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TECHNOLOGY GROUP

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POWER ANALYZER MODEL: 6630

SPECIFICATIONS

Display:	LCD 640x480 pixels with backlight
Printer output for hardcopy:	Parallel (Centronics compatible) or serial (RS232)
Floppy drive:	1.44MB 3” PC-format. For software updates and result storage
Rack mounting:	With optional rack mount kit. Size 19” 3HE
Dimensions:	(HxWxD) 132x425x340 mm (5.2x16.7x13.4 inches)
Weight:	Single phase 9 kg (20 lbs), three phase 11.4 kg (25 lbs)
Operating environment:	0 to +40°C < 80 % R.H. non condensing
Storage environment:	-30 to +60°C non condensing
Power supply:	100-130V or 200-240V, automatic range selection
Power line frequency:	50/60 Hz
Power consumption:	45 W max
Protection:	Fuse 2xF1A on rear panel
Safety:	Designed to comply with the Low Voltage Directive 73/23/EEC plus parts of 93/68/EEC. Applied standard, EN61010-1:1993, Installation category Ⅱ.
EMC:	Designed to comply with the EMC Directive 89/336/EEC and 92/31/EEC Applied standards, EN50081-1:92 and EN50082-1:92
Warranty:	One year from date of delivery for manufacturing and material failures

Chroma AC Power Source Family

6500 series

Power: 1200VA, 2000VA, 3000VA, 6000VA, 9000VA
Voltage: 0-150V/0-300V/Auto
Frequency: 15-2000Hz, or 45-1000Hz



61500/ 61600 series

Power: 500k-18kVA
Voltage: 0-150V/0-300V/Auto
Frequency: 15-1000Hz



6400 series

Power: 375VA, 800VA, 1500VA, 2000VA, 3000VA, 6000VA, 9000VA
Voltage: 0-150V/0-300V/ Auto
Frequency: 45-500Hz, or 45-1000Hz

Ordering Information

6630-1D:Power Analyzer 6630 with DSP Measurement Module x 1 (1ø)
6630-3D:Power Analyzer 6630 with DSP Measurement Module x 3 (3ø)
6630-1DA:Power Analyzer 6630-1D without Flicker function
6630-3DA:Power Analyzer 6630-3D without Flicker function
6632-1D:Power Analyzer 6632 with DSP Measurement Module x 1 (1ø)
6632-3D:Power Analyzer 6632 with DSP Measurement Module x 3 (3ø)

Options

A663003:Measurement input cables
A663004:Rack Mounting Kit for Model 6630 Series
A663008:Spare current measurement input fuse
A663009:Measurement Fixture 1
A663010:DSP Measurement Model
A600009:GPIB Cable(200 cm)
A600010:GPIB Cable(60 cm)

All specifications are subject to change without notice.

Developed and Manufactured by :

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6630E-0103-4000



POWER MEASUREMENT SYSTEM
POWER ANALYZER

Chroma introduces a completely new concept, Power Measurement System, for fast and accurate power related measurements in compliance with international standards.

The Power Measurement System consisting of an advanced 6630 Power Analyzer and a 6530 Series or other Chroma family AC Power Source is the ATE for Voltage and Current Harmonics test in compliance with IEC 555-2, EN60555-2, EN61000-3-2, IEC 1000-3-2, and for Flicker test (voltage fluctuations) following the IEC 555-3, EN60555-3, EN61000-3-3, and IEC 1000-3-3 international standards. Performance testing is preprogrammed limits to specifications against standardized limits. The user-specified limits can be added.

Chroma 6630 Power Analyzer is a modular instrument that is equipped with DSP type measurement module. Each measurement module contains Processor, Memory (ROM, RAM, Flash ROM), and two channels 18 bits A/D converter. As the Discrete Fourier Transform (DFT) technology is implemented in the software with 32-bit floating point mathematical algorithms, it can measure instruments related power at high-speed and analyze the measurement parameters (value) accurately. The instrument is also a combination of all standard instruments generally used for power measurements. It provides Voltage (U), Current (I), Active Power (P), Reactive Power (Q), Apparent Power (S), Active Energy (W), Reactive Energy (Wr), Apparent Energy (Wa), Frequency (f), Crest Factor (CF), Power Factor (PF), Phase Angle (ϕ).

Chroma 6630 Power Analyzer is a flexible and unique multipurpose instrument designed for using stand-alone and integrated. Harmonics, Flicker, Multimeter, Recording, and Waveform are the five major function modules that can work stand-alone, or be integrated into an ATE environment to facilitate the system for testing and analysis. Future revisions of the supported standards are able to implement by software updates. The built in floppy disk drive gives users a convenient way to save the test parameters and results.

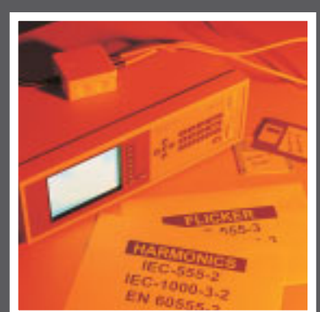
The 6630 Power Analyzer is easy to operate through the front panel keypad or remote controller via IEEE-488 or RS-232C. The printer interface is also available for printing harmonic bar charts, results tables, waveforms, or the instrument conditions and measurement readings.



