

California Instruments i/iX Series II

3000–15000 VA

General purpose AC power sources

150–300 V

- Combination AC and DC Power Source and Power Analyzer
- 3000 VA - 15000 VA of Output Power
- Arbitrary Waveform Generation
- Built-in Digital Power Analyzer
- Scope Capture Capability
- EN61000-3-2 and EN61000-3-3
- Powerful Programing Software
- Constant Power Mode



0–120 A



208

230

400



208

230

ETHERNET



RS232

Intergrated System

The iX Series II represents a new generation of AC and DC power source that addresses increasing demands on test equipment to perform more functions at a lower cost. By combining a flexible AC/DC power source with a high performance power analyzer, the iX Series II systems are capable of handling complex applications that have traditionally required multiple instruments.

The sleek integrated approach of the iX Series II avoids the cable clutter that is commonly found in AC test systems. The i/iX Series II is rackmountable with a 4U chassis design. All connections are made internally and the need for external digital multimeters, power harmonics analyzer and current shunts or clamps is completely eliminated.

Using a state of the art digital signal processor in conjunction with precision high resolution A/D converters, the iX Series II provides more accuracy and resolution than can be found in some dedicated harmonic power analyzers. Since many components in the iX Series II are shared between the AC/DC source and the power analyzer, the total cost of the integrated system is less than the typical cost of a multiple unit system.

For less demanding applications, the i Series II provides similar output and transient capabilities as the iX Series II, as well as basic measurements.

Easy To Use Controls

Both the iX Series II and i Series II are microprocessor controlled and can be operated from an easy to use front panel keypad. Functions are grouped logically and are directly accessible from the keypad. This eliminates the need to search through various levels of menus and/or soft keys. A large analog control knob can be used to quickly slew output parameters. This

knob is controlled by a dynamic rate change algorithm that combines the benefits of precise control over small parameter changes with quick sweeps through the entire range.

Applications

With precise output regulation and accuracy, the iX Series II AC and DC sources address many application areas for AC and DC power testing. The iX also provides a high load current capability, multi or single phase output modes, and built-in power analyzer measurements. Additional features including line distortion simulation (LDS), arbitrary waveform generation, and programmable output impedance address requirements for product quality and regulatory compliance testing.

Product Evaluation and Test

Increasingly, manufacturers of electronic equipment and appliances are required to fully evaluate and test their products over a wide range of input line conditions. The built-in output transient generation and readback measurement capability offers the convenience of an easy to use and integrated test system.

Avionics

With an output frequency range to 1000 Hz, up to 150 VRMS, the iX Series II is well suited for aerospace applications. Precise frequency control and accurate load regulation are key requirements in these applications. The standard IEEE-488 control interface and SCPI command language provide for easy integration into existing ATE systems. Since the iX Series II can eliminate the need for additional pieces of test equipment and only occupies 7 inches of rack space (4U), it significantly saves cost and space. Options are available for popular avionics test routines such as: DO-160, ABD- 0100, MIL-STD-704A-F, Boeing 7E73B-0147, and Airbus test routines.

AMETEK
Programmable Power
9250 Brown Deer Road
San Diego, CA 92121-2267
USA



Regulatory Testing

As governments are moving to enforce product quality standards, regulatory compliance testing is becoming a requirement for a growing number of manufacturers. The iX Series II is designed to meet AC source requirements for use in Euronorm EN 61000 compliance testing. For flicker testing, the programmable output impedance capability of the 3001iX, 5001iX and 15003iX can be used to create the required IEC 725 reference impedance. Run IEC61000-4-11, IEC61000-4-14 and IEC61000-4-28 test programs.

Multi-Box Configurations

For high power applications, two or three 5001iX chassis can be combined to provide 10 to 15 kVA of single or three phase power. A 9003iX, 15003iX or 15003i three phase configuration can be ordered with the MODE-iX option. This option allows automatic switching between single or three phase output mode. In single phase mode, all current is available on phase A.

High Crest Factor

With a crest factor of up to 5:1, the iX Series II AC source can drive difficult nonlinear loads with ease. Since many modern products use switching power supplies, they have a tendency to pull high repetitive peak currents. The 5001iX can deliver up to 110 Amps of repetitive peak current to handle such loads.

