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Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!

TMG Corporate Website **TMG Products Website**

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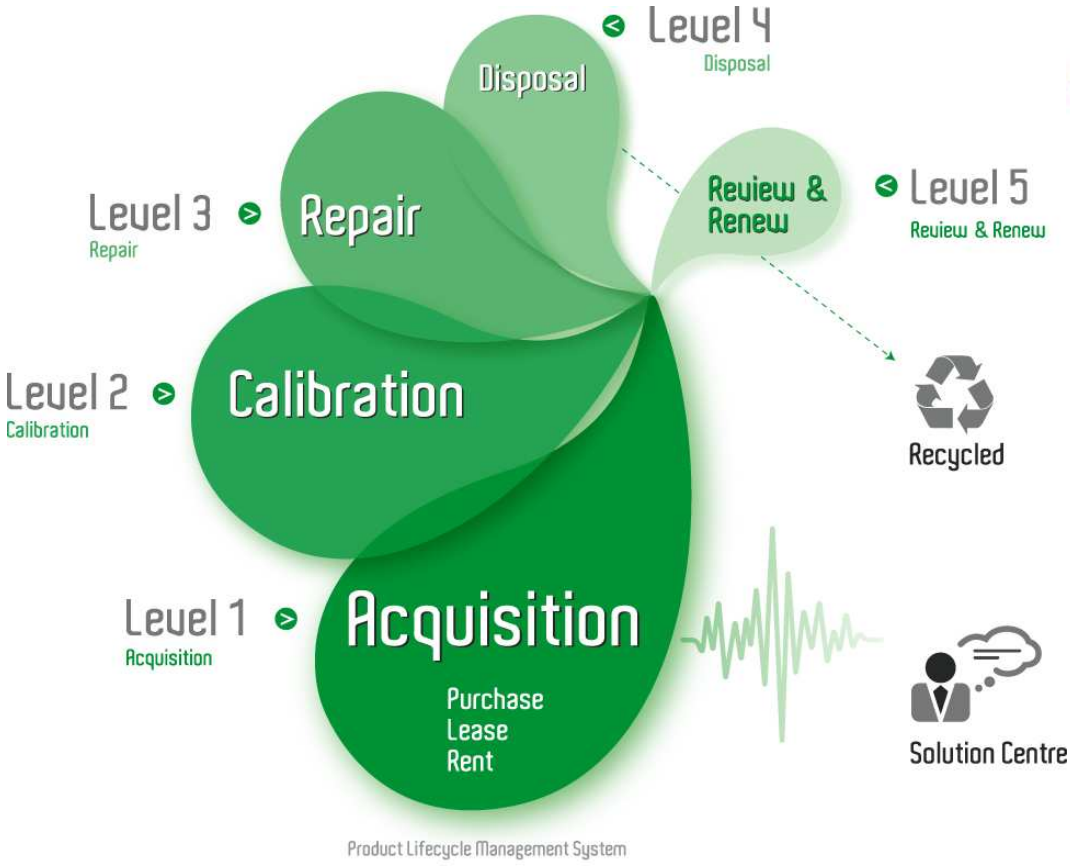

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California Instruments

Compact *i*X & *i* Series
Power Systems
750VA-2250VA Programmable AC and DC Power Source / Analyzer

CE

- **Combination AC and DC Power Source and Power Analyzer**
  Replace multiple instruments with a single multifunction unit
- **Single & Three Phase Operation**
  Maximum output of 750VA per phase
- **750 VA to 2250 VA of Output Power**
  Cost effective power source
- **Arbitrary Waveform Generation**
  User defined voltage waveform and distortion programming (iX Series)
- **Built-in Digital Power Analyzer**
  Analyze frequency and time domain of both voltage and current (iX Series)
- **Rackmountable**
  Space-saving rackmount chassis
- **Scope Capture Capability**
  Built in voltage and current waveform acquisition capability (iX Series)
- **Powerful Programing Software**
  Powerful, yet easy to use, instrument control software included (Avionics test software also available)
- **Constant Power Mode**
  Provides increased current at reduced voltage to maximize efficiency

Integrated System

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

The sleek integrated approach of the Compact *i*X Series avoids cable clutter that is commonly found in test systems. All connections are made internally and the need for digital multimeters, power harmonics analyzers, and current shunts or clamps is eliminated.

Since many components in the Compact *i*X Series 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 Compact *i* Series provides similar output and transient capabilities as the Compact *i*X Series, as well as basic power measurements.