MODEL 6630

Key Features:

- Test Voltage and Current Harmonics in compliance with IEC555-2, IEC1000-3-2, EN60555-2, EN61000-3-2
- Test Flicker (voltage fluctuations) in compliance with IEC555-3,IEC1000-3-3, EN60555-3, EN61000-3-3
- Advanced DFT and DSP technology
- Multi-processor system configuration
- Modular instrument with three measurement modules in DSP type
- 5 unique test function modules with Harmonics, Flickers, Multimeter, Recording, and Waveform for multipurpose test application requirements
- Harmonic analysis and bar graph / table results display up to 40 harmonics
- 2-channel 18-bit A/D converter in each measurement module
- Simultaneous presentation for voltage and current curves. (1~16 periods)
- Preprogrammed functions against standardized limits
- Wide voltage (6V to 2000Vpk) and current(0.1A to 300Apk)input range.
- 3 1/2” floppy driver for software update and result storage.
- RS-232C and IEEE-488 bus interface.
- 1 parallel & 2 serial communication ports.

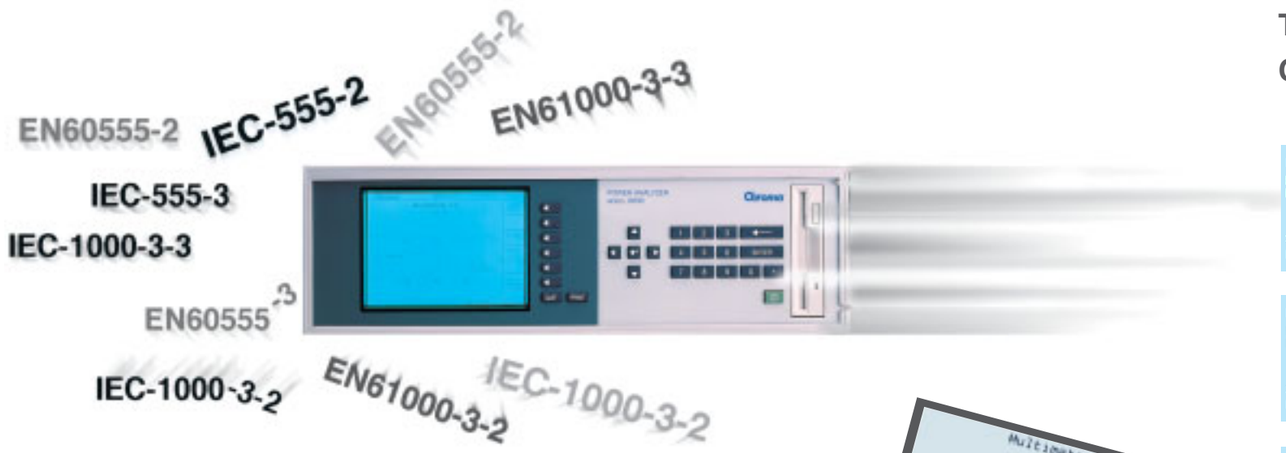


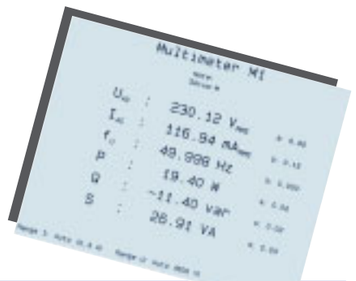
Chroma

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6630 POWER ANALYZER





MULTIMETER:

- User selectable mean value measurement.
- Standard deviation measurement.
- Fast-follow function applies best transient response under mean-value measurement.
- Large measurement range.
- User selectable setup for 6 simultaneous readouts.

MULTIMETER

MEASUREMENT SETUP AND PRESENTATION

Display:	The display is divided into six user defined rows and three or five columns. For each row, a suitable parameter and measurement mode may be selected.	
Parameters:	Voltage (U)	Power factor (PF)
	Current (I)	Phase angle (φ)
	Frequency (f)	Active energy (W)
	Active power (P)	Reactive energy (Wr)
	Reactive power (Q)	Apparent energy (Wa)
	Apparent power (S)	Crest factor (CF)
Measurement mode:	AC, DC or (AC+DC)	
Presented value:	rms, peak+/- and peak to peak (for U and I only)	
Phases/channels:	One or three phases mode. At three phases measurements the display may be setup to present either mean and sum values for all phases or values split into phases.	
Frequency source:	Voltage or current channel	
Measurement window:	0.8-5 s	
Window type:	Fixed or adapted to full periods of source frequency fundamental	
Measurement average:	Moving from 1 to 100 measurements. Standard device is displayed when average 2 or more measurements	
Fast follow:	Yes or no. If yes is selected, averaging will restart when the fast follow threshold is exceeded.	
Fast follow threshold:	0.1-10% of reading + 10% of lowest range	
Result storage:	Hardcopy	

COMMON TO ALL MULTIMETER PARAMETERS

Frequency range:	DC and 40-70Hz fundamental
Filter:	LP 2 kHz
Crest factor:	< 5
Power factor:	-1 to +1
A/ D conversion:	Simultaneous sampling for U and I channels
Phase error between U and I inputs:	Less than 0.05° at 70Hz

