.COM