California Instruments Lx Series

3000-18000 VA

3-18 kVA Programmable AC Power Source / Analyzer

156-400 V

• Backward Compatible

Compatible with HP6834B & iL Series AC Sources Function & bus compatible with the Agilent HP6834B & California Instruments iL Series

- Three phase and Single phase modes Ideally suited for avionics and defense applications
- 3 kVA to 18 kVA Power Levels
 Match power source and cost to application requirements
- Arbitrary Waveform Generator
 Test products for harmonics susceptibility
- Built-in Power Analyzer
 Performs voltage and load current harmonic
 analysis and waveform acquisition
- Standard IEEE-488, USB & RS232
 Remote control interface for ATE system integration included

Integrated System

The Lx Series represents a modern AC power source that addresses increasing demands on test equipment to perform more functions at a lower cost. By combining a flexible AC power source with a harmonic power analyzer, the Lx Series systems are capable of handling applications that would traditionally have required multiple instruments.

The sleek integrated approach of the Lx Series avoids the cable clutter that is commonly found in AC test setups. All connections are made internally and the need for external digital multimeters, power harmonics analyzer and current shunts is completely eliminated.

Using a state of the art Digital Signal Processor in conjunction with precision A/D converters, the Lx Series provides more accuracy and resolution than can be found in most dedicated harmonic power analyzers. Since many components in the Lx Series are shared between the AC source and the power analyzer, the total cost of the integrated system is less than the typical cost of a multiple unit system.

Easy To Use Controls

The Lx Series is completely microprocessor controlled and can be operated from a simple front panel keypad. An analog control located next to the backlit alphanumeric LCD display allows output voltage and frequency to be slewed up or down dynamically. The control employs a dynamic rate change algorithm that combines the benefits of precise control over small parameter



changes with quick sweeps through the entire range. A keypad makes precise entries simple.

Applications

With precise output regulation and accuracy, high load drive current, multi or single phase mode and built-in power analyzer measurement capabilities, Lx Series AC source/analyzers address many application areas for AC power testing. Additional features, like line arbitrary waveform generation and available DO 160, MIL 704, or Airbus test standards, make the Lx Series a good choice for avionics or defense applications. All Lx Series AC sources are equipped with IEEE-488 (GPIB), USB and RS232C remote control interfaces and support SCPI command language programming. An ethernet interface option is available.

HP6834B Compatibility

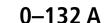
The Lx Series offers functional and bus compatibility with the Agilent HP6834B AC power sources as well as the CI iL Series AC power sources and may be used in existing test systems without the need to modify program code

Standard Waveforms

The Lx Series provides three standard waveforms that are always available for output. The standard waveforms are:

- Sinewave for normal AC applications.
- Squarewave for special applications.
- Clipped Sinewave Simulates THD leveLx to test for harmonic distortion susceptibility.

In addition to these standard waveforms, user defined waveform can be downloaded over the bus.



%	208	230	400
>		230	

ETHERNET USB GPIB R\$232



Via Acquanera, 29 tel. 031.526.566 (r.a.) info@calpower.it 22100 C0M0 fax 031.507.984 www.calpower.it

AMETEK

Programmable Power

9250 Brown Deer Road San Diego, CA 92121-2267



Lx Series

Lx Series - AC Transient Generation Harmonic Waveform Generation

Using the latest DSP (Digital Signal Processing) technology, the Lx Series controller is capable of generating harmonic waveforms to test for harmonics susceptibility of a unit under test. With the help of the supplied Windows Graphical User Interface program, defining harmonic waveforms is as easy as specifying the relative amplitude and phase angle for each of up to 50 harmonics. The waveform data points are generated and downloaded by the GUI to the AC source through either IEEE-488 or RS232C bus and remain in non-volatile memory. Up to twelve waveforms can be stored and given a user defined name for easy recall.

Arbitrary Waveform Generation

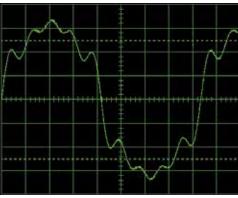
Using the provided GUI program or custom software, the user also has the ability to define arbitrary waveform data. Complex AC voltage anomalies can be simulated this way. The GUI program provides a catalog of custom waveforms and also allows real-world waveforms captured on a digital oscilloscope to be downloaded to one of the AC source's waveform memories. Downloaded waveforms are retained in non-volatile memory for recall over the bus or from the front panel. User defined waveform names make it easy to recall the desired waveform when needed.

Lx Series - Configuration Options Transient Programming

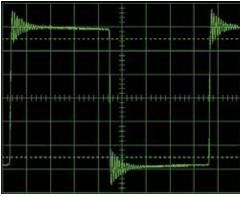
To simulate common line disturbance occurrences, the Lx Series offers a list of transient steps. These steps can be programmed from the front panel or downloaded over the interface using the GUI program supplied. The GUI allows libraries of commonly used line disturbances to be created on disk for quick recall. Once downloaded, the transient program can be executed from the PC or from the front panel. AC transient generation allows the effect of rapid changes in voltage, frequency, phase angle and waveform shape on the unit under test to be analyzed. The combination of transients and user defined arbitrary waveforms creates a powerful test platform for AC powered products.

Lx Series - Measurement and Analysis

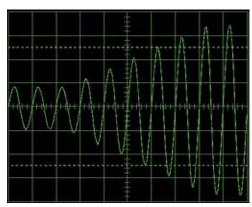
The Lx Series measurement system is based on real-time digitization of the voltage and current waveforms using a 4K sample buffer. The digitized waveform data is processed by a Digital Signal Processor to extract conventional load values such as rms voltage, rms current, real and apparent power. The same data is also used to perform Fast Fourrier Transformation (FFT) to extract the harmonic amplitude and phase angle of up to 50 harmonics.



Harmonic waveform, Fund., 3rd, 5th, 7th and 9th.



Simulation of severe ringing on the output of a UPS.



Voltage sweep transient causes output voltage to change at a programmed rate.

Standard Measurements

The following standard measurements are available from the front panel or via the bus:

- Frequency and Phase
- Voltage (rms)
- Current(rms) and Peak Current
- Crest Factor
- Neutral Current (rms)
- Real Power and Apparent Power
- Power Factor

Advanced Measurement Functions

In addition to standard load parameters, the Lx Series is capable of measuring voltage and current amplitude and phase harmonics up to the 50th harmonic (for fundamental frequencies up to 250 Hz). Total harmonic distortion of both voltage and current is also available. Harmonic analysis data can be displayed on the front panel display or on the PC using the GUI program. The GUI can also be used to save and print harmonics data in tabular, bar graph or time domain formats. The acquired voltage and current timedomain waveforms for each output phase can be displayed using the GUI program. Waveform displays on the PC include voltage and current combined, three phase voltage, three phase current and true power. The time-domain data is aLxo available for transferr to a PC through IEEE-488, USB, RS232C, or Ethernet (option) when using custom software.

Diagnostics Capability

The AC Source can perform a self test and report any errors. The self test will run until the first error is encountered and terminate. The response to the self test query command will either be the first error encountered or 0 if no error was found. (Self test passed).