VOLTAGE U

Ranges (AC peak and DC):	2000V / 600V / 200V / 60V / 20V / 6V Automatic or manual range selection
Maximum input voltage:	U+to U- or U+/U- to I+/I- 600Vrms (AC+DC) or 2000Vpeak U+/U- to case 400Vrms (AC+DC)
Uncertainty at 23±5°C[3]:	AC rms: ±(0.2% of rdg + 0.05% of range) DC and (AC+DC) rms: ±(AC spec. + 15mV) Peak: ±(AC spec. + 0.1% of rdg)
Temp. coeff. (0-18 and 28-40)°C:	±0.01%/ °C of rdg AC and ± 2mV/ °C DC
Common mode voltage influence:	Less than 0.02% of any voltage range at a common mode voltage level of 400Vrms 50Hz[1]
Display resolution:	Better than 0.01% of range or 1mV
Input impedance:	2x1M//470pF

CURRENT I

Ranges (AC peak and DC):	300A / 100A / 30A / 10A / 3A / 1A / 0.3A / 0.1A Automatic or manual range selection
Maximum input current:	20Arms (AC+DC) continuous 300Apeak or 200Arms 20ms every 2sec
Maximum common mode voltage:	I+/I- to case 400Vrms (AC+DC)
Uncertainty at 23±5°C[3]:	AC rms: ± (0.3% of rdg + 0.05% of range) DC and (AC+DC) rms: ± (AC spec. + 0.5mA) Peak: ± (AC spec + 0.1% of rdg)
Temp. coeff. (0-18 and 28-40)°C:	±0.01%/ °C of rdg AC and ±0.05mA/ °C DC
Common mode voltage influence:	Less than 0.02% of any current range at a common mode voltage level of 400Vrms 50Hz[2]
Display resolution:	Better than 0.02% of range or 10 µ A
Input resistance:	~18mΩ
Protection:	Fuse F25A on rear panel

1. Ucm is applied between U+/U- and case. I+or I- is connected to U+ or U-. If I+ or I- is connected to case, the influence is less than 0.02% of common mode voltage.
2. Ucm is applied between I+/I- and case
3. Conditions: 30 min warm up time. Sine wave. Within 12 month after cal. I+ connected to source. Measurement time 2s adapted.

POWER S, P, Q

Ranges:	48 ranges from 0.6VA to 12kVA. Automatic or manual selection of voltage and current range
Power range:	Voltage range x Current range
Maximum input:	600Vrms and 20Arms
Uncertainty at 23± 5°C [3]:	
Apparent AC and active AC [4]:	±(0.4% of rdg + 0.1% of range)
Reactive:	±(0.4+D)% of rdg S + 0.1% of range D=0.01x(U$_{THD}$%)x(I$_{THD}$%)
Temp. coeff. and common mode	
Voltage influence:	Refer to voltage and current spec.
Display resolution:	Better than 0.02% of range or 0.1mVA
Calculation methods:	(apparent) S=U · I VA (active) $P=\frac{1}{N}\sum_{1}^{N}(Un \cdot In)$ W (reactive) $Q=\frac{1}{N}\sum_{1}^{N}(Un \cdot I(n+x))$ var N = number of samples in acquisition time x = number of samples corresponding to 90° at the fundamental frequency

4.At DC or (AC+DC) power, add (0.015xIrdg + 0.0005xUrdg)

FREQUENCY f

Measurement range:	40 - 70Hz
Source:	Voltage or current input
Principle:	Auto correlation
Uncertainty:	±0.01% of rdg
Resolution:	0.001Hz

ENERGY W,Wr,Wa

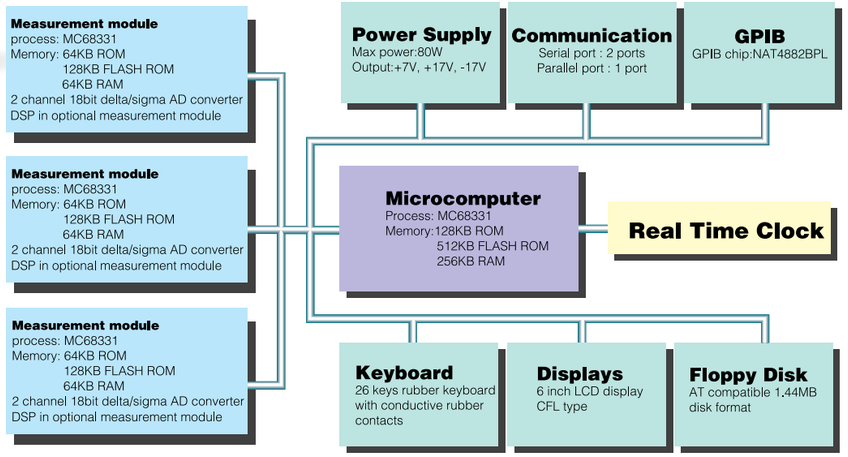
Measurement range:	0 - 999 999 kWh	
Ranges and uncertainty:	refer to power spec.	
Timer uncertainty:	±0.01% (fixed measurement window)	
Timer value:	Elapsed time from start is displayed	
Display resolution:	Better than 0.05% of rdg or 0.02% of (power range x1h)	
Calculation methods: [5]	(apparent) $Wa=\sum_{1}^{M}Sm \cdot ta$	VAh
	(active) $W=\sum_{1}^{M}Pm \cdot ta$	Wh
	(reactive) $Wr=\sum_{1}^{M}Qm \cdot ta$	varh

COMPUTED PARAMETERS

Name:	Calculation method:	Range:	Resolution:	Unit:
Power factor	$PF=\frac{P}{S}$	-1 to +1	0.001	none
Phase angle	$\varphi=\arctan\frac{Q}{P}$	-180 to +180	0.01	deg
Crest factor U	$CFU=\frac{Upeak}{U}$	1 to 5	0.001	none
Crest factor I	$CFI=\frac{Ipeak}{I}$	1 to 5	0.001	none

5. ta = acquisition time M = number of acquisitions

The State of Art System Architecture offers Comprehensive Testing Capabilities.



