

P1150

WIDE DYNAMIC RANGE CURRENT MEASUREMENT POWER SUPPLY

The P1150 is an essential measurement tool for profiling current of battery powered devices with deep sleep and high current active states. The simple user interface emulates typical bench power supplies and DSOs.

The unique (patented) architecture can measure current over a range of 7 decades (microamps to amps) with no “range” setting. No internal switching of sense elements translates to glitch free real time graphical plots of current versus time.

The P1150 has a sub-1 μ A noise floor and can typically resolve currents to $\pm 1\mu$ A below 100 μ A – without averaging!

The wide dynamic measurement current range means that the target device can run as it would in normal application – no more special software builds that avoid high current states. The high sampling rate and BW displays fast transient (wakeup) events and SMPS pulses.

The P1150 can emulate batteries up to 17V or can be inserted into the target replacing a supply rail.

P1150 is a USB High Speed device.



FEATURES AND BENEFITS

0.5 – 17.0 Volts Output

Emulates common coin cell and Lithium-Ion battery voltages

Wide Dynamic Current Measurement

1 μ A – 3200¹mA

No Shunt Element Switching

*No unwanted artifacts
No “Burden” Voltage*

Two Quadrant Operation

Sink and Source Current

Analog Input/Trigger Channel

Correlate (analog) voltage events to current

Log Axis Plots

Ideal for viewing wide range magnitude

High Speed Sampling/BW

125ksps / 35KHz

Two Digital Trigger Inputs

Allows target to set GPIO output triggers to study events correlated to current

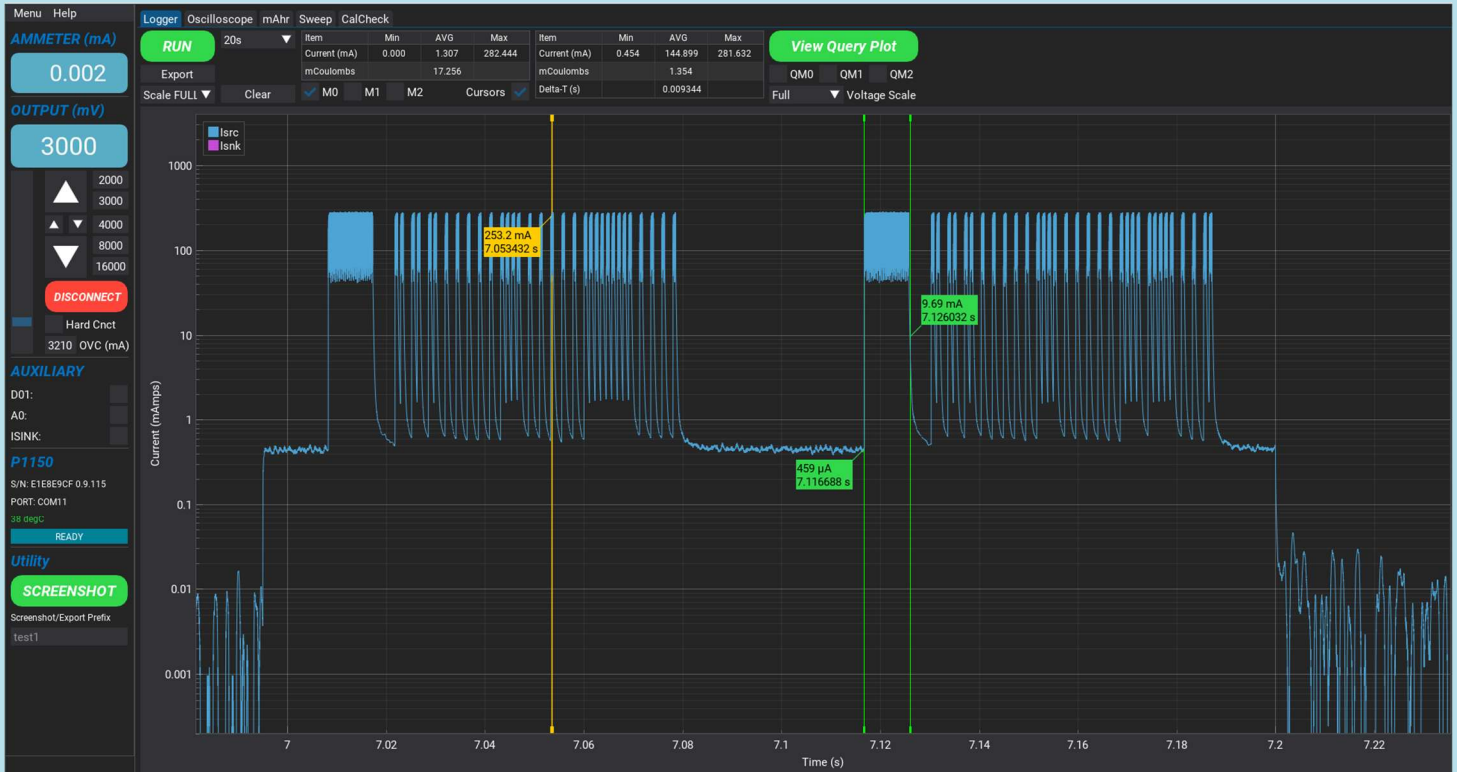
Cost Effective

*Developers need a Power Supply
Why not one that can measure Current like this?*

¹ Within pulse/continuous load constraints
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USER INTERFACE

A plot of a TV remote control when the Volume key is pressed. The remote's power states and output modulation can clearly be seen in the current profile. Cursors, Markers and stats quantify battery usage for specific actions.



