

Illustration 1: Note: LEDs are Ultra Bright Red (camera error)

4 Digit Customizable Current/Voltage Panel Meter

P/N 1800

Features:

- 4 Digit Ultra Bright Red Display
- Measures current True RMS and +/-DC
- Screw terminal connections
- Nonvolatile current scaling
- Connects directly to Hall Effect Current Sensors
- Single supply +5.3V to 24V operation
- Power consumption ~20 to 40mA
- Customizable
- Unique AC RMS calculation method
- Machined aluminum mounting plate
- Push button mode selection
- Non-reflective optical Red Filter

Applications:

- Monitoring current
- True RMS AC current measurement
- Battery current monitoring
- Voltage Monitoring both AC true RMS and +/-
- Customizable on-board microprocessor

Specifications

Parameter		
Operating Voltage	5.3v to 24v	(maybe ok up to 30Vdc)
Power Supply Current	40 mA Max	(Depends on number of digits lite)
Onboard regulator output voltage	5.0Vdc	
Measurement Range	0 to 5v	
Offset (in Offset Mode)	2.5v	
AC RMS bandwidth	400Hz	
Digit Height	.4"	
Number of Digits	4	
Mounting Plate Dimensions	3.3" x 1.4"	
Suggested Mounting aperture	2.7" x 1"	
Measurement Resolution	10 Bits	
Measurement Speed	2 updates per second	Slowed to reduce blinking
Number sample	400	Averaging or RMS
Input Impedance at Vin	20k/20k	20k to gnd 20k to +5v

Input/Output Pins:

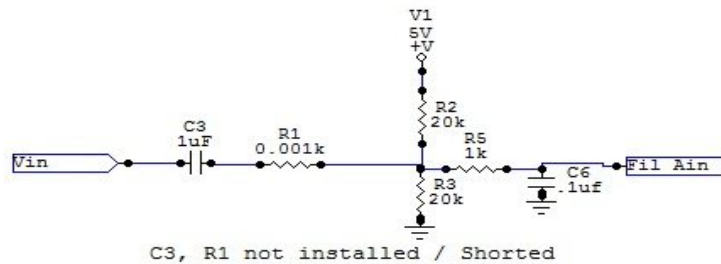
Pin	Name	Function
1	Vin	Input sensing voltage (0 to 5v) analog input
2	Gnd	Unit ground output
3	+5v	+5v output to Hall effect current sensors
4	A7	Analog/Digital input/output for future expansion or customization
5	A0	Analog/Digital input/output for future expansion or customization
1	Gnd	Power Supply Ground input
2	V+	Power Supply DC power input

Description

The devicecraft 4 Digit display was design to operate with the hall effect current sensors. The device can also measure DC voltage with a 0 to 5 volt DC input range. With a 2.5v offset reference the device can measure true AC RMS and +/- 2.5v DC. The current measurement range depends on the type of hall effect sensor chosen. With a IS-4 type sensor the DC current measurement range is +/- 100 Amps DC or 70 Amps RMS.

The device was design for easy panel mounting. The machined aluminum mounting plate is mountable with 2 4-40 flat head screws. 4-40 nuts or a tapped hole configuration can me applied.

Normally shorted, component space has been allotted for adding a series resistor and capacitor. The Series components can be added to reduce the input voltage to the 0 to 5v measurement range. Adding the appropriate series resistor or potentiometer will allow for high voltage measurement. A series capacitor will AC couple the input to float the input to 2.5v nominal for the measurement of AC input signals.



Scale Factor

The devicecraft 4 digit display can readily be connected to various devicecraft 5v hall effect current sensors. Each version of current sensor has a calculated scale factor. The scale factor is in millivolts/Amp. Holding down the toggle switch for more than 5sec will activate the scale factor mode. A scale factor of 1 to 255 mV/Amp can then be entered. Once the desired scale factor has been reach the button is then left open for 5sec and the display will resume operation. The display mode should then be re-entered. The display mode and scale factor are stored in non-volatile EEprom and do not need to be re-entered on power cycling.

Cycling the power will flash display the mode and scale factor.

Modes 0 to 2 do not apply the scale factor. Modes 3 and 4 divide the final calculated voltage my the scale factor.

Example:

IS-7-50A gain 40mv/Amp RMS mode

Hold down mode button 5sec to enter Scale Factor Mode.

Hold down mode button till c040 is reached.

Release button and wait 5sec

Press mode button till (c Ac) is displayed

Cycle power, if desired, to show mode and scale.

Hint!

When looping the wire more than once, though the aperture, the scale can be multiplied to read the correct current.

The scale can also be uses to correct for any gain errors.

Power Supply

The power supply for powering the unit does not need to be accurate. A 5v DC regulator proceeds the DC input voltage, regulating the voltage down to 5.00v. The on-board regulator is current limited to 100mA. The on-board regulator may be bypassed if a 5volt regulator is already in the system.

Mode Table

Mode	Function	
0 s dc	0 to 5v DC voltage sensing	
1 s Ac	RMS AC voltage sensing	2.5v virtual ground
2 s-dc	-2.5v to 2.5v voltage sensing	2.5v virtual ground, below 2.5v negative, above 2.5v positive
3 c-dc	+/- DC current sensing	Customizable scale factor
4 c Ac	AC + DC RMS current sensing	Customizable scale factor