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# LM-80 Integrated Solutions

Reliable, Energy Efficient, High Capacity
Applications: LM-80; LM-79; Reliability Test, Burn In

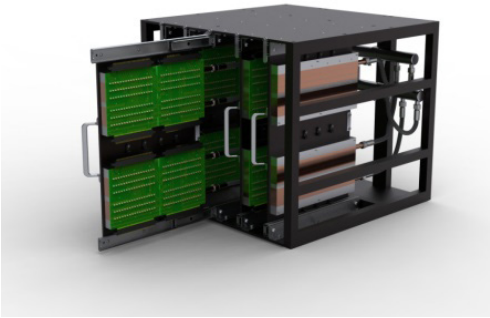
## LM-80 Drive Electronics

- Accurate Reliable Drive Current for 7/24 operation
- Use with any SpikeSafe™ Current Source
- Modular and scalable architecture
- High Capacity LM-80 Drive Electronics; Maximum 32 modules
- SpikeSafe load protection improves reliability statistics
- Individual source channel control (current, voltage, limits, duty cycle)
- Approved for LM-80 use (auditable)
- Energy efficient
- See Software section for Vektrex provided software applications

## Integrated Thermal Control System

- Integrated Thermal Control System (ITCS)
- High Capacity Integrated Chamber
- Active liquid cooling; uses plan chill water
- 10kW total heat dissipation,
- Temperatures to 150C
- Approved for LM-80 use (auditable)
- Applications: LM-80, Burn-in, RTOL Test
- Coordination with SpikeSafe Drive Electronics protect devices
- See Software section for Vektrex provided software applications

## ITCS Fixturing



- Vektrex Integrated Thermal Control System Fixturing
- N+1 load board architecture
- Individual Drawer Control Tuning
- High Capacity: >1,600 devices
- Slide out drawers, easy load and unload,
- Extremely Uniform Temperature Control
- Tsink, Tair, and Tcase measurement

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# LM-80 Integrated Solutions

Reliable, Energy Efficient, High Capacity

Applications: LM-80; LM-79; Reliability Test, Burn In

## Automated Light Measurement System

- Automated light measurement supporting LM-80/LM-79.
- Accurately test 80 devices in 10 minutes
- Uncertainty
- Repeatable accurate light measurements enable rapid detection of trends
- Luminous flux repeatability 0.05%
- High voltage and high current capability
- LM-85 Pulsed mode light measurements
- Integrates CAS-140 and SpecWinPro. ISD audit trail included.
- See Software section for Vektrex provided software applications

## Bulk Power Cabinet

- Bulk Power Cabinet
- Centralize bulk power distribution
- Maximum 80kW
- Emergency Off
- Three Phase; 240VAC, 380VAC and 440VAC

## Reliability Drive Electronics

- Drive electronics for low to medium capacity / R&D
- May be used for pre-LM-80 validation
- Modular and scalable architecture; maximum 64 source channels
- SpikeSafe load protection preserves devices and improves reliability statistics
- Individual control of source channels (current, voltage, duty cycle) Energy efficient
- Use with any SpikeSafe module
- Integrated bulk power to 5kW possible
- See Software section for Vektrex provided software applications.

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# SpikeSafeTM DC Current Sources

Reliable; Energy Efficient; High Power Density

Applications: LM-80, Reliability; HASS, PTMCL, Stress Test

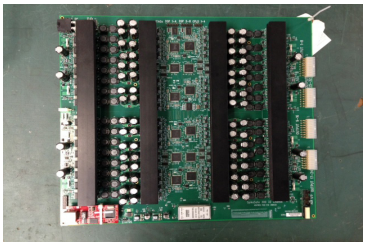
## SpikeSafe 400 Series DC Current Source

- SpikeSafe 400 Series Multichannel DC Current Source
- 400V Compliance Voltage / 3A Maximum Current
- 8 Independent Programmable Source Channels
- One Module; appropriate for low, mid and high power devices
- Rackmount form factor shown. Module also available.
- See Software Section for Vektrex provided software applications