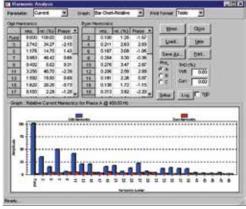
Windows Instrument Control Software

A Windows Vista/2000/XPTM compatible Instrument Control Software (GUI) offers a soft front panel interface for operation from a PC. The following functions are available:

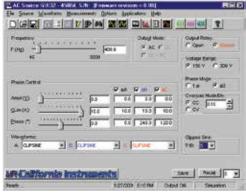
- Steady state output control (all parameters).
- Create, run, save and print transient programs.
- Generate and save harmonic waveforms.
- Generate and save arbitrary waveforms.
- Download data from a digital storage oscilloscope.
- Measure and log standard measurements.
- Capture and display Voltage and Current waveforms.
- Measure, display, print and log harmonic voltage and current measurements.



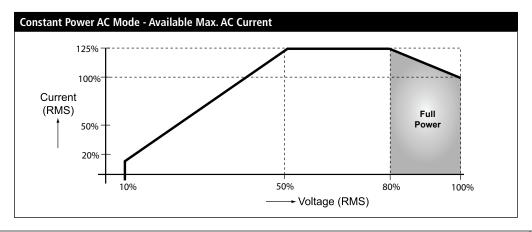
Standard measurements for all phases



Relative Current Harmonics shown in table and chart



Soft front panel control through Windows GUI.