Multimeter

The Multimeter mode offers up to six - simultaneous and user selectable measurement possibilities. In this mode the analyzer fits a wide range of test requirements by replacing multiple power instruments.

Harmonics

The Harmonics mode measures voltage and current harmonics in compliance with IEC555-2 , EN60555-2, EN61000-3-2 and IEC 1000-3-2. Results are available in graphical and numerical form for convenient presentation and storage.

Flicker

The Flicker mode measures voltage fluctuations according to the international standards IEC555-3, EN60555-3, EN61000-3-3 and IEC1000-3-3.

Waveform

The Waveform mode is a power frequency digital oscilloscope tool to analyze 1 to 16 periods of the voltage and current inputs.

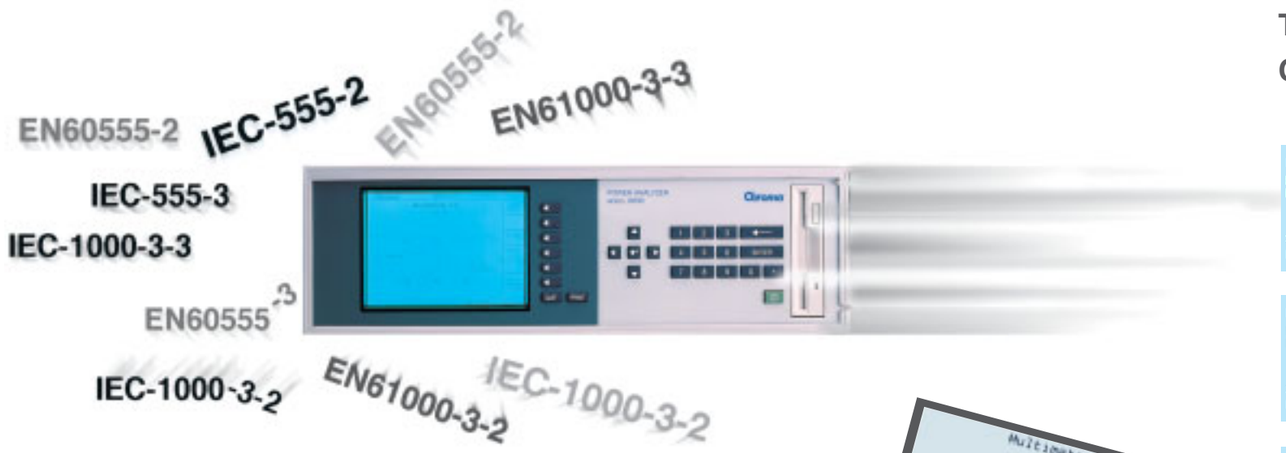
Recording

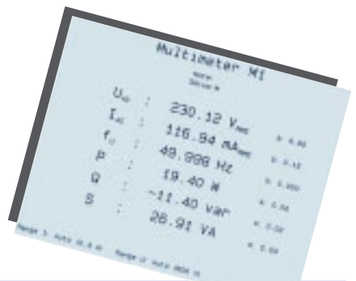
The Recording mode presents time diagrams of up to three simultaneous user defined variables for medium and long term variation studies. In this mode the 6630 Power Analyzer becomes a multichannel power data recorder.

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	Reactive power (Q)	Apparent energy (Wa)
	Apparent power (S)	Crest factor (CF)
Measurement mode:	AC, DC or (AC+DC)	
Presented value:	rms, peak+/- and peak to peak (for U and I only)	
Phases/channels:	One or three phases mode. At three phases measurements the display may be setup to present either mean and sum values for all phases or values split into phases.	
Frequency source:	Voltage or current channel	
Measurement window:	0.8-5 s	
Window type:	Fixed or adapted to full periods of source frequency fundamental	
Measurement average:	Moving from 1 to 100 measurements. Standard device is displayed when average 2 or more measurements	
Fast follow:	Yes or no. If yes is selected, averaging will restart when the fast follow threshold is exceeded.	
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Result storage:	Hardcopy	

COMMON TO ALL MULTIMETER PARAMETERS

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Filter:	LP 2 kHz
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Phase error between U and I inputs:	Less than 0.05° at 70Hz

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Ranges (AC peak and DC):	2000V / 600V / 200V / 60V / 20V / 6V Automatic or manual range selection
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Uncertainty at 23±5°C[3]:	AC rms: ±(0.2% of rdg + 0.05% of range) DC and (AC+DC) rms: ±(AC spec. + 15mV) Peak: ±(AC spec. + 0.1% of rdg)
Temp. coeff. (0-18 and 28-40)°C:	±0.01%/ °C of rdg AC and ± 2mV/ °C DC
Common mode voltage influence:	Less than 0.02% of any voltage range at a common mode voltage level of 400Vrms 50Hz[1]
Display resolution:	Better than 0.01% of range or 1mV
Input impedance:	2x1M//470pF

CURRENT I

Ranges (AC peak and DC):	300A / 100A / 30A / 10A / 3A / 1A / 0.3A / 0.1A Automatic or manual range selection
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Maximum common mode voltage:	I+/I- to case 400Vrms (AC+DC)
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3. Conditions: 30 min warm up time. Sine wave. Within 12 month after cal. I+ connected to source. Measurement time 2s adapted.