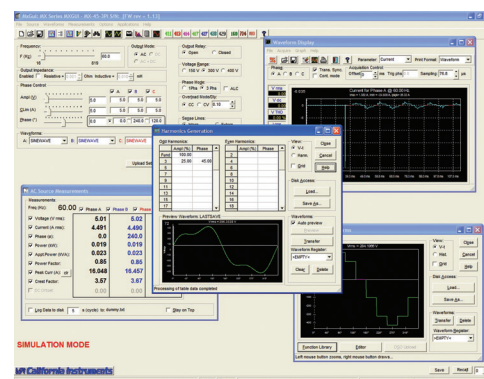
Remote Control

Standard IEEE-488 and RS232C remote control interfaces allow programming of all instrument functions from an external computer. The popular SCPI command protocol is used for programming. Drivers for several popular instrumentation programming environments are available to facilitate systems integration of the iX Series II. Instrument drivers for popular programming environments such as National Instruments LabView™ are available to speed up system intergration.¹

Application Software

Windows® application software is included with the iX and i Series II¹. This software provides easy access to the power source's capabilities without the need to develop any custom code. The following functions are available through this GUI program:

- Steady state output control (all parameters)
- Create, run, save, reload and print transient programs
- Generate and save harmonic waveforms [iX only]
- Generate and save arbitrary waveforms [iX only]
- Download data from a digital storage oscilloscope [iX only]
- Measure and log standard measurements
- Capture and display output voltage and current waveforms [iX only]
- Measure, display, print and log harmonic voltage and current measurements [iX only]
- Display IEEE-488 or RS232C bus traffic to and from the AC Source to help you develop your own test programs..

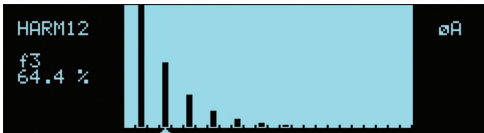


1. Requires PC running WindowsXP™ or Windows 2000™

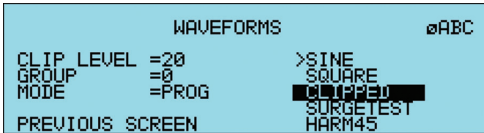
Harmonic Waveform Generation

Using the latest DSP technology, the iX Series II controller is capable of generating harmonic waveforms to test for harmonics susceptibility of a unit under test. Included is a Graphical User Interface program that can be used to define harmonic waveforms by specifying amplitude and phase for up to 50 harmonics. The waveform data points are generated and downloaded by the GUI to the AC source through either the USB, IEEE-488, RS232C bus or LAN and remain in nonvolatile memory. Up to 200 waveforms can be stored and given a user defined name for easy recall.

The three phase configuration iX Series II offers independent waveform generation on each phase allowing three phase anomalies to be programmed. It also allows simulation of unbalanced harmonic line conditions.



Harmonic waveform, Fund., 3rd, 5th, 7th, 9th, 11th and 13th.

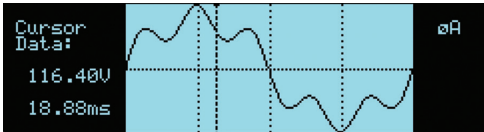


Two hundred user defined waveforms.

Arbitrary Waveform Generation
[iX Series II only]

Using the provided GUI program or custom software, the user also has the ability to define arbitrary AC waveforms. The arbitrary waveform method of data entry provides an alternative method of specifying AC anomalies by providing specific waveform data points. The GUI program includes a catalog of custom waveforms. It also allows real-world waveforms captured on a digital oscilloscope to be downloaded to one of the many AC source's waveform memories.

Arbitrary waveform capability is a flexible way of simulating the effect of real-world AC power line conditions in both engineering and production environments.



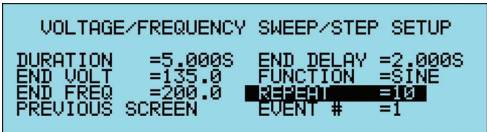
Two hundred user defined waveforms.

iX and i Series II -
AC and DC Transient Generation

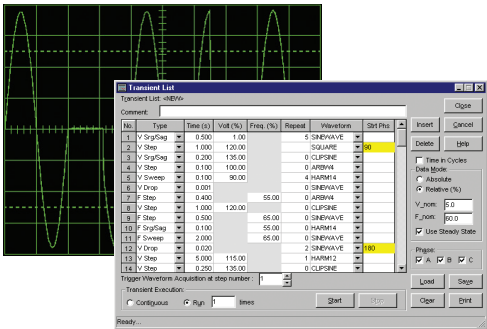
The iX and i Series II controllers have a powerful AC and DC transient generation system that allows complex sequences of voltage, frequency and waveshapes to be generated. This further enhances the i/iX's capability to simulate AC line conditions or DC disturbances. When combined with the multi phase arbitrary waveform capabilities, the AC and DC output possibilities are truly exceptional. In three phase i/iX system configurations, transient generation is controlled independently yet time synchronized on all three phases. Accurate phase angle control and synchronized transient list execution provide unparalleled accuracy in positioning AC output events.