## SpikeSafe 200 Series DC Current Source

- SpikeSafe 200 Series Multichannel DC Current Source
- Highest power density; 1kW per source channel
- 5A Maximum Current / 200V Compliance Voltage
- 8 Independently Controllable Source Channels
- SpikeSafeTM Load Protection Preserves Devices
- Devices: LED, Array, COB, Laser Diode, Emitter
- Rackmount form factor shown. Module also available.
- See Software Section for Vektrex provided software applications

## SpikeSafe 300 Series DC Current Source



- SpikeSafe 300 Series Multichannel Current Source
- 32 individual source channels per module
- 300V Compliance Voltage/100mA Maximum Current
- 50V Compliance Voltage/ 200mA Maximum Current
- SpikeSafeTM Load Protection Preserves Devices
- Devices: LED low and mid power
- Module shown. Also available for rackmount/benchtop
- See Software Section for Vektrex provided software applications

## SpikeSafe 400 DC Series High Current Current Source

- SpikeSafe 400 High Current Series Multichannel current source
- To 30A DC per module
- 50V+ Compliance Voltage
- 4 Independent Programmable Source Channels
- 2nd Generation Patented SpikeSafe 400 LED Protection
- See Software section for Vektrex provided software applications

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# SpikeSafe DC Pulsed Current Sources

Reliable; Energy Efficient; High Power Density

Applications: LM-80, Reliability; HASS, PTMCL, Stress Test

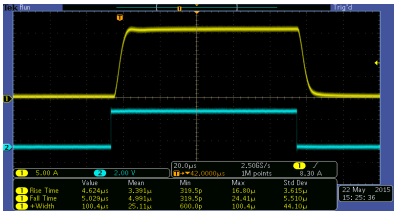
## SpikeSafe 100 Series Pulsed Current Source

- Compliance Voltage to 200V/ Current to 5A
- DC and Pulsed Modes
- Includes Bias Current Source for JEDEC Tj Measurement
- See Software Section for Vektrex provided software applications

*5A 10uS Current Pulse*

## SpikeSafe 200 Series Pulsed Current Source

- SpikeSafe 200 DC Pulsed Multichannel Current Source
- 200V Maximum Compliance / 5A Maximum Current
- Pulse width minimum 10uS
- Eight (8) Independent Source Channels
- SpikeSafe Load Protection
- Optional Tj Bias Current and/or Modulated Current
- See Software Section for Vektrex provided software applications



*2.5uS Current Pulse*
*1.5A 328V 1.2uS Rise Time*

## SpikeSafe 400 Series Pulsed Current Source

- SpikeSafe 400 DC Pulsed Multichannel Current Source
- Up to 400V Compliance / Current to 3A
- Pulse Rise/Fall Time 1-5uS typical
- Pulse Width Range, 10uS – 10S
- Pulse Width Accuracy 0.01% + 2uS
- Syncronize pulses across multiple source channels
- Optional Tj Bias Current and/or Modulated Current
- See Software section for Vektrex provided software applications

## SpikeSafe 400 Pulsed Series High Current Source

- SpikeSafe 400 Series DC Pulsed Multichannel High Current
- Pulsed Voltage to 30A and 50A
- Pulse Width Range, Generally 100uS – 10S
- Pulse Width Accuracy 0.01% + 10uS Typical
- Rise/Fall Time 10-20uS with typical LEDs
- Syncronize pulses across multiple source channels
- See Software Section for Vektrex provided software applications

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# SpikeSafe Pulsed Performance Current Sources

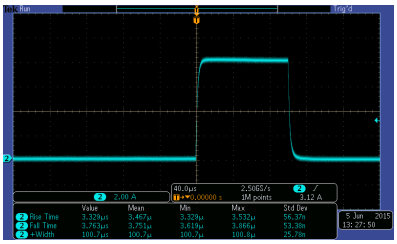
Reliable; Energy Efficient; High Power Density