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Resolution:	0.001Hz

ENERGY W,Wr,Wa

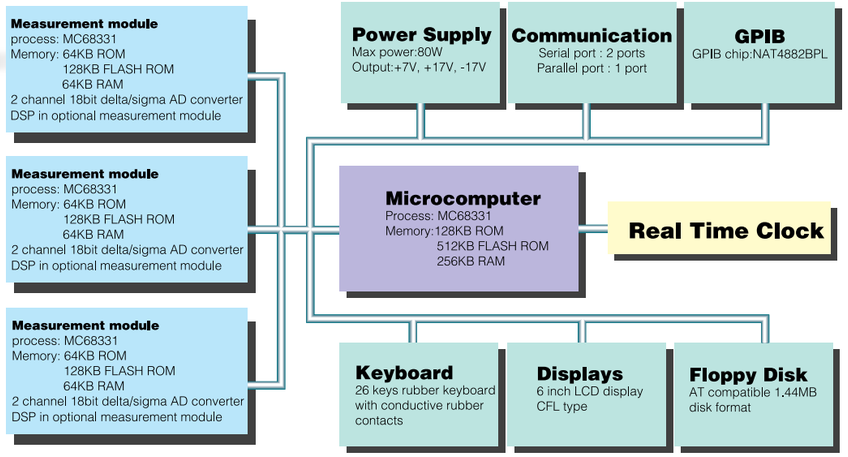
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COMPUTED PARAMETERS

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5. ta = acquisition time M = number of acquisitions

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The Waveform mode is a power frequency digital oscilloscope tool to analyze 1 to 16 periods of the voltage and current inputs.

Recording

The Recording mode presents time diagrams of up to three simultaneous user defined variables for medium and long term variation studies. In this mode the 6630 Power Analyzer becomes a multichannel power data recorder.

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6630
POWER ANALYZER

HARMONICS:

- DFT and DSP technology for steady state and fluctuating harmonics measurement.
- Graph - Table measurement result presentation.
- User defined display scale (Linear/ Log & Absolute/ Relative).
- Sliding windows for fluctuating harmonics recording.
- Test against IEC standard and user defined limits.

HARMONICS ANALYSIS

GENERAL

Compliance:	IEC555-2, EN60555-2, EN61000-3-2 and IEC1000-3-2
Testing:	Preprogrammed limits according to the standards for pass/fail testing. User-specified limits can be added
Result storage:	Stored in hardcopy or floppy disk automatically or manually
External power source :	Remote control via GPIB. Voltage and frequency selections are controlled by 6630 Power Analyzer

PRESENTATION

Display:	Selectable between table and graphic presentation for harmonic rms values
Limits:	On or off in graph and table
Graph scale:	Relative or absolute
Graph resolution:	Linear or logarithmic
Displayed parameters:	Total rms value of U and I, source frequency, active power, rms value of fundamental and THD

MEASUREMENT

Harmonic order:	1-40
Frequency of fundamental:	40-70Hz
Frequency source:	Voltage or current
Data source:	Voltage or current
Voltage and current ranges:	Refer to voltage and current spec.
Phases/channels:	One or three
Calculation method:	FFT with 32 bit floating point math
AD-conversion:	18 bit resolution
Measurement window:	Rectangular
Analyzed periods (window with):	1-47
Synchronization uncertainty:	±0.01%
Antialiasing filter attenuation:	80dB
Measurement time:	3.5 s when standard module analyzing 6 periods
Uncertainty at 23±5°C, rms: [6]	±(0.5% of rdg + 0.03% of range)

6. Conditions: 30 min warm up time. Within 12 month after cal. 6 periods/ measurement

FLICKERS:

- Full compliance with IEC-868/IEC-1000-4-15 flicker meter specifications.
- User defined reference impedance.
- 1024 classified scales for flicker levels.
- 4800 samples/second for 50/60Hz fundamental.
- Test against IEC standard and user defined limits.