Easy To Use Controls

Both the Compact *i*X and *i* Series are microprocessor controlled and can be operated from an easy to use front panel keypad. Commonly used 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 Compact *i*X Series AC/DC sources address many application areas for AC and DC power testing. The Compact *i*X also provides a high load current capability, single and three phase output modes, and built-in power analyzer measurements. Additional features, including line distortion simulation (LDS) and arbitrary waveform generation, address 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 fully integrated test system.

Compact *i*X Series - Measurement and Analysis

Avionics

With an output frequency range to 1000 Hz, at up to 300 VRMS, the Compact iX Series 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 Compact iX Series can eliminate the need for several additional pieces of test equipment, and occupies a minimal amount of rack space, it significantly saves cost and space. Options are available for popular avionics test routines such as: *DO-160, ABD-0100, MIL-STD-704A-F, and Boeing 7E73B-0147.*

Remote Control

Standard and optional 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 Compact *i*/*i*X Series. Instrument drivers for popular programming environments such as National Instruments LabView™ are available to speed up system integration.

Instrument Control Software

Windows® Instrument Control Software is included with the Compact *i*X and *i* Series[1]. This software provides easy access to the power source's capabilities without the need to develop any custom code. The following functions are available:

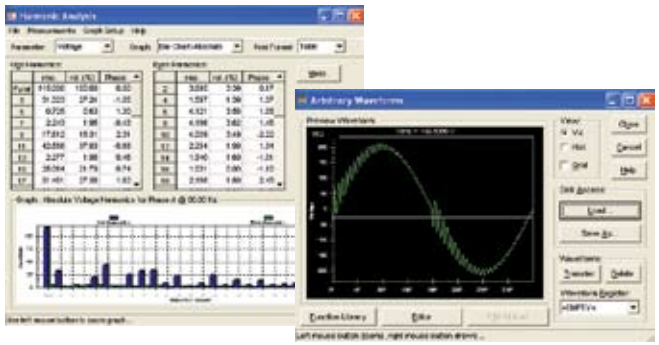
- Steady state output control (all parameters)
- Create, run, save, reload & print transient programs
- Generate & save harmonic waveforms [*i*X only]
- Generate & save arbitrary waveforms [*i*X only]
- Measure & log standard measurements
- Capture & display output voltage & current waveforms [*i*X only]
- Measure, display, print & log harmonic voltage & current measurements [*i*X only]
- Display bus traffic to & from the AC Source to help you develop your own test programs.

1. Requires PC running Windows Vista™, Windows XP™, or Windows 2000™.

Harmonic Waveform Generation

Using the latest DSP technology, the Compact *i*X Series controller is capable of generating harmonic waveforms to test for harmonics susceptibility of a unit under test. The Instrument Control Software 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 Instrument Control Software to the AC source through either the Remote Interface bus and remain in nonvolatile memory. Up to 50 waveforms can be stored and given a user defined name for easy recall.

The three phase Compact iX (2253*i*/*i*X) configuration offers independent waveform generation on each phase allowing three phase anomalies to be programmed and also allows simulation of unbalanced line conditions.



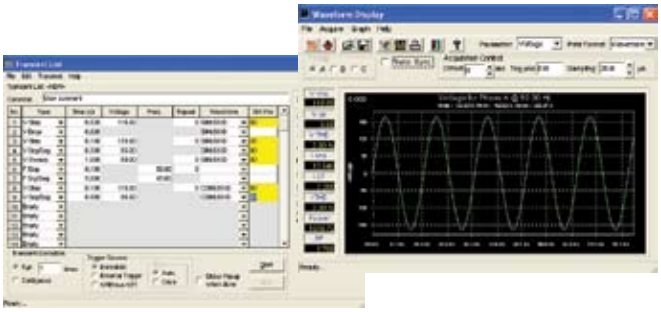
Arbitrary Waveform Generation (Compact *i*X Series only)

Using the provided Instrument Control 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 Instrument Control Software includes a catalog of custom waveforms.

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

AC/DC Transient Generation

The Compact *i*X and *i* Series 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 Compact *i*/*i*X'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 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 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 Instrument Control Software supports transient definitions using a spreadsheet-like data entry grid. A library of frequently used transient programs can be created on disk.