Applications: LM-79; LM-85, Characterization, R&D, Production, Lightning Test

## SpikeSafe 400 Series Performance Pulsed Current Source

- SpikeSafe 400 DC Pulsed Multichannel Current Source
- Up to 400V Compliance / Current to 3A
- Pulse Rise/Fall Time 1-5uS typical
- Pulse Width Range, 10uS – 10S
- Pulse Width Accuracy 0.01% + 2uS
- DC, Continuous Pulse, Single Pulse, Dynamic modes
- Approved for LM-85 pulsed light measurements
- See Software section for Vektrex provided software applications

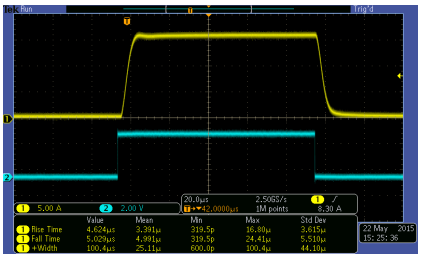
## SpikeSafe 400 Performance 8A 200V Current Source



*100V 8A 100uS pulse*

- SpikeSafe 400 Series Precision Pulsed Current Source
- Voltage to 200V / Accurate Current from 20mA to 8A
- Rise/Fall Time 1uS to 5uS
- Pulse Width Range, Generally 10uS – 10S
- Pulse Width Accuracy of 0.01% + 2uS Typical
- 4 Independent Programmable Source Channels
- Syncronize pulses across multiple source channels
- See Software section for Vektrex provided software applications

## SpikeSafe High Current Performance Current Source



*COB pulsed at 16A*

- SpikeSafe 400 Pulsed Voltage to 200V
- Reliable, Accurate Current from 40mA to 16A
- Pulse Width Range, Generally 20uS – 10S
- Pulse Width Accuracy of 0.01% + 4uS Typical
- 2 Independent Programmable Source Channels
- 96% Efficiency; reduces lifetime electricity costs
- 2nd Generation Patented SpikeSafe LED Protection
- See Software section for Vektrex provided software applications

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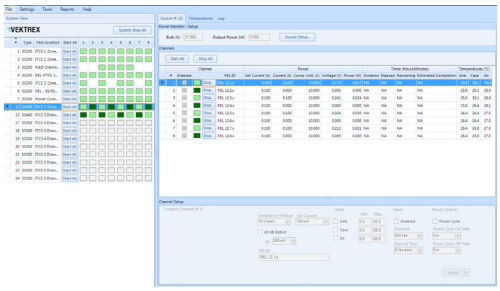
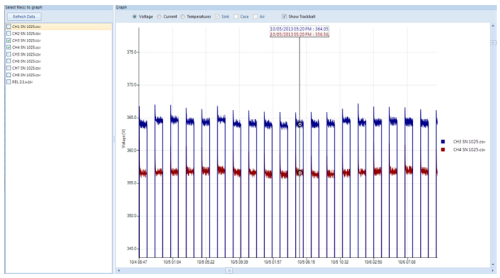
# Software and Applications

## SpikeSafe Test and Reliability System



- STARS software application manages up to 256 source channels
- Each source channel individually programmable / controllable
- Approved for LM-80 and reliability test
- Temperature, current and voltage monitoring and data logging
- Thermocouple; RTD and NTC Temperature Monitoring
- Failsafe shutdown preserves device from catastrophic failure
- Data output in .csv format for easy import and analysis
- Duration timers automatically stop tests at the correct time
- Software timing uncertainty consistent with LM-80 standard
- Use with any SpikeSafe series current source

## STARPLOT



- STARPLOT Software Application
- Graphically presents STARS output data
- Easily spot trends using STARPLOT graphical test data viewer
- May be installed at test station or used from remote location

## Control Panel

- Control Panel Software Application
- Provides access to all SpikeSafe functions “out of the box”
- Controls one (1) SpikeSafe module
- Source channels individually controllable
- For use with all Spikesafe series current source products