FLUCTUATIONS AND FLICKER ANALYSIS

GENERAL

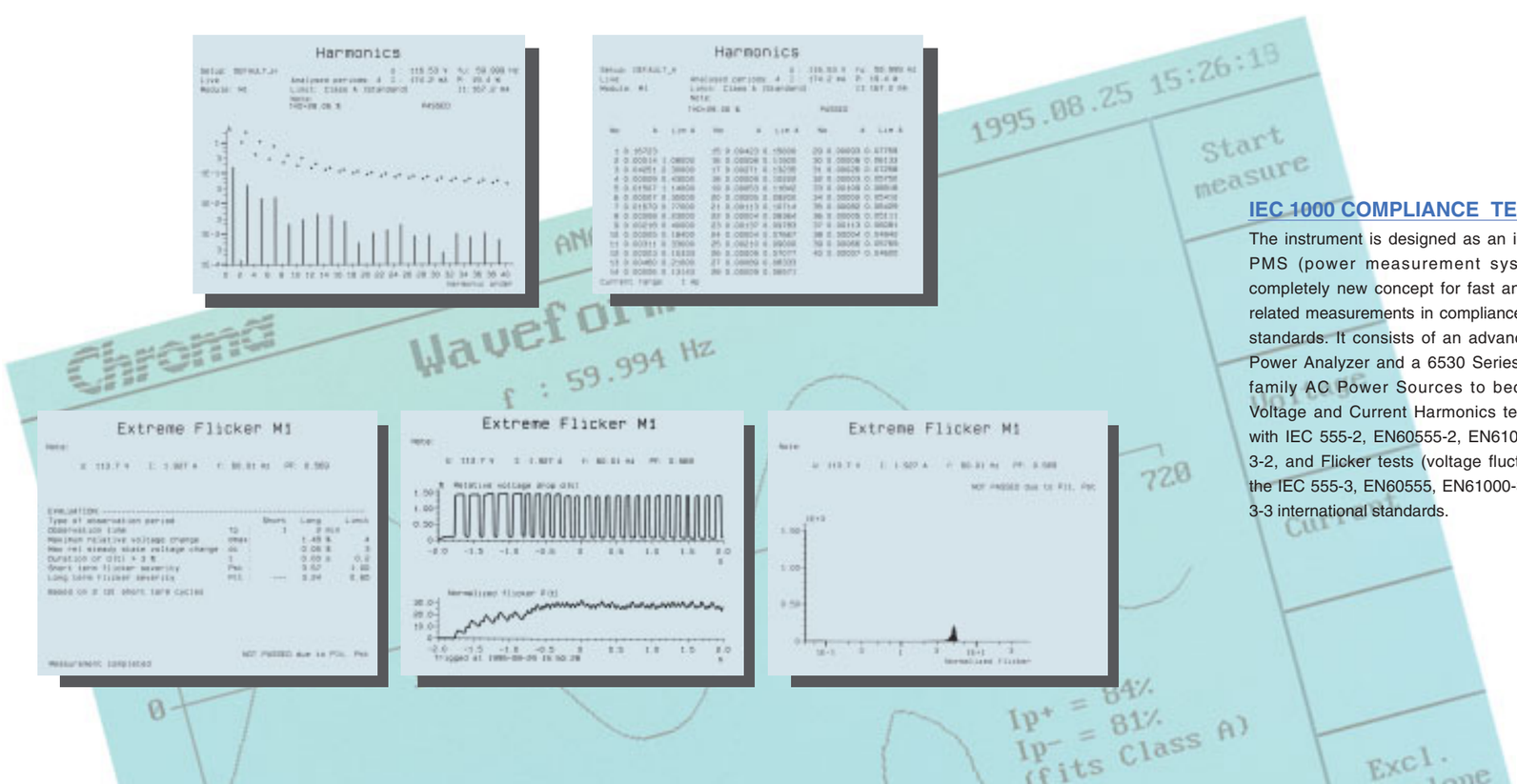
Compliance :	IEC555-3, EN60555-3, EN61000-3-3 and IEC1000-3-3
Method of analysis:	Implementation of IEC868/EN60868, flickermeter spec.
Testing:	Preprogrammed limits according to standard for pass/ fail testing. User0-specified limits can be added.
Result saving:	Hardcopy
External power source:	Remote control via GPIB. Voltage and frequency selections are controlled by 6630 Power Analyzer.

PRESENTATION

Displayed parameters:	Pst	Short-term flicker
	Plt	Long-term flicker
	dc	Relative steady state voltage change
	dmax	Maximum relative voltage change
	d(t)	Relative voltage change
	Test voltage and frequency.	
Limits:	On or off for pass/ fail decision.	

MEASUREMENT

Voltage and current ranges:		Refer to voltage and current spec.
Range	Pst:	0.1 to 20
	Plt:	0.1 to 20
	d:	0 to 25%
Frequency range:		40-70 Hz
Phases/ channels:		1-3. One phase at a time
Reference impedance:		R + jX simulated in calculation
Impedance range (R and X):		0.01-70 Ω
Reference lamp:		230V, 60W
Measurement time:		1-15 min
Number of measurements:		1-1100
Uncertainty at 23± 5°C	Pst:	±4% of rdg for 0.5 < Pst < 20
	Plt:	±4% of rdg for 0.5 < Plt < 20
	d:	±2% of rdg for dmax > 0.1%



IEC 1000 COMPLIANCE TESTING

The instrument is designed as an integral part of the PMS (power measurement system). PMS is a completely new concept for fast and accurate power related measurements in compliance with international standards. It consists of an advanced Chroma 6630 Power Analyzer and a 6530 Series or other Chroma family AC Power Sources to become an ATE for Voltage and Current Harmonics tests in compliance with IEC 555-2, EN60555-2, EN61000-3-2, IEC 1000-3-2, and Flicker tests (voltage fluctuations) following the IEC 555-3, EN60555, EN61000-3-3 and IEC 1000-3-3 international standards.



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6630
POWER ANALYZER

HARMONICS:

- DFT and DSP technology for steady state and fluctuating harmonics measurement.
- Graph - Table measurement result presentation.
- User defined display scale (Linear/ Log & Absolute/ Relative).
- Sliding windows for fluctuating harmonics recording.
- Test against IEC standard and user defined limits.