Transient programming is easily accomplished from the front panel where clearly laid out menu's guide the user through the transient definition process. The front panel provides a convenient listing of the programmed transient sequence and allows for transient execution, Start, Stop, Abort and Resume operations.

User defined transient sequences can be saved to nonvolatile memory for instant recall and execution at a later time. The included Graphical User Interface program supports transient definitions using a spreadsheet-like data entry grid. A library of frequently used transient programs can be created on disk using this GUI program.



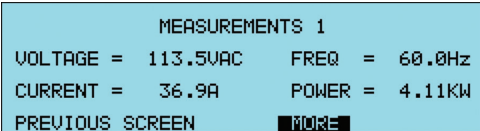
Transient List Data Entry from the front panel



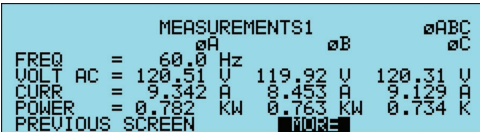
Transient List Data Entry in GUI program.

Measurement and Analysis

The i/iX Series II is much more than a programmable AC and DC power source. It also incorporates an advanced digital signal processor based data acquisition system that continuously monitors all AC source and load parameters. This data acquisition system forms the basis for all measurement and analysis functions. These functions are accessible from the front panel and the remote control interface.



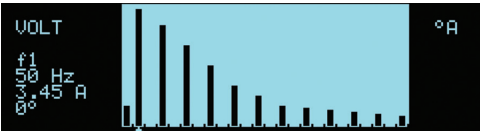
Measurement data for single phase (iX Display).



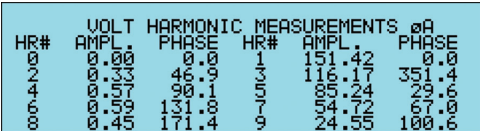
Measurement data for all three phases (iX Display).

Harmonic Analysis [iX Series II only]

The iX Series II provides detailed amplitude and phase information on up to 50 harmonics of the fundamental voltage and current for either one or three phases. Harmonic content can be displayed in both tabular and graphical formats on the front panel LCD for immediate feedback to the operator. Alternatively, the included GUI program can be used to display, print and save harmonic measurement data. Total harmonic distortion of both voltage and current is calculated from the harmonic data.



Absolute amplitude bar graph display of current harmonics with cursor positioned at the fundamental (iX Display).

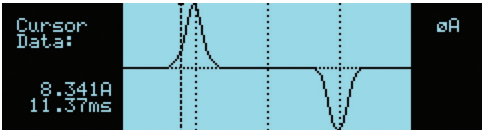


Voltage harmonic measurement table display in absolute values (iX Display).

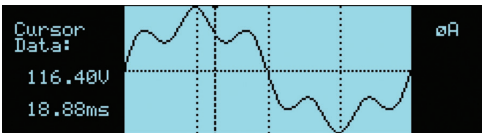
Waveform Acquisition [iX Series II only]

The measurement system is based on real-time digitization of the voltage and current waveforms using a 4K deep sample buffer. This time domain information provides detailed information on both voltage and current waveshapes. Waveform acquisitions can be triggered at a specific phase angle or from a transient program to allow precise positioning of the captured waveform with respect to the AC source output.

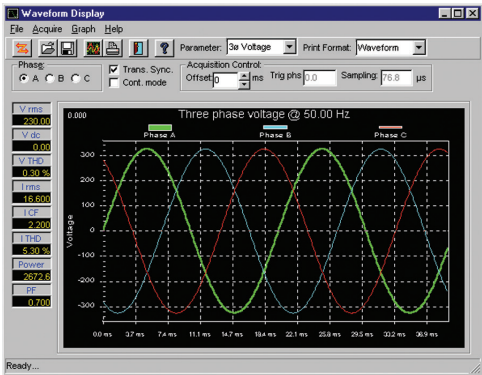
The front panel LCD displays captured waveforms with cursor readouts. The included GUI program also allows acquired waveform data to be displayed, printed and saved to disk.



Acquired Current waveform (iX Display).



Acquired Voltage waveform (iX Display).



