



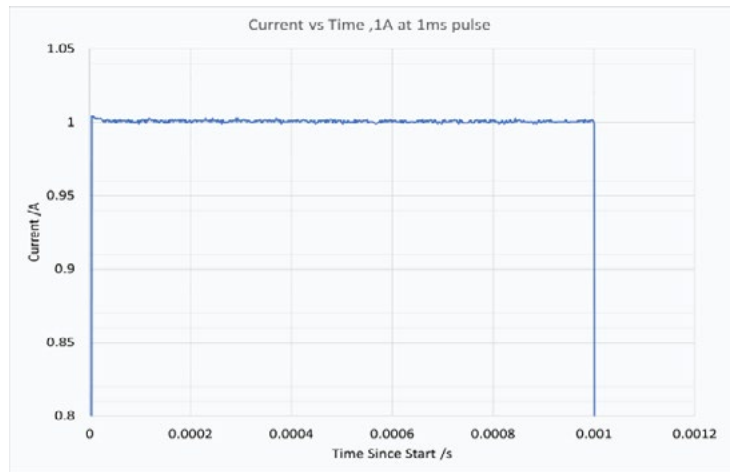
### Product Overview

Vektrex Current Sense Resistor (VCSR) simply and accurately enable current waveform and accuracy verification. The VCSR converts a current signal to a voltage signal that may be measured with a digitizer or digitizing multimeter. The VCSR minimizes overshoot and undershoot errors that are produced using other methods. The VCSR's low inductance allows accurate measurement of current pulse overshoot and its low temperature coefficient allows accurate measurement of waveform tilt. Using the appropriate VCSR it is easy to verify current accuracy in all LED/Laser drive modes including DC, Constant Current, Pulsed Current, CW, QCW.

### Measure Small Current Details With Accuracy

By connecting the VCSR inline with a digitizing voltmeter, it is possible to view and measure fine detail in the current waveform. Small distortions at the top of the waveform and recovery from overshoot is easily detected and measured.

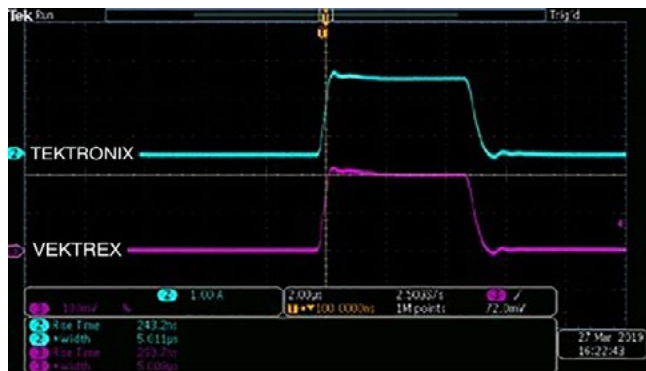
The device is a 1A LED. A 1ms pulse was generated using Vektrex SMU Part Number: PSMU-PRF-5-50us. The 0.4% overshoot is measured using Vektrex current sense resistor part number VCSR-0.1. Vektrex developed Control Panel software application controls the instrumentation and graphically portrays the pulse shape. Control Panel data is also exportable and may be imported into a database or other applications for use.



Use VCSR to accurately view and measure small current details.

### Amp Second Product Calculations

Use the VCSR to validate the shape or accuracy of a current waveform. The accurate VCSR may also be used to determine optical measurement corrections for pulsed LED and laser measurements such as amp-second corrections and corrections based upon a pulse profile factor.



VCSR Compared With Tektronix Current Probe, 2A, 5µs Current Pulse Into High Power LED

### Accurately View Current Waveform

Measure current accuracy and accurately view the current waveform generated by your current source/source measure unit. Use the appropriate VCSR, a power source, and an oscilloscope With Vektrex Current Sense Resistor, a more accurate representation of current is possible at a lower cost than with other instruments.. A comparison of current waveforms using the inline VCSR and Tektronix Probe is here for your reference.

## Performance Specifications

Model <sup>1</sup>	Nominal Resistance $\Omega$	Maximum DC Current, A	Recommended Pulse or DC Current, A	Maximum Pulsed Current, A <sup>2</sup>
VCSR-0.05	0.05	7	2 to 20	44
VCSR-0.1	0.1	5	1 to 10	31
VCSR-1	1	1.5	0.1 to 10	7

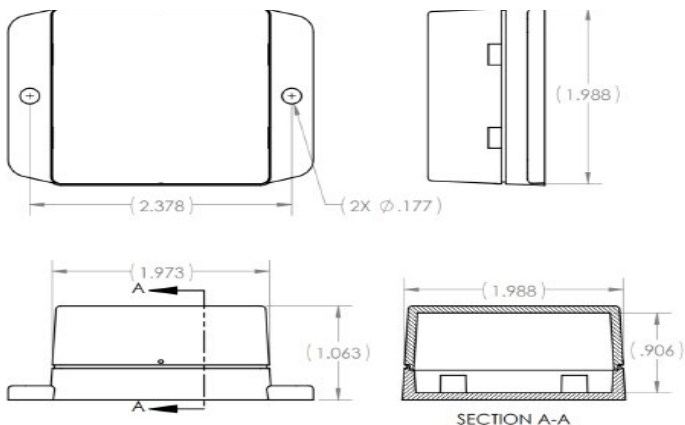
1) Available uncalibrated (1% accuracy) or with optional calibration (0.1% accuracy). For calibration, specify P/N VCSR-Cal.

2) Single pulse, maximum duration 10ms

## Other Specifications

Type	Current Sensing
Connection	Inline
Senses	AC, DC or Pulsed DC Non-isolated
+/- Current Terminal	Safety Banana Jack - on top
Voltage Output	BNC Female Connector, on top
Size	See drawing
Mounting	Two screw hole locations
Output Cable	50 $\Omega$ coax cable
Bandwidth (+/- 3dB)	8 MHz
Uncalibrated Accuracy, %	1
Calibrated Accuracy, %	0.1
Inductance	Very low
Temp Coefficient, ppm	15
Customization	Yes, contact Vektrex with your requirements.

## VCSR Diagram



Note: All dimensions are in inches.

## Applications

- Non-isolated current sensing
- Pulsed current visualization
- Current accuracy confirmation
- Waveform tuning
- Rise time and overshoot measurement
- Amp-second product calculations