HARMONICS ANALYSIS

GENERAL

Compliance:	IEC555-2, EN60555-2, EN61000-3-2 and IEC1000-3-2
Testing:	Preprogrammed limits according to the standards for pass/fail testing. User-specified limits can be added
Result storage:	Stored in hardcopy or floppy disk automatically or manually
External power source :	Remote control via GPIB. Voltage and frequency selections are controlled by 6630 Power Analyzer

PRESENTATION

Display:	Selectable between table and graphic presentation for harmonic rms values
Limits:	On or off in graph and table
Graph scale:	Relative or absolute
Graph resolution:	Linear or logarithmic
Displayed parameters:	Total rms value of U and I, source frequency, active power, rms value of fundamental and THD

MEASUREMENT

Harmonic order:	1-40
Frequency of fundamental:	40-70Hz
Frequency source:	Voltage or current
Data source:	Voltage or current
Voltage and current ranges:	Refer to voltage and current spec.
Phases/channels:	One or three
Calculation method:	FFT with 32 bit floating point math
AD-conversion:	18 bit resolution
Measurement window:	Rectangular
Analyzed periods (window with):	1-47
Synchronization uncertainty:	±0.01%
Antialiasing filter attenuation:	80dB
Measurement time:	3.5 s when standard module analyzing 6 periods
Uncertainty at 23±5°C, rms: [6]	±(0.5% of rdg + 0.03% of range)

6. Conditions: 30 min warm up time. Within 12 month after cal. 6 periods/ measurement

FLICKERS:

- Full compliance with IEC-868/IEC-1000-4-15 flicker meter specifications.
- User defined reference impedance.
- 1024 classified scales for flicker levels.
- 4800 samples/second for 50/60Hz fundamental.
- Test against IEC standard and user defined limits.

FLUCTUATIONS AND FLICKER ANALYSIS

GENERAL

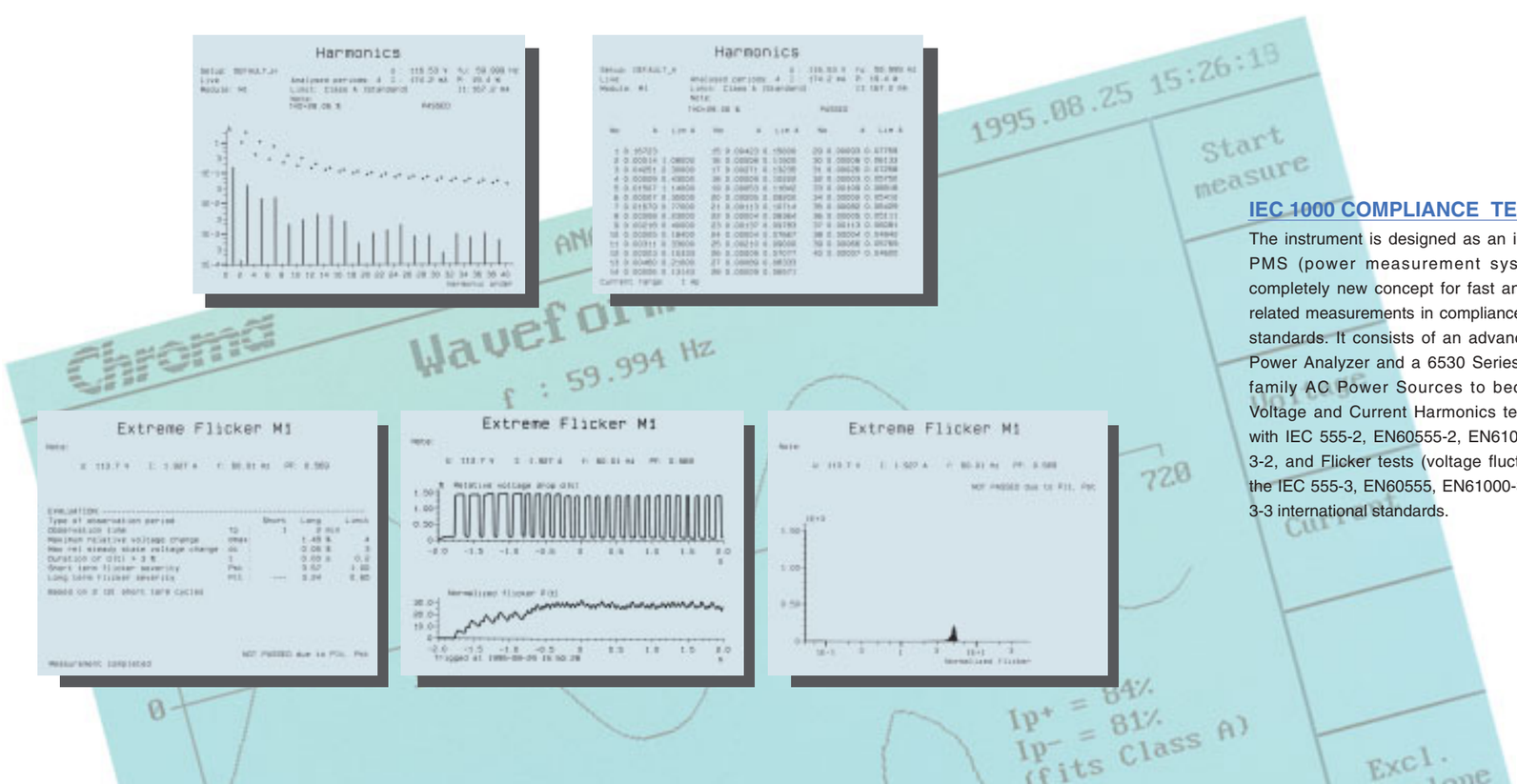
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Method of analysis:	Implementation of IEC868/EN60868, flickermeter spec.
Testing:	Preprogrammed limits according to standard for pass/ fail testing. User0-specified limits can be added.
Result saving:	Hardcopy
External power source:	Remote control via GPIB. Voltage and frequency selections are controlled by 6630 Power Analyzer.