Lx Series

Power factor	to unity at fur to unity at fu		A / High D-300V rnative voltage + 0.25) V fror Iz-1kHz option for hig I Hz at 82.0 to At FS Voltage At FS Voltage I scale voltage to 1 MHz) te, full resistive sis d bus control	VA Program Load Regula Line Regula e range pairs. m 5.0 V to FS; F gher output free p 819.1 Hz, 1 H wer Model e > V Low V High 10Lx provides incree aximum curre e); 4500Lx: 3.8 e load) led output rela 00Lx: Standard tandard 208-23 2, -400 option no	requency: ± 0.02 quencies) Iz at > 819 Hz 3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce nt for selected X (Irms @ full so	100 < 0 < 0 5 45 Hz - 8 000Lx-1 Ø	0 mV 0.1 % FS 0.02 % for 1 319.1 Hz, ± 0 4500Lx-3 Ø 10.0 A 5.0 A 00Ls provides m 3 Phase); Op	0 % line char 0.7 % > 819. 4500Lx-1 Ø 30.0 A 15.0 A laximum voltage	1 Hz; Phase: ± 6000Lx-3 Ø 12.8 A 6.4 A	6000Lx-1 Ø 38.4 A 19.2 A			
R	Range V C C C C C C C C C	/ Low V V V V V V V V V	/ High -300V mative voltage + 0.25) V from z-1kHz option for high Hz at 82.0 to < At Full Pow At FS Voltage 3000Lx and 450 Amps to mail scale voltage to 1 MHz lee, full resistive sis option for high and for high an	Load Regula Line Regula Line Regula e range pairs. m 5.0 V to FS; F gher output free to 819.1 Hz, 1 H ver Model e > V Low V High ioux provides incre eximum curre e); 4500Lx: 3.8 e load) led output rela conditions to the condition of the conditi	ation requency: ± 0.02 quencies) Iz at > 819 Hz 3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce nt for selected X (Irms @ full so	< 0 < 0 5 45 Hz - 8 000Lx-1 Ø / 0.0 A / 0.0 A / 0.0 A / ed voltage; 600 range ale voltage)	0.1 % FS 0.02 % for 1 319.1 Hz, ± 0 4500Lx-3 Ø 10.0 A 5.0 A 00Ls provides m 3 Phase); Op	4500Lx-1 Ø 30.0 A 15.0 A naximum voltage	1 Hz; Phase: ± 6000Lx-3 Ø 12.8 A 6.4 A	6000Lx-1 Ø 38.4 A 19.2 A			
Second	ee EHV optio oltage (rms): ± (1° + 1°/l ' Hz - 1000 h 01 Hz at < 8 Range V hig 3 ø 64 1 ø 19.2 ote: Constant po ogrammab 000Lx: 5.7 X 000V rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L tes: 1. Input m. //odel 3 87 VLL	b-150V 0 ons for alter ± (0.05% kHz) 100 H Hz (see -HF 31.9 Hz, 0.1 38.4 A A 38.4 A www mode on ole from 0 (Irms @ fu o. (20 kHz 1 ccale voltage put to chase ontrolled ar xx, 4500Lx, xx, 12000Ls st be specifie 3000Lx :	rnative voltage + 0.25) V fror z-1kHz	Load Regula Line Regula Line Regula e range pairs. m 5.0 V to FS; F gher output free to 819.1 Hz, 1 H ver Model e > V Low V High ioux provides incre eximum curre e); 4500Lx: 3.8 e load) led output rela conditions to the condition of the conditi	ation requency: ± 0.02 quencies) Iz at > 819 Hz 3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce nt for selected X (Irms @ full so	< 0 < 0 5 45 Hz - 8 000Lx-1 Ø / 0.0 A / 0.0 A / 0.0 A / ed voltage; 600 range ale voltage)	0.1 % FS 0.02 % for 1 319.1 Hz, ± 0 4500Lx-3 Ø 10.0 A 5.0 A 00Ls provides m 3 Phase); Op	4500Lx-1 Ø 30.0 A 15.0 A naximum voltage	1 Hz; Phase: ± 6000Lx-3 Ø 12.8 A 6.4 A	6000Lx-1 Ø 38.4 A 19.2 A			
Separation Sep	ee EHV optio oltage (rms): ± (1° + 1°/l ' Hz - 1000 h 01 Hz at < 8 Range V hig 3 ø 6.44 1 ø 19.2 ote: Constant po ogrammab 000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L tes: 1. Input m. //odel 3 87 VLL	tons for alter ± (0.05% kHz) 100 H Hz (see -HF 11.9 Hz, 0.1 Hz (see -HF 12.8 A A 38.4 A A 38.4 A A wwwer mode on Ole from 0 (Irms @ fu D. (20 kHz 1 Cale voltage put to chass controlled ar xx, 4500Lx, xx, 12000Lx ist be specifie 3000Lx	rnative voltage + 0.25) V from Iz-1kHz toption for high Itz at 82.0 to At FS Voltage 3000Lx and 450 Amps to ma Ill scale voltage to 1 MHz) te, full resistive sis d bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	Line Regula e range pairs. m 5.0 V to FS; F gher output free o 819.1 Hz, 1 H wer Model e > V Low V High 10Lx provides incree aximum curre e); 4500Lx: 3.8 e load) led output rela 00Lx: Standard tandard 208-23	requency: ± 0.02 quencies) Iz at > 819 Hz 3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce nt for selected X (Irms @ full so	< 0 5 45 Hz - 8 000Lx-1 Ø 0 0.0 A 0 0.0 A 0 ed voltage; 600 range ale voltage)	4500Lx-3 Ø 10.0 A 5.0 A 00Ls provides m 3 Phase); Op	4500Lx-1 Ø 30.0 A 15.0 A naximum voltage	1 Hz; Phase: ± 6000Lx-3 Ø 12.8 A 6.4 A	6000Lx-1 Ø 38.4 A 19.2 A			
Programming Accuracy (25°C ±5°C Vol 17 17 17 17 17 17 17 1	Stage (rms): ± (1° + 1°/le	± (0.05% kHz) 100 H Hz (see -HF 81.9 Hz, 0.1 gh V low A 12.8 A A 38.4 A ower mode on ole from 0 (Irms @ fu cale voltag put to chase ontrolled ar xx, 4500Lx, xx, 12000L st be specifie	+ 0.25) V from the control of the co	e range pairs. n 5.0 V to FS; F gher output free p 819.1 Hz, 1 F wer Model e > V Low V High li0Lx provides incree aximum curre e); 4500Lx: 3.8 e load) led output rela 00Lx: Standard tandard 208-23 2, -400 option no	requency: ± 0.02 quencies) Iz at > 819 Hz 3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce int for selected X (Irms @ full so	5 45 Hz - 8 000Lx-1 Ø 0.0 A 0.0 A 0.0 A ded voltage; 600 range ale voltage)	4500Lx-3 Ø 10.0 A 5.0 A 00Ls provides m); 6000Lx: 3	4500Lx-1 Ø 30.0 A 15.0 A naximum voltage	1 Hz; Phase: ± 6000Lx-3 Ø 12.8 A 6.4 A	6000Lx-1 Ø 38.4 A 19.2 A			
Programming Accuracy (25°C ±5°C Vol.	Stage (rms): ± (1° + 1°/le	± (0.05% kHz) 100 H Hz (see -HF 81.9 Hz, 0.1 gh V low A 12.8 A A 38.4 A ower mode on ole from 0 (Irms @ fu cale voltag put to chase ontrolled ar xx, 4500Lx, xx, 12000L st be specifie	+ 0.25) V from the control of the co	gher output free to 819.1 Hz, 1 He wer Model to V Low V High to V	quencies)	000Lx-1 Ø 000 A 00	4500Lx-3 Ø 10.0 A 5.0 A 00Ls provides m); 6000Lx: 3	4500Lx-1 Ø 30.0 A 15.0 A naximum voltage	6000Lx-3 Ø 12.8 A 6.4 A	6000Lx-1 Ø 38.4 A 19.2 A			