Showing Analog and Digital AUX inputs along with Demo Current Stepped Profile



INCLUDES

P1150

- storage case

Power Probes

- Hook Clips for Power/Ground
- ~12in (~30cm)

USB PD (Power Supply)

- 65 Watts

USB Type A to USB-C Cable

- ~18in (~45cm)

Digital/Analog Auxiliary Input Wires

- Suitable for analog and digital debug

SPECIFICATIONS

Unless otherwise noted, all specifications are guaranteed within the temperature range of 22 °C±5 °C with warm-up time of 30 minutes.

Parameter	Min	Typ	Max	Units
Current Sourcing VOUT <9V				
Pulsed ¹			3200	mA
Continuous			2200	mA
Current Sourcing VOUT >=9V			2200	
Pulsed ¹			2200	mA
Continuous				mA
Current Sourcing Accuracy²				
Accuracy (±)				
I _{OUT} < 100µA		±1	±2	µA
I _{OUT} > 100µA			±5%	
Current Measurement Sinking				
Pulsed ¹			2200	mA
Continuous (VOUT ≤ 5V)			1000	mA
Current Sinking Accuracy				
Accuracy (±) (>1mA)			±5%	
Voltage Source (VOUT)				
Range	0.5		17	V
Step		20		mV
Accuracy (±) (No Load)		10	20	mV
Output Impedance (with probe)			120	mΩ
Load Capacitance (limit)			100	µF
Acquisition				
Sampling Rate ³		125		kHz
Analog Bandwidth		35		kHz
D0/D1 Ext Trigger Input				
Input Impedance		1		MΩ
Input Voltage (high)	0.8		3.3	V
A0 Analog Input				
Input Impedance		1		MΩ
Max input Voltage			18	V
PC interface				USB High Speed ⁴
PC Operating Systems				Windows/Linux/macOS

1. Duration of pulsed current depends on period and duty cycle. P1150 will disconnect when thermal limits are exceeded.
2. Accuracy is specified with resistive loads and no averaging. Using the mAhr tab/plot, some averaging can be applied for increased “accuracy” at the cost of signal bandwidth.
3. The sampling rate is constant and cannot be changed. The mAhr tab/plot does down sample the data to produce long running plots, but it tracks min/max (taken from the raw sampled data) current over the averaging window.
4. P1150 streams a lot of data and therefore it is recommended USB High Speed connection is direct to PC without a HUB.

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