Compact *i*X Series - Specifications

Model		751*i*/*iX*	1501*i*/*iX*	2253*i*/*iX*
Input				
Voltage:		115Vrms +/- 10% 230Vrms +/- 10%	115Vrms +/- 10% 230Vrms +/- 10%	115Vrms - 230Vrms +/- 10%
Frequency:		47 - 63 Hz	47 - 63 Hz	47 - 63 Hz
Current:		<8.5 Arms @ 115 V <4.4 Arms @ 230 V	<17 Arms @ 115 V <8.8 Arms @ 230 V	<20 Arms @ 115 V (Output power not to exceed 1500 VA @ 100 V input) <15 Arms @ 230 V
PF:		0.97 (typical @ full load)	0.97 (typical @ full load)	0.98 (typical @ full load)
Efficiency:		80%	80%	77%
AC Output				
Voltage:	High Range: Low Range:	0 - 300Vrms 0 - 150Vrms	0 - 300Vrms 0 - 150Vrms	0 - 300Vrms 0 - 150Vrms
Max. Current:	High Range: Low Range:	3.25Arms 6.5Arms	6.5Arms 13Arms	3.25Arms (per phase) 6.5Arms (per phase)
Peak Current:	High Range: Low Range:	20 A Peak 10 A Peak	40 A Peak 20 A Peak	20 A Peak 10 A Peak
AC Power:		750VA	1500VA	750VA (per phs)
Distortion:		< 1% THD	< 1% THD	< 1% THD
DC Output				
Voltage:	High Range: Low Range:	0 - 400Vdc 0 - 200Vdc	0 - 400Vdc 0 - 200Vdc	0 - 400Vdc 0 - 200Vdc
Max. Current:	High Range: Low Range:	1.67Adc @ 300V 1.67Adc @ 150V	3.33Adc @ 300V 1.67Adc @ 150V	1.67Adc @ 300V (per phase) 3.33Adc @ 150V (per phase)
High Range:		500W	1000W	500W (per output)
Low Range:		250W	250W	250W (per output)
Frequency				
Range:		16 – 1000Hz	16 – 1000Hz	16 – 1000Hz
Resolution:		0.01 Hz (16 – 81.91 Hz), 0.1 Hz (– 82.0 – 819.1 Hz) 1 Hz (820– 1000 Hz)	0.01 Hz (16 – 81.91 Hz), 0.1 Hz (– 82.0 – 819.1 Hz) 1 Hz (820–1000 Hz)	0.01 Hz (16 – 81.91 Hz), 0.1 Hz (– 82.0 – 819.1 Hz) 1 Hz (819 Hz – 1000 Hz)
Accuracy:		0.025%	0.025%	0.025%
Measurements				
Voltage Accuracy:		0.1% FS	0.1% FS	0.1% FS
Current Accuracy:		0.5% FS	0.5% FS	0.5% FS
Mechanical Specifications				
Dimensions		H: 3.5" (89mm), W: 19" (483mm), D: 23" (584mm)	H: 3.5" (89mm), W: 19" (483mm), D: 23" (584mm)	H: 5.25" (133mm), W: 19" (483mm), D: 23" (584mm)
Weight:		55 lbs (25kg)	66 lbs (30kg)	58 lbs (26kg)
Operating Temperature:		0-40°C	0-40°C	0-40°C
Interfaces				
USB:		Standard	Standard	Standard
GPIB:		Option (*i*) Std (*iX*)	Option (*i*) Std (*iX*)	Option (*i*) Std (*iX*)
LAN:		Option (*iX*)	Option (*iX*)	Option (*iX*)
RS232:		N/A	N/A	Standard

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.

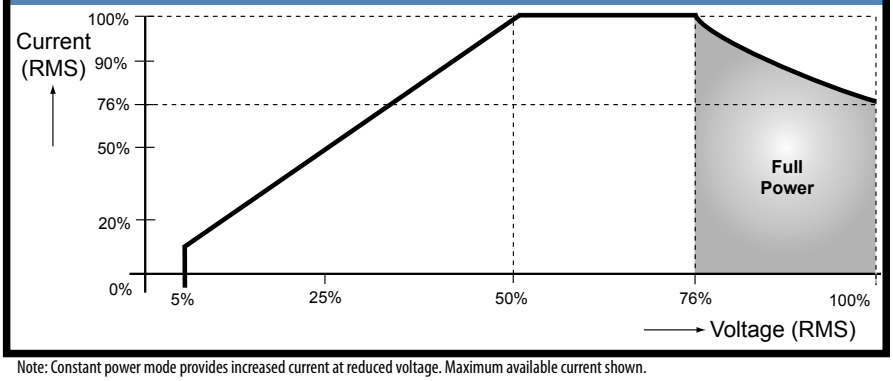
California Instruments

Ordering Information

Standard controller versions with single voltage range:

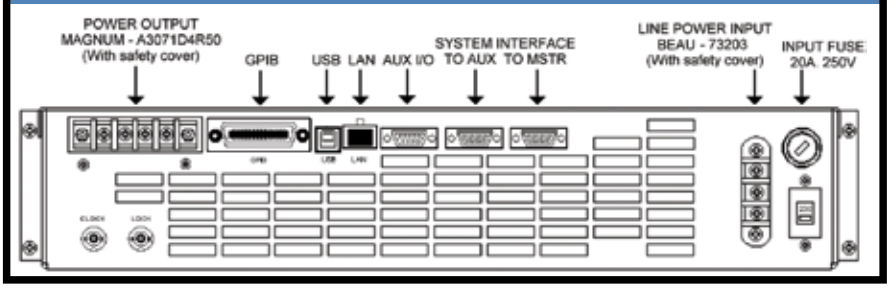
Model	Output Power AC	Phase Output	Max. Current per phase Low V range AC	Low V range DC	High V range AC	High V range DC	Input Voltage
751*i*/*i*X	750 VA	1	6.5	1.67	3.25	1.67	115/230V
1501*i*/*i*X	1.5 kVA	1	13.0	1.67	6.5	3.3	115/230V
2253*i*/*i*X	2.25 kVA	3	6.5	3.33	3.25	1.67	115-230V

Constant Power Chart

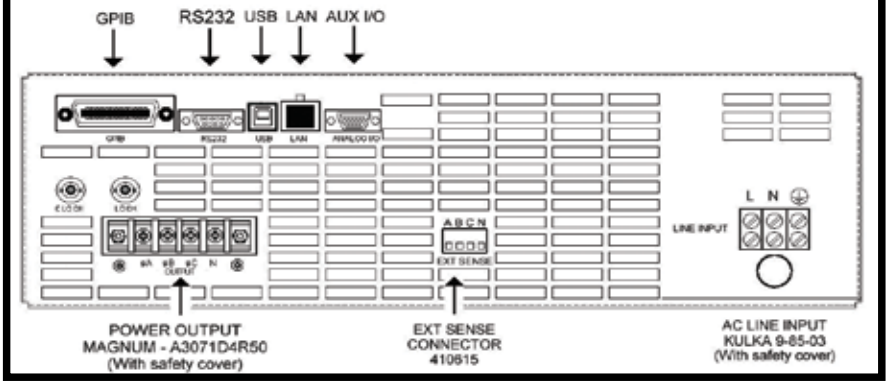


Note: Constant power mode provides increased current at reduced voltage. Maximum available current shown.

Compact 750/1501 *i*/*i*X Rear Panel



Compact 2253 *i*/*i*X Rear Panel



Feature Comparison

Controller:	*i*	*i*X
AC mode	x	x
DC mode	x	x
AC+DC mode		x
Transient programming	x	x
Arbitrary waveforms		x
Measurements	x	x
Harmonic measurements		x
Waveform acquisition		x

Model:

Refer to table shown for model numbers and configurations.

Supplied with:

User Manual, Programming Manual, Software (all on CD ROM)

Options

-160	RTCA/DO-160D/E and EUROCAE test firmware. Refer to -160 option data sheet for details.
-704	Mil Std 704D/E test firmware. Refer to -704 option datasheet for details.
-704F	Mil Std 704 Revision A-F test firmware.
-ABD	Airbus Directive 0100.1.8 tests.
-ABL	ABLE Command
-B787	Boeing 787B3-0147 tests.
-EXS	External Sync Input.
-LAN	Ethernet Lan Interface (RJ45 Connector) (*i*X Only).
-LF	Limits maximum frequency to 500Hz.
-LKM	Clock/Lock Master
-LKS	Clock/Lock Auxiliary
-MODE	Allows all three amplifier outputs to be combined on phase A output terminal. No external switching or reconnection to the load is required (2253 only).
-RMS	Rackmount Slides (2253 Only)
-RPF	Remote programming frequency.
-RPV	Remote programming voltage.
-WHM	Watt-hour measurement.

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