Acquired three phase voltage waveforms display on PC.

i/iX Series II : Product Specifications

3000–15000 VA

Operating Modes							
iX Series II	AC, DC or AC+DC						
i Series II	AC or DC						
AC Mode Output							
Frequency	Range: 16.00-1000 Hz (Note: Voltage on 300 V range derates from 300 Vrms max at 500 Hz to 150 Vrms max at 1000 Hz; See V-F rating chart. below)						
Total Power	3001i/iX: 3000 VA, 5001i/iX: 5000 VA, 9003i/iX: 3000 VA per phase, with mode iX: 9000 VA 1ø, 10001i/iX: 10000 VA, 15001i/iX: 15000 VA, 15003i/iX: 5000 VA/ø 3ø, with mode iX: 15000 VA 1ø						
Load Power Factor	0 to unity at full output VA						
AC Mode Voltage							
Voltage Ranges	Range	V Low	V High	Load Regulation (with ALC on):	< 0.2%		
	AC	0-150 V	0-300 V	Load Regulation (with ALC off):	< 0.5% DC to 100 Hz, < 0.6% 100 Hz to 500 Hz in high voltage range, < 2.2% 100 Hz to 500 Hz in low voltage range, < 3% 500 Hz to 1000 Hz		
	AC+DC	0-150 V	0-300 V	Line Regulation:	< 0.1% for 10% line change		
Output Noise (20 kHz to 1 MHz)	< 250 mVrms typ., < 500 mVrms max						
Harmonic Distortion (Linear)	< 1% from 16 - 66 Hz, < 2% at 400 Hz, < 3% at 800 Hz (Full resistive load)						
DC Offset	< 20 mV						
External Amplitude Modulation	Depth: 0 - 10 %, Frequency: DC - 2 KHz						
Isolation Voltage	300 Vrms output to chassis						
Voltage slew rate	200 µs for 10% to 90% of full scale change into resistive load, 0.5V / µSec						
AC Mode Current							
Steady State AC Current	Model	3001i/iX	5001i/iX	9003i/iX 3ø	10001i/iX	15001i/iX	15003i/iX 3ø
	300 V range	11.1	18.5	11.1 /ø	37.0	55.5	18.5 /ø
	150 V range	22.2	37.0	22.2 /ø	74.0	111.0	37.0 /ø
Note: Constant power mode provides increased current at reduced voltage (See chart below)							
Peak Repetitive AC Current	Model	3001i/iX	5001i/iX	9003i/iX 3ø	10001i/iX	15001i/iX	15003i/iX 3ø
	High range	96.0	96.0	96.0 /ø	192.0	288.0	96.0 /ø
	Low range	110.0	110.0	110.0 /ø	220.0	330.0	110.0 /ø
Programming Accuracy	Voltage (rms): ± 0.2 of range, 16 to 1000 Hz, Frequency: ± 0.01 % of programmed value, Current Limit: ± 0.5 % of programmed value, Phase: < 1.5° with balanced load at 50/60 Hz						
Programming Resolution	Voltage (rms): 100 mV, Frequency: 0.01 Hz from 16 - 81.91 Hz, 0.1 Hz from 82.0 - 819.1 Hz, 1 Hz from 820-1000 Hz, Current Limit: 0.1 A, Phase, 0.1°						
Output Relay	Push-button controlled or bus controlled output relay						
Output Impedance (iX Only)	Programmable Z on 3001iX, 5001iX, 9003iX and 15003iX (3ø mode only) for 50 Hz fundamental						
Resistive	Range: 17 - 1000 mOhm,resolution: 4 mOhm accuracy, 2 % FS						
Inductive	Range: 230 - 1000 µH, resolution: 4 µH, accuracy: 2 % FS						
DC Mode Output							
Power (Max at full scale of DC Voltage Range):	3001i/iX: 2100 W, 5001i/iX: 3500 W, 9003i/iX: 2100 W/ø 3ø, 6300 W 1ø, 10001i/iX: 7000 W, 15001i/iX: 10500 W, 15003i/iX: 3500 W/ø 3ø						
Voltage Ranges	Range: Low: 200 Vdc, High: 400 Vdc						
Line Regulation	< 0.1% FS or 10% line change						
Output Noise	< 250 mV rms typ., < 500 mV rms max., (20 kHz to 1 MHz)						
Max DC Current (Maximum current at 65% of V Range)	Model	3001i/iX	5001i/iX	9003i/iX 3ø	10001i/iX	15001i/iX	15003i/iX 3ø
	400V range	7.8	13	7.8	26	39	13
	200V range	15.6	26	15.6	52	78	26
Note: Constant power mode provides increased current at reduced voltage (See chart below)							
Current Limit	Programmable from 0 A to maximum current for selected range						
AC+DC Mode Output							
Output Power (iX only)	Full AC Power if DC component is less than 20% of full scale voltage, Full DC power if DC component is above 20%						