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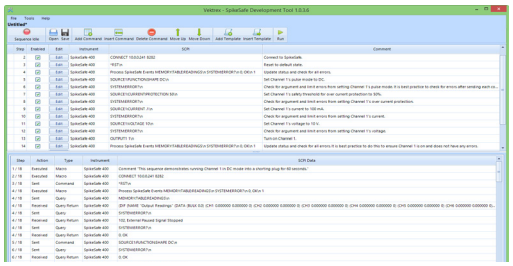
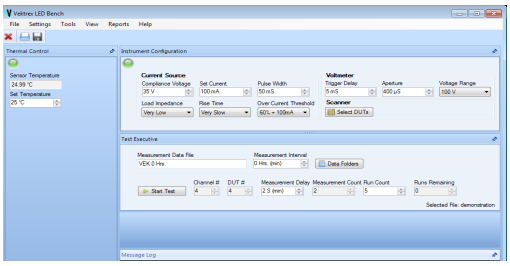
# Software And Applications

## SpikeSafe Software Development Toolkit



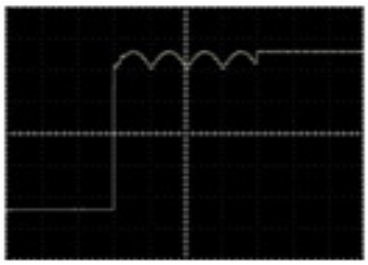
- SpikeSafe Software Development Toolkit Software Application
- Speeds development of SpikeSafe 400 based applications
- Capture SCPI sequences and test/validate prior to insertion into application
- For use with all SpikeSafe 400 Series Current Source products

## LEDBench



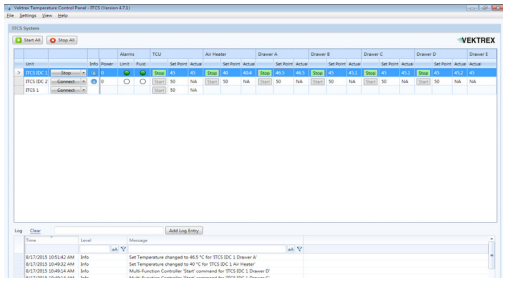
- LEDBench Sofware Application
- Automated Light Measurement for one to 80 devices
- Use with n+1 load board
- Repeatable Light Measurements
- Use with Instruments Systems CAS-140
- For use with SpikeSafe 200 Series Current Sources
- For use in the Automated Light Measurement System (ALMS)

## SpikeSafe Modulated Current



- SpikeSafe Modulated Current Function
- Adds arbitrary waveform capability to any SpikeSafe Series
- Allows user to download customized waveforms for execution (for example red eye flash test)
- User defined text based sequence downloaded for execution once or for infinity
- To 33MHz

## Temperature Control Panel



- Temperature Control Software Application
- Temperature Control integrates with STARS providing integrated safety system – shut down power and cooling/chamber at failure
- Remote control and monitoring for liquid cooled integrated systems
- For use with the Integrated Thermal Control System
- For use with LN2 based installations

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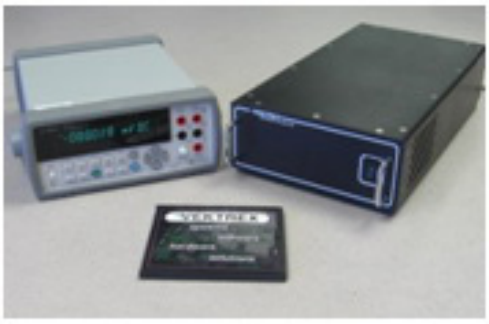
# Software and Applications

## SpikeSafe Calibrator



- Standalone Calibrator and Software Application
- Validate current and calibration in situ
- Use to validate current accuracy
- Use to calibrate and produce your own calibration reports
- ISO17025
- Applicable for use with SpikeSafe 200 Series and SpikeSafe 400 Series Current Sources

## Isolated Hall Effect Current Sensor


- Isolated hall-effect current sensors
- DC, pulsed DC, and AC measurements; model to 320A
- For embedded or laboratory applications
- 50 Ohm amplified output.
- Use with SpikeSafe modules for pulse tuning