17	7 Hz - 1000 H 01 Hz at < 8 Range	Hz (see -HF S1.9 Hz, 0.13 Hz, 0.14 Hz) A 12.8 A A 38.4 A 38.4 A 38.4 A www.mode on Ole from 0 (Irms @ fu to class to class to be specifie stopput to chass on trolled arms with the specifie stopput to chass on	option for high	ver Model e > V Low V High ioLx provides incre aximum curre e); 4500Lx: 3.8 e load) led output rela conducts Standard tandard 208-23	3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce x (Irms @ full so	D.O A D.O A D.O A ded voltage; 6000 range alle voltage) D VAC, (L-L, 3 Phase)	10.0 A 5.0 A 00Ls provides m); 6000Lx: 3 3 Phase); Op	30.0 A 15.0 A naximum voltage X (Irms @ full	12.8 A 6.4 A	38.4 A 19.2 A			
Frequency Resolution	01 Hz at < 8 Range V hig 3 ø 6.44 1 ø 19.2 ote: Constant po ogrammab 000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L tes: 1. Input m. Model 3 87 VLL	ta 1.9 Hz, 0.1 ta 1.9 Hz, 0.1 ta 12.8 A A 38.4 A www mode on the from 0 (Irms @ fu to (20 kHz 1) to cale voltage put to chase controlled are are are 4500Lx, are	Hz at 82.0 to At Full Pov At FS Voltage 3000Lx and 450 Amps to ma Il scale voltage to 1 MHz) ge, full resistive sis and bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	ver Model e > V Low V High ioLx provides incre aximum curre e); 4500Lx: 3.8 e load) led output rela conducts Standard tandard 208-23	3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce x (Irms @ full so	D.O A D.O A D.O A ded voltage; 6000 range alle voltage) D VAC, (L-L, 3 Phase)	10.0 A 5.0 A 00Ls provides m); 6000Lx: 3 3 Phase); Op	30.0 A 15.0 A naximum voltage X (Irms @ full	12.8 A 6.4 A	38.4 A 19.2 A			
V R -3 -1 Not	Range V hig 3 ø 6.4 a 1 ø 19.2 ote: Constant po ogrammab 000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L odets: 1. Input mu	gh V low A 12.8 A A 38.4 A Owwer mode on Ole from 0 (Irms @ fu D. (20 kHz t Cacale voltage put to chass ontrolled ar x, 4500Lx, x, 12000L st be specifie 3000Lx	At Full Pov At FS Voltage 3000Lx and 450 Amps to ma Il scale voltage to 1 MHz) pe, full resistive sis d bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	ver Model e > V Low V High 10Lx provides incre eximum curre e); 4500Lx: 3.8 e load) led output rela 00Lx: Standard tandard 208-23 2, -400 option no	3000Lx-3 Ø 30 6.6 A 2 3.3 A 1 assed current at reduce nt for selected X (Irms @ full sc	D.O A D.O A D.O A ded voltage; 6000 range alle voltage) D VAC, (L-L, 3 Phase)	10.0 A 5.0 A 00Ls provides m); 6000Lx: 3 3 Phase); Op	30.0 A 15.0 A naximum voltage X (Irms @ full	12.8 A 6.4 A	38.4 A 19.2 A			
-3	3 ø 64 / 1 ø 19.2 ote: Constant po rogrammab 000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L tes: 1. Input mu Model 3 87 VLL	A 12.8 A A 38.4 A 38.4 A Ower mode on Ole from 0 (Irms @ fu D. (20 kHz 1 Cale voltag put to chas ontrolled ar a.x, 4500Lx, x, 12000L sist be specifie 3000Lx	At FS Voltage 3000Lx and 450 Amps to ma Il scale voltage to 1 MHz) te, full resistive sis and bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	e > V Low V High OULX provides incre eximum curre e); 4500Lx: 3.8 e load) led output rela OULX: Standard tandard 208-23 2, -400 option no	3.3 A 1 ased current at reduce Int for selected X (Irms @ full so 208-230 ± 10% 40 + 10% VAC (L	D.O A D.O A D.O A ded voltage; 6000 range alle voltage) D VAC, (L-L, 3 Phase)	10.0 A 5.0 A 00Ls provides m); 6000Lx: 3 3 Phase); Op	30.0 A 15.0 A naximum voltage X (Irms @ full	12.8 A 6.4 A	38.4 A 19.2 A			
-1 Not Current Limit	1 ø 19.2 tote: Constant po ogrammab 000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L tes: 1. Input mu //odel 3 87 VLL	A 38.4 A A sower mode on Ole from 0 (Irms @ fu o. (20 kHz 1 ccale voltage put to chase ontrolled are served. X, 4500Lx, x, 12000L; st be specifie 3000Lx	Amps to ma Ill scale voltage to 1 MHz) te, full resistive sis d bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	V High IOLx provides incre eximum curre e); 4500Lx: 3.8 e load) led output rela OOLx: Standard OOLx: Standard OOLx: 400 option no	3.3 A 1 ased current at reduce nt for selected X (Irms @ full so y 208-230 ± 10% 10 + 10% VAC (L	2.0 A range ale voltage; 600 rVAC, (L-L, 3	5.0 A 00Ls provides m); 6000Lx: 3	15.0 A naximum voltage X (Irms @ full	6.4 A	19.2 A			
Not	rogrammab rogrammab	ower mode on oble from 0 (Irms @ fu p. (20 kHz to cale voltage put to chassontrolled ar x, 4500Lx, x, 12000L; st be specifie 30000Lx	Amps to ma Ill scale voltage to 1 MHz) pe, full resistive ssis and bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	aximum curre e); 4500Lx: 3.8 e load) led output rela cool: Standard tandard 208-23	nt for selected X (Irms @ full so	range ale voltage) o VAC, (L-L, 3 Phase)	00Ls provides m); 6000Lx: 3 3 Phase); Op	aximum voltage	l scale voltage	2)			
Current Limit Pro Peak Current 300 Output Noise 100 Harmonic Distortion < 1 Isolation Voltage 300 Output Relay Pus Input Voltage Mo Not Line Current (rms per phase) Efficiency 759 Power Factor 0.6 Hold-up Time At System	ogrammab 000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L odeLx 6000L odelx 1. Input mu	(Irms @ fu c). (20 kHz to c). (20 kH	Amps to mail scale voltage to 1 MHz) le, full resistive sis mode bus control 9000Lx, 1356 d when ordering.	e); 4500Lx: 3.8 e load) led output rela conduct standard 208-23	nt for selected X (Irms @ full so y 208-230 ± 10% 10 + 10% VAC (L	range ale voltage) o VAC, (L-L, 3 -L, 3 Phase)); 6000Lx: 3	X (Irms @ full	l scale voltage				
Peak Current 300 Output Noise 100 Harmonic Distortion < 1 Isolation Voltage 300 Output Relay Pus Input Voltage Mo Mo Not Line Current (rms per phase) Mo Efficiency 75% Power Factor 0.6 Hold-up Time At System	000Lx: 5.7 X 00mV rms typ 1% (at full s 00 V rms outp ish button co odeLx 3000L odeLx 6000L tes: 1. Input m. Model 3 87 VLL	(Irms @ fu p. (20 kHz 1 ccale voltag put to chase portrolled aran x, 4500Lx, x, 12000L st be specifie	Il scale voltage to 1 MHz) ge, full resistive ssis nd bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	e); 4500Lx: 3.8 e load) led output rela 00Lx: Standard tandard 208-23 2400 option no	X (Irms @ full sc y 208-230 ± 10% 40 + 10% VAC (L	ale voltage) VAC, (L-L, 3	3 Phase); Op						