i/iX Series : Product Specifications

Measurements		
Output Parameter	i Series	iX Series
Current Limit Range	Programmable 0 to 100% of range for all ranges	Programmable 0 to 100% of range for all ranges
Current Limit Resolution	0.1 Arms	0.1 Arms
Current Limit Accuracy	± 0.5 A	± 0.5 A
Frequency Range	16.00 - 81.91 Hz (0.01 Hz resolution) 81.0 – 819.1 Hz (0.1 Hz resolution) 820 – 1000 Hz (1 Hz resolution) ¹	16.00 - 81.91 Hz (0.01 Hz resolution) 81.0 – 819.1 Hz (0.1 Hz resolution) 820 – 1000 Hz (1 Hz resolution) ¹
Frequency Accuracy	± 0.01% of programmed value	± 0.01% of programmed value
DC Offset Voltage	Less than 20 mV with linear load.	Less than 20 mV with linear load.
Output Impedance Range	n/a	Rmin to 1000 mΩ Lmin to 1000 μH
Output Impedance Resolution	n/a	4 mΩ 4 μH
Output Impedance Accuracy	n/a	± 2% F.S. at 796 μH and 400 mΩ
Output Noise (20 kHz to 1 MHz)	<250 mV rms (typ), <500 mV rms (max)	<250 mV rms (typ), <500 mV rms (max)

¹ Note: AC voltage in 300V range derates from 300 Vrms max. at 500 Hz to 150 Vrms max. at 1000 Hz.

Measurements : Peak AC Current		
Output Parameter	i Series	iX Series
3001i/iX 5001i/iX	110 A for 150 V range, 92 A for 300 V range	110 A for 150V range, 92 A for 300 V range,
10001i/iX	220 A for 150 V range, 184 A for 300 V range	220 A for 150 V range, 184 A for 300 V range
15001i/iX	330 A for 150 V range, 276 A for 300 V range	330 A for 150 V range, 276 A for 300 V range
Crest Factor	Up to 5:1	Up to 5:1

AC Measurements			
Parameter	Range	Accuracy (±)	Resolution
Frequency	16.00 - 1000 Hz	2 counts	0.01: 16 to 81.91 Hz 0.1: 82.0 to 819.0 Hz 1: 820 to 1000 Hz
RMS Voltage	0 - 300 Volts	0.25V + 0.1%, <100 Hz 0.25V + 0.2%, 100-1000 Hz	0.01 Volt
RMS Current	0 - 40 Amps	0.25A + 0.1%, <100 Hz 0.25A + 0.2%, 100-1000 Hz	0.001 Amp
Peak Current	0 - 119 Amps	0.5A + 0.2%, <100 Hz 0.5A + 0.5%, 100-1000 Hz	0.01 Amp
VA Power	0 – 6000 VA	10 VA + 0.1%, <100 Hz 20 VA + 0.2%, 100-1000 Hz	1 VA
Real Power	0 – 6000 W	10 W + 0.1%, <100 Hz 20 W + 0.2%, 100-1000 Hz	1 W
Power Factor (>0.2kVA)	0 - 1.00		0.01

Accuracy specifications apply above 100 counts. Current and Power Accuracy specifications are times two for 10001iX and times three for 15001iX. For 10001iX and 15001iX, resolution decreases by factor of 10, ranges for current and power increases by factor of three. Measurement bandwidth is limited to 16 KHz.

DC Measurements			
Parameter	Range	Accuracy (±)	Resolution
Voltage	0 – 400 Volts	0.4 Volts	0.01 Volt
Current	0 – 40 Amps	0.1 Amps	0.001 Amp
Power	0 – 6000 W	20 W	1 W

Accuracy specifications apply above 100 counts. Current and Power Accuracy specifications are times two for 10001iX and times three for 15001iX. For 10001iX and 15001iX, resolution decreases by factor of 10, ranges for current and power increases by factor of three.

