



Key Specifications

- Senses AC, DC, or pulsed DC
- 0.5% accuracy
- NIST traceable calibration
- Galvanic isolation
- 650kHz bandwidth
- 50Ω voltage output
- Current range 0-320A (640A in parallel)

Applications

- Isolated current sensing
- Pulsed current measurement
- Data acquisition systems
- Motor testing
- High power LED/laser diode monitoring
- Power supply testing
- Embedded applications

Ships With:

- Universal AC power adapter
- Screw terminals
- Calibration certificate

Contact Vektrex for custom models.

Visualize your current in a semi-permanent installation.

Product Overview

VCS Series Isolated Hall Effect Current Sensors provide high-bandwidth current sensing with amplified output. The 50Ω voltage output may be directly connected to an oscilloscope or data acquisition system. VCS are magnetically isolated like clamp-on oscilloscope probes. VCS are designed for embedded or laboratory applications requiring accurate measurement of DC, pulsed DC, or AC current. The Isolated Hall Effect Current Sensors provide for secure cable attachment and reliable, repeatable measurements.

Parallel Current Sensors for Higher Currents

VCS may be placed in parallel to sense currents higher than the maximum rating of a single sensor. For example, to sense +/- 500A, use two VCS320 current sensors.

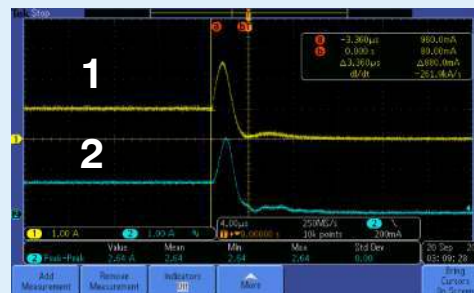
No Amp-Second Limitations

Many current probes have specifications on the duration of pulsed current. These specifications, called Amp-second products, severely limit the capability of the probe with high currents. For example, the Tektronix TCP303, which is rated at 150A, can only sustain the rated 150A for 100μs before going into overload. The VCS series does not have Amp-second limitations.

Frequency Response and Linearity

VCS have good frequency response and linearity along with accurate current tracking to 400A/μs. These characteristics mean pulsed waveforms with rise times to 2μs can be measured with good fidelity, even with a large DC component. The sensors can also be used for AC line harmonic measurements to support power factor testing.

Comparison Response Time of VCS5 and Tektronix Probe



1 = VCS5 Isolated Hall Effect Current Sensor
 2 = Tektronix TCP 312 probe w/TCPA300 Amplifier

The graph shows comparable performance between the VCS and Tektronix probe in measuring current output.

Test conditions:

Ten LEDs in series are powered to 1A. Five of the LEDs are intentionally shorted. The SpikeSafe™ Current Source shuts down in 4μs.