Output Noise 100 Harmonic Distortion < 1 Isolation Voltage 300 Output Relay Pus Input Voltage Mo Not Line Current (rms per phase) Efficiency 759 Power Factor 0.6 Hold-up Time At System	1% (at full s 10 V rms outputs button co odeLx 3000L odeLx 6000L odeLx 6000L odeLx 1. Input mu	p. (20 kHz to cale voltage put to chase portrolled are care, x, 4500Lx, x, 12000Lx st be specified and care care care care care care care care	to 1 MHz) le, full resistive sisis d bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	e load) led output rela 00Lx: Standard tandard 208-23	y 208-230 ± 10% 10 + 10% VAC (L	o VAC, (L-L, 3	3 Phase); Op						
Output Noise 100 Harmonic Distortion < 1 Isolation Voltage 300 Output Relay Pus Input Voltage Mo Not Line Current (rms per phase) Efficiency 759 Power Factor 0.6 Hold-up Time At System	1% (at full s 10 V rms outputs button co odeLx 3000L odeLx 6000L odeLx 6000L odeLx 1. Input mu	p. (20 kHz to cale voltage put to chase portrolled are care, x, 4500Lx, x, 12000Lx st be specified and care care care care care care care care	to 1 MHz) le, full resistive sisis d bus control 9000Lx, 1356 x, 18000Lx: St d when ordering.	e load) led output rela 00Lx: Standard tandard 208-23	y 208-230 ± 10% 10 + 10% VAC (L	o VAC, (L-L, 3	3 Phase); Op						
Harmonic Distortion < 1 Isolation Voltage 300 Output Relay Pus Input Voltage Mc Mc Not Line Current (rms per phase) M 18 36 Efficiency 759 Power Factor 0.66 Hold-up Time At System	1% (at full s 00 V rms outputs button coodelx 3000L odelx 6000L tes: 1. Input mu Model 3 87 VLL	put to chase put t	e, full resistive sis and bus control 9000Lx, 1350 x, 18000Lx: St d when ordering.	led output rela 00Lx: Standard tandard 208-23 2400 option no	208-230 ± 10% 0 + 10% VAC (L	-L, 3 Phase))	otion -400: 40	00 ± 10% VA	C (L-L, 3 Phas			
Solation Voltage	oodeLx 3000LoodeLx 6000Ltes: 1. Input mu	put to chase properties of the	9000Lx, 1350 x, 18000Lx: St d when ordering.	led output rela 00Lx: Standard tandard 208-23 2400 option no	208-230 ± 10% 0 + 10% VAC (L	-L, 3 Phase))	otion -400: 40	00 ± 10% VA	C (L-L, 3 Phas			
Output Relay Pus Input Mo Voltage Mo Line Current (rms per phase) Mo 18 36 Efficiency 75% Power Factor 0.6 Hold-up Time At System	odeLx 3000L odeLx 6000L tes: 1. Input mu Model 3	.x, 4500Lx, .x, 12000Lx .st be specifie	9000Lx, 135 x, 18000Lx: St d when ordering.	00Lx: Standard tandard 208-23	208-230 ± 10% 0 + 10% VAC (L	-L, 3 Phase))	otion -400: 40	00 ± 10% VA	C (L-L, 3 Phas			
Input Mod Mod Not Voltage Mod Mod Not Line Current (rms per phase) Md 18/36 Efficiency 75% Power Factor 0.6 Hold-up Time At System	odeLx 3000L odeLx 6000L ites: 1. Input mu Model 3	x, 4500Lx, x, 12000Lx ust be specifie	9000Lx, 1350 x, 18000Lx: St d when ordering.	00Lx: Standard tandard 208-23	208-230 ± 10% 0 + 10% VAC (L	-L, 3 Phase))	otion -400: 40	00 ± 10% VA	C (L-L, 3 Phas			
Voltage Mod Mod Not Line Current (rms per phase) Mage 18 Efficiency 75% Power Factor 0.6 Hold-up Time At System	odeLx 6000L Ites: 1. Input mu Model 3	x, 12000L ust be specifie	x, 18000Lx: St d when ordering.	tandard 208-23 2400 option no	0 + 10% VAC (L	-L, 3 Phase))	otion -400: 40	00 ± 10% VA	C (L-L, 3 Phas			
Monoto	odeLx 6000L Ites: 1. Input mu Model 3	x, 12000L ust be specifie	x, 18000Lx: St d when ordering.	tandard 208-23 2400 option no	0 + 10% VAC (L	-L, 3 Phase))	otion -400: 40	00 ± 10% VA	C (L-L, 3 Phas			
18 18 18 19 19 19 19 19	87 VLL	_	3000Lx (1Pha	se) 4500Lx		ModeLx 3000Lx, 4500Lx, 9000Lx, 13500Lx: Standard: 208-230 ± 10% VAC, (L-L, 3 Phase); Option -400: 400 ± 10% VAC (L-L, 3 Phase) ModeLx 6000Lx, 12000Lx, 18000Lx: Standard 208-230 + 10% VAC (L-L, 3 Phase) Notes: 1. Input must be specified when ordering. 2400 option not available on 6000Lx, 12000Lx, 18000Lx. 3. 3000Lx can be operated from 1 phase AC.							
18 36 36 18 36 18 36 18 36 18 36 36 36 36 36 36 36 3	87 VLL	_		,	6000Lx (@ 20	8V) Inr	rush Current	rrent @ 180-254 V: 50 A peak					
Efficiency 75% Power Factor 0.6 Hold-up Time At System		19 A	32 A	31 A	38 A		er phase):	@ 360-440 V: 83 A peak					
Power Factor 0.6 Hold-up Time At System	60 VLL	10 A	n/a	16 A	n/a	Lin	ne Frequency	: 47-440) Hz				
Hold-up Time At System	75% typical												
System	0.6 typical												
•	At least 10 ms												
•													
Storage Set	Setup: 16 complete instrument setups / Transient List: 100 transient steps per list (SCPI mode) or 16 transient registers (APE mode)												
3	Input: Triggers measurements or transient steps - SMA connector: 10K pull-up / Output: SMA Connector: HCTTL output												
	put. myyers	measurem	ents or transfe	ant steps - SIVIA	connector, TOK	Juli-up /	Output. 3	IVIA CUIIIIECIO	n. nerit out	out			
Protection													
, ,	Overload: Constant current or constant voltage mode; Over temperature: Automatic Shutdown; Over voltage: Automatic shutdown												
	IEC1010, EN50081-2, EN50082-2, CE (for 400V input only), EMC, and safety mark requirements / RIF Suppression: CISPR 11, Group1, Class A												
Measurement													
	rameter	Frequenc	у	Phase	Voltage (AC)	Current (A	AC rms) Re	al Power	Apparent	Power			
(AC Measurements)	ange	45-81.91 82.0-819		45-100 Hz 100-1000 Hz	0-300 V	0-50 A	0-	6 kW	Power 0-6 kVA	0.00-1.00			
		> 819 Hz											
	ccuracy* (±)	0.10/	1 aliais	0.50	0.50/ . 350 . 3	0.10/ . 1	150 1	150/ . 0.34/	0.150/ - 0.1/4	0.03			
	ø mode (-1) ø mode (-3)	0.1% +	ı diğit	0.5°	0.5% + 250 mV	0.1% + 1	DU MA [0.		0.15% + 9 VA				
	esolution*	.01 Hz / (2°		0.1% + 5	omA In	15% + 3 W	0.15% + 3 VA	0.01			