i/iX Series : Product Specifications

3000–15000 VA

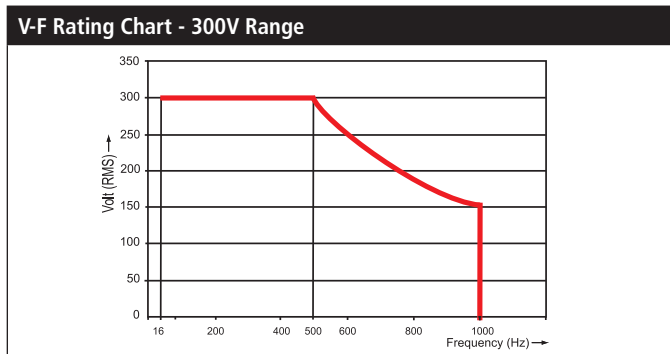
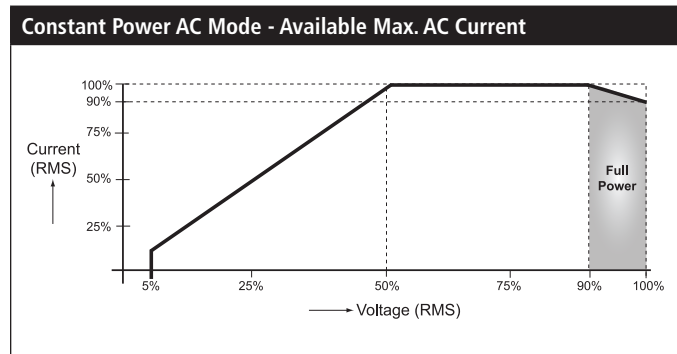
Harmonic Measurements (iX series)			
Parameter	Range	Accuracy ($\pm$)	Resolution
Frequency fundamental	16.00 - 1000 Hz	2 counts	0.01 Hz to 1 Hz
Frequency harmonics	32.00 Hz - 16 kHz	2° typ.	0.5°
Voltage	Fundamental	0.25V	0.01V
	Harmonic 2 - 50	0.25V + 0.1% + 0.1%/kHz	0.01V
Current	Fundamental	0.05A	0.01A
	Harmonic 2 - 50	0.05A + 0.1% + 0.1%/kHz	0.01A

Accuracy specifications are times three for three phase mode. Harmonics frequency range in three-phase mode is 32 Hz - 16 kHz. Resolution decreases by factor of 10 for 10001iX and 15001iX.

Remote Control	
IEEE-488 Interface optional / USB standard	IEEE-488 (GPIB) talker listener. Subset: AH1, C0, DC1, DT1, L3, PPO, RL2, SH1, SR1, T6, IEEE-488.2 SCPI Syntax (GPIB standard on iX)
RS232C Interface (LAN Optional)	9 pin D-shell connector, Handshake: CTS, RTS, Data bits: 7,8, Stop bits: 1, 2, Baud rate: 9600, 19200, 38400, 57600, 115200, IEEE-488.2 SCPI Syntax (Supplied with RS232C cable). (RS232C Standard on iX - LAN Optional)

AC Input							
Voltage	3001 and 9003: 208-240 ± 10% Vac, (L-N, 1ø), All other models: Standard: 208-240 ± 10% Vac, (L-L, 3ø), Option -400: 400-480 ± 10% Vac, (L-L, 3ø) (Input range must be specified when ordering).						
Input Line Current (per phase):	Model	3001i/iX	5001i/iX	9003i/iX	10001i/iX	15001i/iX	15003i/iX
	187-264V	25 A	23 A	75 A	46 A	69 A	69 A
	360-528V	N/A	12 A	N/A	24 A	36 A	36 A
Inrush Current per chassis	< 100 Apk for 100 µs at 208-240 V, < 50 Apk for 100 µs at 400-480 V						
Line Frequency	50-60 Hz ± 10 %						
Efficiency	75% typical						
Power Factor	0.6 typical						
Regulatory	IEC61010, EN50081-2, EN50082-2, CE EMC and Safety Mark requirements						
RFI Suppression	CISPR 11, Group1 , Class A						
Rear Panel Connectors	AC Input & Output terminal block with cover, IEEE-488 (GPIB) connector (rear panel), 9 pin D-Shell RS232C connector*, Remote voltage sense terminal block, System Interface Connector, *RS232 DB9 to DB9 cable supplied						

Mechanical	
Dimensions	Height: 7" (178 mm), Width: 19" (483 mm), Depth: 24" (610 mm) (depth includes rear panel connectors)
Weight	per Chassis: Net: 61 lbs / 28 Kg, Shipping: 115 lbs / 52 Kg
Vibration and Shock	Designed to meet NSTA project 1A transportation levels
Air Intake/Exhaust	Forced air cooling, side air intake, rear exhaust.
Operating Humidity	0 to 95 % RAH, non condensing.
Temperature	Operating: 0 to 40° C, Storage: -20 to +85° C