Electronic Specifications

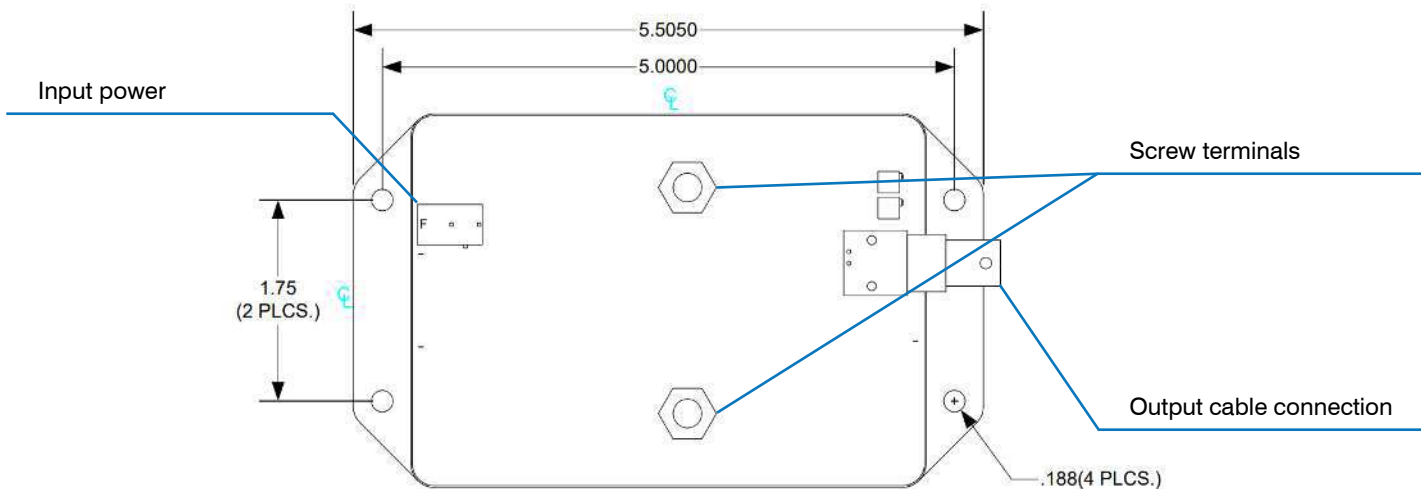
Input Current Connection	1/4" screw terminals on top of unit To avoid overheating, cables must be attached with supplied brass 1/4" screws. Tighten with 25 in-lb min and 30 in-lb max
Isolation	2.5kV RMS
Max Output Voltage	0 to $\pm 13.4V$, 50 Ω output impedance
Input Power	9-18VDC 6.5W max, 2W typical
Input Power Connector	Recessed 2.1 x 5.5mm power jack 100-240V, 50-60Hz universal AC adapter included
Gain Error ⁴	0.5% (0.2% typical)
Bandwidth $\pm 3dB$	DC-650kHz

General Specifications

Type	Differential Hall effect with precision amplifier, bi-polar output (\pm currents)
Environment	Room temperature
Size	5.5"W x 3.25"D x 3.25"H (13.97cmW x 8.26cmD x 8.26cmH)
Weight	1lb (0.45kg)
Mounting	Base mounting flanges with 4, 0.188" (0.48cm) holes, spacing 5" x 1.75" (12.7cm x 4.45cm)
Output Cable	50 Ω coax cable
Warranty	1 year
Calibration Interval	1 year

P/N	Output Level	Max Pulsed Current ^{1,2}	Max RMS/DC Current	Max Overload Current ³	Offset Error	Output Noise p-p	Insertion Impedance
VCS2	5V=1A	$\pm 2A$	$\pm 2A$	$\pm 40A$	$\pm 2mA$	1.5mA	8.00m Ω
VCS5	2V=1A	$\pm 5A$	$\pm 5A$	$\pm 40A$	$\pm 5mA$	2mA	8.00m Ω
VCS10	1V=1A	$\pm 10A$	$\pm 10A$	$\pm 40A$	$\pm 10mA$	3.4mA	8.00m Ω
VCS40	1V=5A	$\pm 40A$	$\pm 20A$	$\pm 40A$	$\pm 25mA$	10mA	8.00m Ω
VCS80	1V=25A	$\pm 80A$	$\pm 80A$	$\pm 400A$	$\pm 75mA$	30mA	0.14m Ω
VCS100	1V=25A	$\pm 100A$	$\pm 100A$	$\pm 400A$	$\pm 75mA$	30mA	0.14m Ω
VCS160	1V=50A	$\pm 160A$	$\pm 160A$	$\pm 400A$	$\pm 75mA$	50mA	0.14m Ω
VCS320	1V=100A	$\pm 320A$	$\pm 200A$	$\pm 400A$	$\pm 150mA$	100mA	0.14m Ω

Mounting Diagram



¹For VCS320 and VCS40 models, single pulses must be shorter than 300 seconds and repeated pulses must be shorter than 60 seconds. For repeated pulses, duty cycle must be less than 35%.

²For VCS320 and VCS40 models, pulse currents above max DC currents, need ambient temperatures less than 30C.

³Overload duration is less than 100ms.

⁴Tested at currents greater than 2.5% of max pulse current. Typical gain error is 0.2%.