Note: Specifications are subject to change without notice. Specifications are warranted over an ambient temperature range of 25° ± 5° C. Unless otherwise noted, specifications are per phase for a sinewave with a resistive load and apply after a 30 minute warm-up period. For three phase configurations, all specifications are for L-N. Phase angle specifications are valid under balanced load conditions only.

USB Interface & Ethernet RS232C Interface Bi-direction Baud rate: Physical Dimensions Dimensions (per chassis) Weight Chassis: Ne Vibration and Shock Air Intake/Exhaust Temperature & Diagnostics Rear Panel Connectors Option -AX Specifications Option -AX Specifications Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy* Resolution Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at FSVoltage Max RMS Current at FS Voltage	B 1.1; Speed: 460 Kb/s nal serial interface; 9-pin 1600 to 115200. Supplie 5" (267 mm), Width: 19' t: 193 lbs / 87.7 Kg, Ship meet NSTA project 1A tooling, side air intake, ree: Operating: 0 to 35° C, se AC input and output topin D-Shell RS232C conote voltage sense terminate voltage sense terminate power. 26 Volt-Acc 1600/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0.01 Hz / 0.1 Hz	maximum / Ethen D-shell connected with RS232C with RS23C	orage: -40 to +85° C; Dia vith safety cover. *IEEE-48t DB9 to DB9 cable supplied ger In1 and Trigger Out1. *! Vac unregulated outputs. T Jurrent capacity: 3 ARMS. It-Accuracy: ±5%. Current s Voltage Fundamental Harmonic	specify -LAN option atabits: 7 w/ pari SCPI; APE (option the includes rear part of the configuration than the configuration of the conf	on. 10BaseT, 1 ty, 8 w/o parit -GPIB) anel connecto s multiply nur self test availa r, USB connect t (INH) and D connectors. *A	oobaseT, RJ45 y. Stopbits: 2. rs) mber of chassis able over bus (' ctor, RJ45 conne	*TST) ector (with -LAI dicator (Option -AX)							
RS232C Interface Physical Dimensions Dimensions (per chassis) Weight Vibration and Shock Air Intake/Exhaust Temperature & Diagnostics Rear Panel Connectors Option -AX Specifications Option -AX Option -AV Option -AV Provides set the 5 V for Frequency: Reasurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy sq. Waveforms Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at FSVoltage Max RMS Current at Full Power Max RMS Current at FSVoltage	al serial interface; 9-pin 2600 to 115200. Supplie 5" (267 mm), Width: 19' t: 193 lbs / 87.7 Kg, Ship or meet NSTA project 1A tooling, side air intake, rese: Operating: 0 to 35° C, se AC input and output topin D-Shell RS232C compote voltage sense termin one operate isolated 26 VAC mamp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam	D-shell connect ad with RS232C " (483 mm), De poping: 280 lbs / transportation I tear exhaust full power / Str terminal block v annector (RS232 nal block. *Trigg egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	or. Handshake: CTS, RTS. D cable / Code and Format: pth: 23.7" (602 mm) (dept 127.3 Kg (for /2 or /3 modeveLx orage: -40 to +85° C; Dia with safety cover. *IEEE-488 DB9 to DB9 cable supplied ger In1 and Trigger Out1. *: Uvac unregulated outputs. T Current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	atabits: 7 w/ pari SCPI; APE (option th includes rear part del configuaration agnostics: Built-in B (GPIB) connecto). *Remote Inhibi System interface of the 26 V is normal capacity: 5 ARM!	ty, 8 w/o parit -GPIB) anel connecto s multiply nur self test availa r, USB connect t (INH) and D connectors. *A	rs) mber of chassis able over bus (ttor, RJ45 conne iscrete Fault Inc Auxilary Output	*TST) ector (with -LAI dicator (Option -AX)							
Physical Dimensions Dimensions (per chassis) Height: 10. Weight Chassis: Ne Vibration and Shock Designed to Air Intake/Exhaust Forced air of Temperature & Diagnostics Temperature Rear Panel Connectors **Three pha Option -AX Specifications Option -AX Specifications Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy sp Waveforms Pre defined Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at Full Power 3 Option -EHV Specifications Voltage/Frequency Ranges Voltage: Low: 33.3 / Option -EHV Specifications Voltage/Frequency Ranges Voltage: Low: 34.3 / Option -EHV Specifications Voltage/Frequency Ranges Voltage: Low: 37.3 / Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at Foll Power 3 Phase: Hi Current ava	5" (267 mm), Width: 19" t: 193 lbs / 87.7 Kg, Ship meet NSTA project 1A tooling, side air intake, re e: Operating: 0 to 35° C, se AC input and output tooling behalf some terminal output to the control of the control	ed with RS232C " (483 mm), De oping: 280 lbs / transportation I ear exhaust full power / Str terminal block v anector (RS232 nal block. *Trigg egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	pth: 23.7" (602 mm) (dept 127.3 Kg (for /2 or /3 modeveLx orage: -40 to +85° C; Dia vith safety cover. *IEEE-488 DB9 to DB9 cable supplied per In1 and Trigger Out1. *: Vac unregulated outputs. Turrent capacity: 3 ARMS. It-Accuracy: ± 5%. Current Supplied Fundamental Harmonic	scPI; APE (option the includes rear parties) and configuration and capacity: 5 ARM!	anel connecto s multiply nur self test avail. r, USB connect t (INH) and D connectors. *A	rs) mber of chassis able over bus (' ctor, RJ45 conne iscrete Fault Inc	*TST) ector (with -LAf dicator : (Option -AX)							
Dimensions (per chassis) Weight Chassis: Ne Vibration and Shock Designed to Air Intake/Exhaust Temperature & Diagnostics Rear Panel Connectors Option -AX Specifications Option -AX Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy sp Waveforms Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at Full Power Max RMS Current at Foll Power Max RMS Current at FSVoltage Max RMS Current at Foll Power Max RMS Current at FSVoltage	t: 193 lbs / 87.7 Kg, Ship meet NSTA project 1A to cooling, side air intake, re e: Operating: 0 to 35° C, se AC input and output to -pin D-Shell RS232C con ote voltage sense termin perate isolated 26 VAC re amp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / (0.01 Hz / 0.1 Hz	poping: 280 lbs / transportation l tear exhaust full power / Streminal block v annector (RS232 nal block. *Trigo egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Volental Harmonic - 12.5 kHz	127.3 Kg (for /2 or /3 modeveLx orage: -40 to +85° C; Dia with safety cover. *IEEE-488 DB9 to DB9 cable supplied ger In1 and Trigger Out1. *: Vac unregulated outputs. T Current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	ignostics: Built-in B (GPIB) connecto). *Remote Inhibi System interface of The 26 V is normal capacity: 5 ARM!	s multiply nur self test availar, USB connec t (INH) and D connectors. *A	able over bus (ctor, RJ45 conne iscrete Fault Inc Auxilary Output	*TST) ector (with -LAf dicator : (Option -AX)							
Weight Vibration and Shock Designed to Air Intake/Exhaust Forced air of Temperature & Diagnostics Rear Panel Connectors Option -AX Specifications Option -AX Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy specifications Waveforms Pre defined Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at Full Power Max RMS Current at FSVoltage	t: 193 lbs / 87.7 Kg, Ship meet NSTA project 1A to cooling, side air intake, re e: Operating: 0 to 35° C, se AC input and output to -pin D-Shell RS232C con ote voltage sense termin perate isolated 26 VAC re amp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / (0.01 Hz / 0.1 Hz	poping: 280 lbs / transportation l tear exhaust full power / Streminal block v annector (RS232 nal block. *Trigo egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Volental Harmonic - 12.5 kHz	127.3 Kg (for /2 or /3 modeveLx orage: -40 to +85° C; Dia with safety cover. *IEEE-488 DB9 to DB9 cable supplied ger In1 and Trigger Out1. *: Vac unregulated outputs. T Current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	ignostics: Built-in B (GPIB) connecto). *Remote Inhibi System interface of The 26 V is normal capacity: 5 ARM!	s multiply nur self test availar, USB connec t (INH) and D connectors. *A	able over bus (ctor, RJ45 conne iscrete Fault Inc Auxilary Output	*TST) ector (with -LAf dicator : (Option -AX)							
Vibration and Shock Air Intake/Exhaust Forced air of Temperature & Diagnostics Rear Panel Connectors Option -AX Specifications Option -AX Provides set the 5 V for Frequency: Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy *Resolution *Accuracy *Resolu	n meet NSTA project 1A tooling, side air intake, ree: Operating: 0 to 35° C, see AC input and output to prin D-Shell RS232C condition of the voltage sense terminal provides the sense terminal provides and provides	transportation I transport I transpo	orage: -40 to +85° C; Dia vith safety cover. *IEEE-488 DB9 to DB9 cable supplied ger In1 and Trigger Out1. *: Vac unregulated outputs. T Current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	ignostics: Built-in 3 (GPIB) connector 1). *Remote Inhibi System interface of the 26 V is norma capacity: 5 ARM!	self test avail. r, USB connect t (INH) and D connectors. *A	able over bus (' ctor, RJ45 conne iscrete Fault Inc Auxilary Output	*TST) ector (with -LAf dicator : (Option -AX)							
Air Intake/Exhaust Temperature & Diagnostics Rear Panel Connectors Option -AX Specifications Option -AX Option -AX Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy specifications Waveforms Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at Full Power Max RMS Current at Foll Power	cooling, side air intake, re e: Operating: 0 to 35° C, se AC input and output t -pin D-Shell RS232C con ote voltage sense termin operate isolated 26 VAC r amp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0 0.01 Hz / 0.1 Hz	ear exhaust full power / Streminal block vanector (RS232 hal block. *Trigg egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	orage: -40 to +85° C; Dia vith safety cover. *IEEE-48t DB9 to DB9 cable supplied ger In1 and Trigger Out1. *! Vac unregulated outputs. T Jurrent capacity: 3 ARMS. It-Accuracy: ±5%. Current s Voltage Fundamental Harmonic	3 (GPIB) connector ;). *Remote Inhibit System interface of The 26 V is normal capacity: 5 ARM!	r, USB connect t (INH) and D connectors. *A	ctor, RJ45 conne iscrete Fault Ind Auxilary Output	ector (with -LAI dicator (Option -AX)							