Note: Specifications are subject to change without notice. Specifications are warranted over an ambient temperature range of 25° $\pm$ 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.

i/iX Series : Product Specifications

Standard controller versions							
Model	Output Power AC	Phase Output	Max. current per phase				Input Voltage ²
			Low V range		High V range		
			AC	DC	AC	DC	
3001i/iX	3 kVA	1	22	15.6	11	7.8	208-240V
5001i/iX	5 kVA	1	37	26	18.5	13	208-240V
5001i/iX-400	5 kVA	1	37	26	18.5	13	400-480V
9003iX1	9 kVA	3	22	15.6	11	7.8	208-240V
10001i/iX ¹	10 kVA	1	74	52	37	26	208-240V
10001i/iX-400 ¹	10 kVA	1	74	52	37	26	400-480V
10002i/iX ³	10 kVA	2	37	26	18.5	13	208-240V
10002i/iX-400 ³	10 kVA	2	37	26	18.5	13	400-480V
15001i/iX ¹	15 kVA	1	111	78	55.5	39	208-240V
15001i/iX-400 ¹	15 kVA	1	111	78	55.5	39	400-480V
15003i/iX ¹	15 kVA	3	37	26	18.5	13	208-240V
15003i/iX-400 ¹	15 kVA	3	37	26	18.5	13	400-480V

Note (1): Supplied with System Interface cable(s). Controller in master unit only.

Note (2): All input voltage specifications are for Line to Line three phase except 3001iX and 9003iX which require single phase input only.

Note (3): For 10002iX split phase system specifications, refer to 5001iX for each phase.

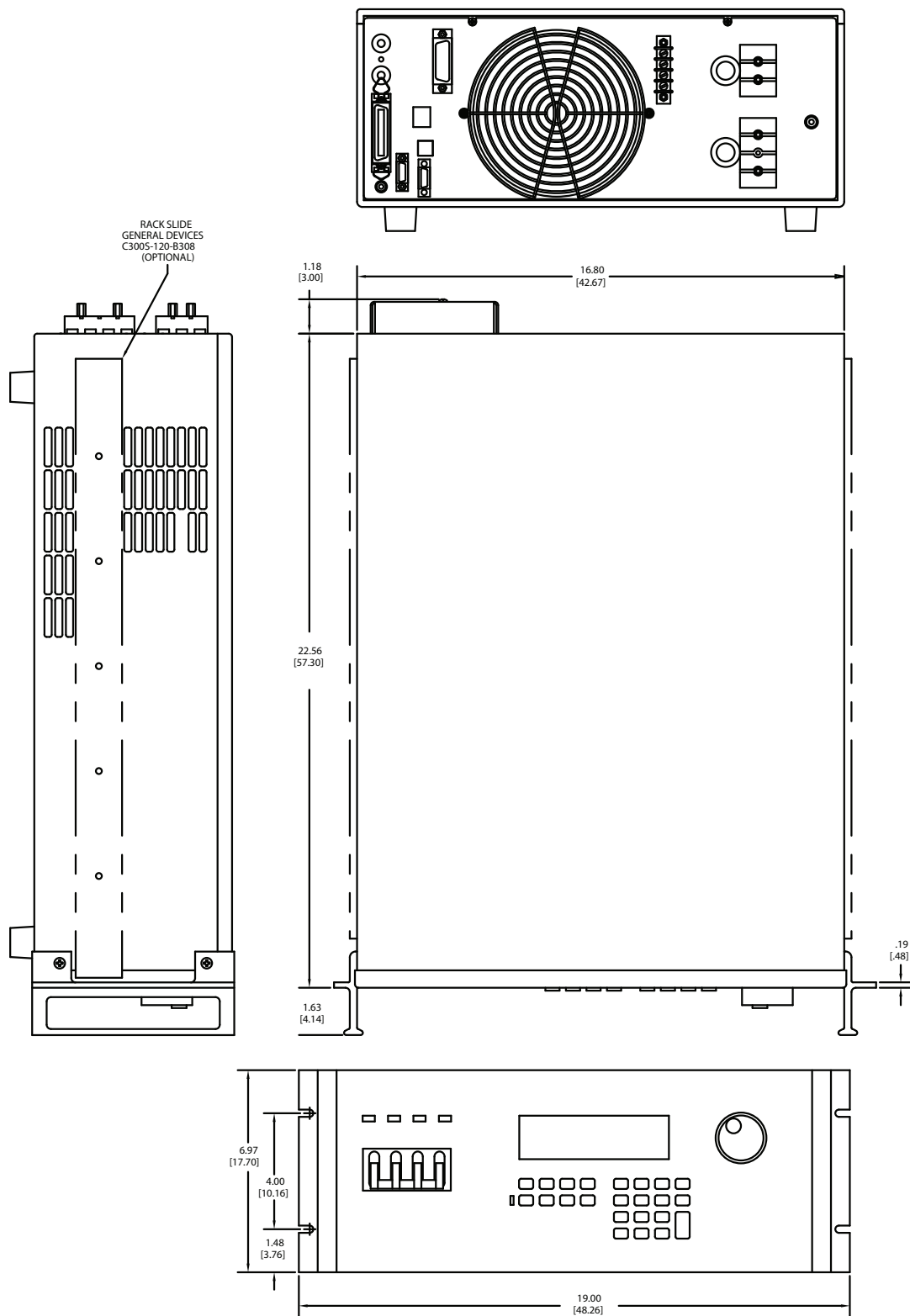
Controller		
Controller	i	iX
AC mode	X	X
DC mode	X	X
AC+DC mode		X
Transient programming	X	X
Arbitrary waveforms		X
Measurements (standard)	X	X
Harmonic measurements		X
Waveform acquisition		X
Programmable Impedance		X
IEEE / RS232 / USB	X	X

Storage	
Non Volatile Mem. storage	16 instrument setups, 200 user defined waveforms

Waveforms	
Waveform Types	i Series II: Sine, iX Series II: Sine, Square, Clipped sine, User defined
User defined waveform storage	Four groups of 50 user defined arbitrary waveforms of 1024 points for a total of 200 (One group can be active at a time)

System Interface	
Inputs	Remote shutdown, External Sync, Clock/Lock (option)
Outputs	Function Strobe, Clock/Lock (option)

Protection	
Over Load	Constant Current or Constant Voltage mode
Over Temperature	Automatic shutdown



i/iX Series

Supplied with

User Manual, Programming Manual, Software (all on CD ROM) and RS232C serial cable.

Options

Option Code	Description
-LKM	Clock/Lock Master
-LKS	Clock/Lock Auxiliary
-LNS	Internal AC Line Sync.
-FC	Modifies output frequency control to $\pm 0.15\%$
-XLS	External AC Line Sync adaptor. (-LNS and XLS are mutually exclusive)
-MODE-iX	Switches between 1 and 3 phase output modes, for 9003iX or 15003i/iX only. (Separate box)
OMNI-1-18i	Impedance matching network for single phase 3001i/iX or 5001i/iX to support IEC-1000-3-3 flicker tests.
OMNI-3-18i	Impedance matching network for three phase 9003iX or 15003i/iX systems to support IEC-1000-3-3 flicker tests.
OMNI-3-37i	Impedance matching network for three phase 30003i/iX systems to support IEC-1000-3-3 flicker tests.
-RMS	Rackmount Slides.
-WHM	Watt-Hour Measurement option.
-400	400-480 Volt Line to Line AC input.
-FC	Modifies output frequency control to $\pm 0.25\%$
-411	IEC61000-4-11 test firmware. See also EOS1/3.
-413	IEC61000-4-13 Harmonics and Interharmonics test firmware and hardware.
-EOS-1	IEC61000-4-11 Electronic Output Switch (1 phase) Includes -411 option. Refer to EOS data sheet for details.
-EOS-3	IEC61000-4-11 Electronic Output Switch (3 phase) Includes -411 option. Refer to EOS data sheet for details.
-LAN	LXI Ethernet LAN Interface (RJ45 Connector) (iX Only)
Cabinets	Multi box iX Series II systems can be factory installed and wired in 19 inch cabinets. Cabinet configurations can be ordered by preceeding the model number with a "C1-C4" prefix. Contact factory for pricing and details.
Avionics Test Routine Options	
-ABD	Airbus Directive 0100.1.8 tests.
-AMD	Airbus AMD24 tests.
-A350	Airbus A350 tests.
-AIRB	Airbus test package (A380, A350, AMD24)
-B787	Boeing 787B3-0147 tests.
-160	RTCA/DO-160D and EUROCAE test firmware. Refer to -160 option data sheet for details.
* Note Reference the Avionics Test User Manual P/N 4994-971 for a complete listing of performance capabilities.	