Temperature & Diagnostics Rear Panel Connectors *Three pha Option). *9 (DFI). *Rem Option -AX Specifications Option -AX Provides se the 5 V for Frequency: Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy* Resolution *Accuracy* Resolution *Accuracy specifications Waveforms Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at FSVoltage Max RMS Current at Full Power Max RMS Current at FSVoltage	e: Operating: 0 to 35° C, se AC input and output to pin D-Shell RS232C condition of the voltage sense terminal operate isolated 26 VAC reamp power. 26 Volt-Acc amp power. 26 Volt-Acc	, full power / St terminal block v the terminal block v the terminal block. *Trigo and block. *Trigo egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	vith safety cover. *IEEE-488 DB9 to DB9 cable supplied ger In1 and Trigger Out1. *' Vac unregulated outputs. T current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	3 (GPIB) connector ;). *Remote Inhibit System interface of The 26 V is normal capacity: 5 ARM!	r, USB connect t (INH) and D connectors. *A	ctor, RJ45 conne iscrete Fault Ind Auxilary Output	ector (with -LAI dicator (Option -AX)							
Rear Panel Connectors *Three pha Option.** (DFI). *Rem Option -AX Specifications Option -AX Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy sp. Waveforms Parameters Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at Full Power Max RMS Current at FSVoltage 3000Lx: 31 Current available Current avail	se AC input and output to the print Described and output to the print Described and output to the print Described and powers. 26 VAC reamp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / (0.01 Hz / 0.1 Hz)	terminal block v nnector (RS232 nal block. *Trigg egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	vith safety cover. *IEEE-488 DB9 to DB9 cable supplied ger In1 and Trigger Out1. *' Vac unregulated outputs. T current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	3 (GPIB) connector ;). *Remote Inhibit System interface of The 26 V is normal capacity: 5 ARM!	r, USB connect t (INH) and D connectors. *A	ctor, RJ45 conne iscrete Fault Ind Auxilary Output	ector (with -LAI dicator (Option -AX)							
Option -AX Specifications Option -AX Option -AX Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy specifications Waveforms Data Acquisition Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at Full Power Option -EHV Specifications Voltage/Frequency Ranges Voltage/Frequency Ranges Max RMS Current at FSVoltage	pin D-Shell RS232C conote voltage sense terminote voltage volt	nector (RS232 nal block. *Trigg egulated and 5 curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	DB9 to DB9 cable supplied ger In1 and Trigger Out1. *! Vac unregulated outputs. Tourrent capacity: 3 ARMS. lt-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic). *Remote Inhibi System interface of The 26 V is norma capacity: 5 ARM!	t (INH) and D connectors. * <i>F</i>	iscrete Fault Ind Auxilary Output	dicator (Option -AX)							
Option -AX Provides se the 5 V for Frequency: Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution * Accuracy sp Waveforms Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power Max RMS Current at FSVoltage Option -EHV Specifications Voltage/Frequency Ranges Voltage/Frequency Ranges Max RMS Current at FSVoltage Max RMS Current at FSVoltage Max RMS Current at Full Power 3 Phase: Hi Current ave Max RMS Current at FSVoltage 3000Lx: 3 I Current ave Max RMS Current at FSVoltage	Amp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0 0.01 Hz / 0.1 Hz	curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	capacity: 5 ARM!	5	ervo-synchro ex	citation, and							
the 5 V for Frequency: Option -ADV Specifications Measurements - Harmonics Parameter Range Accuracy* Resolution *Accuracy Square Resolution Accuracy Square Resolution Accuracy Square Resolution Accuracy Square Resolution Parameters Option -HV Specifications Voltage/Frequency Ranges Max RMS Current at Full Power 3 Phase: His Current average Range Voltage: Low: 33.3 Accuracy Square Range R	Amp power. 26 Volt-Acc 360/440 Hz. Regulation Frequency Fundam 45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0 0.01 Hz / 0.1 Hz	curacy: ± 2%. C ± 0.05%. 5 Vol ental Harmonic - 12.5 kHz	current capacity: 3 ARMS. It-Accuracy: ± 5%. Current s Voltage Fundamental Harmonic	capacity: 5 ARM!	5	ervo-synchro ex	citation, and							
Measurements - Harmonics Parameter Range Accuracy* Resolution * Accuracy sp Waveforms Pre defined Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Low: 33.3 / Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Suppose	45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0 0.01 Hz / 0.1 Hz	- 12.5 kHz	Fundamental Harmonic	rs 2 - 50	Current									
Waveforms Pre defined Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Low: 33.3 // Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FSVoltage 3 Phase: Hi Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Avan RMS Current at FSVoltage 3000Lx: 3	45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0 0.01 Hz / 0.1 Hz	- 12.5 kHz	Fundamental Harmonic	rs 2 - 50	Current									
Range Accuracy* Resolution *Accuracy sg Waveforms Pre defined Data Acquisition Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FVoltage Voltage/Frequency Ranges Voltage/Frequency Ranges Voltage/Frequency Ranges Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FVoltage Max RMS Current at FVoltage 3 Phase: Hi Current ava Max RMS Current at FVoltage 3 OOOLx: 3 I	45-250 Hz / 0.09 (±) 0.01% + 1 digit / 0 0.01 Hz / 0.1 Hz	- 12.5 kHz	Fundamental Harmonic	·s 2 - 50	Current									
Resolution *Accuracy sq Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power Max RMS Current at FSVoltage Option -EHV Specifications Voltage/Frequency Ranges Voltage/Frequency Ranges Max RMS Current at FSVoltage Voltage: Lo Max RMS Current at Full Power 3 Phase: Hi Current ave Max RMS Current at Full Power 3 Phase: Hi Current ave Max RMS Current at FSVoltage 3000Lx: 3 I 3 Phase: Hi Current ave Max RMS Current at FSVoltage 3000Lx: 3 I 3000Lx: 3	0.01 Hz / 0.1 Hz	0.5% + 1 digit				Fundamental Harmonics 2 - 50								
* Accuracy sp Waveforms Pre defined Data Acquisition Parameters Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power 3 Phase: His Current ave Max RMS Current at FSVoltage 3000Lx: 3 Low: 33.3 // Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power 3 Phase: His Current ave Max RMS Current at Full Power 3 Phase: His Current ave Max RMS Current at FS Voltage 3000Lx: 3 low: 3 l	1				0.5 A / 0.3%	5 + 150 mA +0).3% /1 kHz							
Data Acquisition Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power Max RMS Current at FSVoltage Option -EHV Specifications Voltage/Frequency Ranges Voltage/Frequency Ranges Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Current ava Max RMS Current at FSVoltage	Resolution 0.01 Hz / 0.1 Hz 10 mV / 10 mV 10 mA / 10 mA * Accuracy specifications are in a percent of reading for single unit in 3-phase mode. Pre defined: Sine, Square, Clipped User defined, 1024 addressable data points; Storage: 50 user waveforms, non-volatile memory													
Option -HV Specifications Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power Max RMS Current at FSVoltage Option -EHV Specifications Voltage/Frequency Ranges Voltage/Frequency Ranges Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FS Voltage 3000Lx: 3 II	Sine, Square, Clipped U	ser defined, 10	24 addressable data points	; Storage: 50 use	r waveforms,	non-volatile me	emory							
Voltage/Frequency Ranges Low: 0-135 18000Lx: 4 Max RMS Current at Full Power Max RMS Current at FSVoltage Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FS Voltage 3000Lx: 3 I 3000Lx: 4 I 3000Lx	Voltage, Current time de	omain, per phas	se; Resolution: 4096 data p	ooints, 10.4 usec	(1ø) or 31.25	usec (3ø) samp	oling interval							
Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at FSVoltage Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power Max RMS Current at FSVoltage Max RMS Current at FSVoltage 3000Lx: 3 III														
Current ava Max RMS Current at FSVoltage 3000Lx: 3 I Low: 33.3 / Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FS Voltage 3000Lx: 3 I	Volt; High: 0-270 Volt / 5 Hz - 5000 Hz	Frequency: With	n -HF option: 3000Lx, 4500	DLx, 6000Lx: 45 H	z - 5000 Hz; 9	9000Lx, 12000	Lx, 13500Lx,							
Low: 33.3 / Option -EHV Specifications Voltage/Frequency Ranges Voltage: Lo Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FS Voltage 3000Lx: 3 l	3 Phase: High: 7.4 A, Low 14.8 A; 1 Phase: High: 22.2 A, Low: 44.4 A; Note: Constant power modes on 3000Lx and 4500Lx. Current available at reduced voltage for 3000Lx, 4500Lx, and max voltage for 6000Lx													
Voltage/Frequency Ranges Max RMS Current at Full Power 3 Phase: Hi Current ave Max RMS Current at FS Voltage 3000Lx: 3 I			High 11.1 A, Low: 22.2 A; .8 A; 1 Phase: High: 22.2 A		High: 5.6, Lo	w 11.1; 1 Phas	e: High: 16.7 A							
Max RMS Current at Full Power 3 Phase: Hi Current ava Max RMS Current at FS Voltage 3000Lx: 3 I														
Current ava Max RMS Current at FS Voltage 3000Lx: 3 I	พ: 0-200 Volt; High: 0-4	00 Volt / Freque	ency: With -HF option: 45 H	z - 5000 Hz										
	3 Phase: High: 5.0 A, Low 10.0 A; 1 Phase: High: 15.0 A, Low: 30.0 A; Note: Constant power modes on 3000Lx and 4500Lx. Current available at reduced voltage for 3000Lx, 4500Lx, and max voltage for 6000Lx													
			High 7.5 A, Low: 15.0 A; 4 .0 A; 1 Phase: High: 15.0 A		High: 3.8, Low	v 7.5; 1 Phase:	High: 11.3 A,							
Option -HF Specifications														
Measurements: Parameter	Frequency	Phase V	oltage (AC)	Current (AC rms)	Real Power	Apparent Power	Power Factor							
F < 2000 Hz: See standard Lx Specifications; Range		< 2000 Hz 0 > 2000 Hz <	0-300 V < 1000 Hz / > 1000 Hz	0-50 A	0-5 kW	0-5 kVA	0.00-1.00							
F > 2000 Hz: See table > Accuracy* (1 ø mode (-	45 - 5000 Hz		0.05% + 250 mV	0.5% + 150 mA	0.5% + 9 W	0.5% + 9 VA	0.03							
3 ø mode (-	45 - 5000 Hz	0.5°		0.5% + 50 mA	0.5% + 3 W	0.5% + 3 VA	0.01							
	45 - 5000 Hz ±) 1) 0.1% + 1 digit	5° 0		Resolution* 0.01 Hz / 0.1 Hz / 1 Hz 0.1° / 1° 10 mV										
	45 - 5000 Hz 1) 0.1% + 1 digit 3) 0.01 Hz / 0.1 Hz / 1 Hz	5° 0 z 0.1° / 1° 1	0 mV		wor range and .	* Accurac specifications are in % of reading and apply above 100 counts. For multi-chassis configurations, current, power range and accuracy specifications are times three. Power factor accuracy applies for PF > 0.5 and VA > 50% of max. Frequency measurement specification valid for output > 30 Vrms.								
250 mVrms typical (20 kHz to 1 MHz) 3000Lx 34	45 - 5000 Hz b) 1) 0.1% + 1 digit 3) 0.01 Hz / 0.1 Hz / 1 Hz cifications are in % of reading	5° 0 z 0.1° / 1° 1 g and apply above 1	0 mV 00 counts. For multi-chassis confi	igurations, current, po										
Output Noise 250 mVrms	45 - 5000 Hz b) 1) 0.1% + 1 digit 3) 0.01 Hz / 0.1 Hz / 1 Hz cifications are in % of reading er factor accuracy applies for f	5° 0.1° / 1° 1 y and apply above 1 PF > 0.5 and VA >	0 mV 00 counts. For multi-chassis confi	igurations, current, po ment specification vali										

^{© 2009} AMETEK Programmable Power All rights reserved. AMETEK Programmable Power is the trademark of AMETEK Inc., registered in the U.S. and other countries. Elgar, Sorensen, California Instruments, and Power Ten are trademarks of AMETEK Inc., registered in the U.S.

Lx Series

Model ¹	Output Power	No of Output Phases		Nom. Input Voltage ²	
		-1	-3		
3000Lx	3 kVA	1	3	208-230 V	
3000Lx-400	3 kVA	1	3	400 V	
4500Lx	4.5 kVA	1	3	208-230 V	
4500Lx-400	4.5 kVA	1	3	400 V	
6000Lx	6 kVA	1	3	208-230 V	
9000Lx/2	9 kVA	1	3	208-230 V	
9000Lx/2-400	9 kVA	1	3	400 V	
12000Lx/2	12 kVA	1	3	208-230 V	
13500Lx/3	13.5 kVA	1	3	208-230 V	
13500Lx/3-400	13.5 kVA	1	3	400 V	
18000Lx/3	18 kVA	1	3	208-230 V	

Note 1: The /2 or /3 designation indicates number of chassis.

Note 2: All input voltage specifications are for Line to Line three phase, delta or wye. Model 3000Ls (208 V input) can be operated on 230 V L-N single phase if needed.

HF Table Model	Max. Freq.
3000Lx	5000 Hz
4500Lx	5000 Hz
6000Lx	5000 Hz
9000Lx/2	2000 Hz
12000Lx/2	2000 Hz
13500Lx/3	2000 Hz
18000Lx/3	2000 Hz

Ordering Information

Model

Refer to table shown for model numbers and configurations. Specify number of output phases (-1 or -3) as part of model number, eg 4500Lx-1 or 4500Lx-3.

Supplied with

User / Programming Manual on CD-ROM, Software and RS232C serial cable.

Options

Input Options

400 ±10% Volt Line to Line AC input -400 Includes CE Mark. [Not available on 6000Ls, 12000Ls and 18000Ls Models]

-480 480 ±10% (3 phase output only)

Output Options

-AX Auxiliary outputs, 26 VAC, 5 VAC. Limits upper frequency to 800 Hz.

-EHV 200/400 V output range.

-HF Extends upper frequency limit.

See HF table.

-LF Limits output frequency to 500 Hz.

Keypad Options

-RP LS style rotary knobs

Cabinet Options

Rackmount Slides. Recommended for rack mount applications.

C prefix Cabinet System. Installed and pre-wired in 19" cabinet.

Controller Options

Emulates Elgar SL Series -ABL

-ADV Advanced feature set. Adds arbitrary waveform generation and harmonic

analysis of voltage and current.

-GPIB GPIB interface and APE programming

language.

-LAN Ethernet Interface.

Multi-box. Adds controller to auxiliary -MB chassis of multi-chassis systems.

-MODE Add phase mode selection for 3 models -L22 Locking Knobs.

-LKM Clock and Lock Master

-LKS Clock and Lock Auxiliary

-LNS Line Sync.

-EXS External Sync.

Avionics Test Routine Options

Airbus Directive 0100.1.8 tests. -ABD [AC only]. Requires -ADV and use of Windows PC and included

LxGui software

Airbus Test Software

-AMD Airbus AMD24 Test

-A350

-AIRB Airbus A380, A350 & AMD24 package

-B787 Boeing 787 Test Software

-704 Mil-Std 704 rev D and E test firmware.

[AC only]

-704F Mil-Std 704 rev A - F

-160 RTCA/DO-160, Change 2,

EuroCAE-14D [Section 16, AC only]

* Note Reference the Avionics Test User Manual P/N 4994-971 for a complete listing of performance capabilities.

Option Matrix

_ •								
	HF	LF	HV	EHV	LKM	LKS	EXS	AX
HF	-	х	0	0	х	х	0	х
LF	х	-	0	0	0	0	0	0
HV	0	0	-	х	0	0	0	0
EHV	0	0	х	-	0	0	0	0
LKM	х	0	0	0	-	х	0	0
LKS	х	0	0	0	х	-	х	0
EXS	0	0	0	0	0	х	-	О
AX	х	0	0	0	0	0	0	-

Note 1: See option matrix

Note2: -LKS, -LNS and -EXS are mutually exclusive and with Ext Trig function.



Via Acquanera, 29 tel. 031.526.566 (r.a.) info@calpower.it

22100 COMO fax 031.507.984 www.calpower.it