PRESENTATION

Displayed parameters:	Pst	Short-term flicker
	Plt	Long-term flicker
	dc	Relative steady state voltage change
	dmax	Maximum relative voltage change
	d(t)	Relative voltage change
	Test voltage and frequency.	
Limits:	On or off for pass/ fail decision.	

MEASUREMENT

Voltage and current ranges:		Refer to voltage and current spec.
Range	Pst:	0.1 to 20
	Plt:	0.1 to 20
	d:	0 to 25%
Frequency range:		40-70 Hz
Phases/ channels:		1-3. One phase at a time
Reference impedance:		R + jX simulated in calculation
Impedance range (R and X):		0.01-70 Ω
Reference lamp:		230V, 60W
Measurement time:		1-15 min
Number of measurements:		1-1100
Uncertainty at 23± 5°C	Pst:	±4% of rdg for 0.5 < Pst < 20
	Plt:	±4% of rdg for 0.5 < Plt < 20
	d:	±2% of rdg for dmax > 0.1%



IEC 1000 COMPLIANCE TESTING

The instrument is designed as an integral part of the PMS (power measurement system). PMS is a completely new concept for fast and accurate power related measurements in compliance with international standards. It consists of an advanced Chroma 6630 Power Analyzer and a 6530 Series or other Chroma family AC Power Sources to become an ATE for Voltage and Current Harmonics tests in compliance with IEC 555-2, EN60555-2, EN61000-3-2, IEC 1000-3-2, and Flicker tests (voltage fluctuations) following the IEC 555-3, EN60555, EN61000-3-3 and IEC 1000-3-3 international standards.



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WAVEFORM:

- V and I waveform monitor.
- Moving cursor to check the instantaneous values of V/I, O, ΔT & Δf.
- IEC-1000-3-2 class D envelop.
- Level and period trigger function.



WAVEFORM

GENERAL

Display:	Simultaneous presentation for waveforms. At single phase: voltage and current At three phases: voltage or current for all phases
Testing:	Mask for pass/fail testing according to IEC1000-3-2 class D
Wave measurements:	A vertical cursor is available for wave measurements setting.
Phases/channels:	One or three
Result storage:	Hardcopy or floppy disk

PRESENTATION

Displayed input parameters:	Rms values of voltage and current. Frequency of frequency source
Displayed cursor parameters:	Horizontal position (ϕ), vertical position (u), relative time (Δt), and relative frequency (Δf)
No. of waveforms:	2 at single phase and 3 at three phase
Magnification:	Use full screen for selected wave

MEASUREMENT

Frequency range:	40-70 Hz fundamental
Frequency source (upper trace):	Voltage or current
Measurement mode:	AC+DC
Filter:	LP 6 kHz
Horizontal axis length:	1, 2, 4, 8 or 16 periods
Vertical axis:	Normalized to peak values

APPLICATIONS AND DATA STORAGE

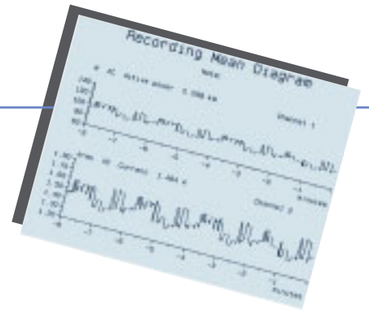
Applications:	Up to 5 individual instrument setups can be stored as applications in an internal non-volatile memory. More applications may be stored and read from disk
Data:	Collected data from recording, waveform or harmonics measurements can be stored and read from disk
Data format:	DBF

REMOTE CONTROL

Interface:	GPIB (IEEE488.1-87) RS232
Connectors:	GPIB: comply with IEEE488.1-87 RS232: 25-pin D-sub
GPIB interface capabilities:	Talker, Listener and Controller. SH1, T6, AH1, L4, SR1, RL1, PP0, DC1, DT1, (C0), E2
Remote control language:	IEEE488.2-87 and SCPI-1994.0 (Standard Commands for Programmable Instruments)
GPIB address:	User selectable from 0 to 30

RECORDING:

- Full range of observation period (8min-24hr).
- Simultaneous recording of up to 3 user defined parameters.
- Mean or Min-Max display diagram can be selected.
- Full range scale or interval scale display mode.



RECORDING

GENERAL

Display:	Simultaneous recording up to three user defined parameters
Magnification:	Any trace may be selected to use full screen
Memory:	Freeze of recording, may be used any time without loosing any information
Phases/ channels:	One or three
Number of traces:	1-3
Result storage:	Hardcopy or floppy disk

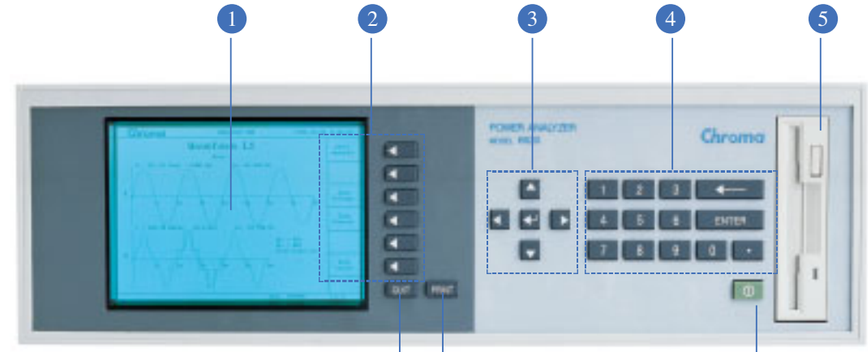
SELECTIONS FOR EACH TRACE

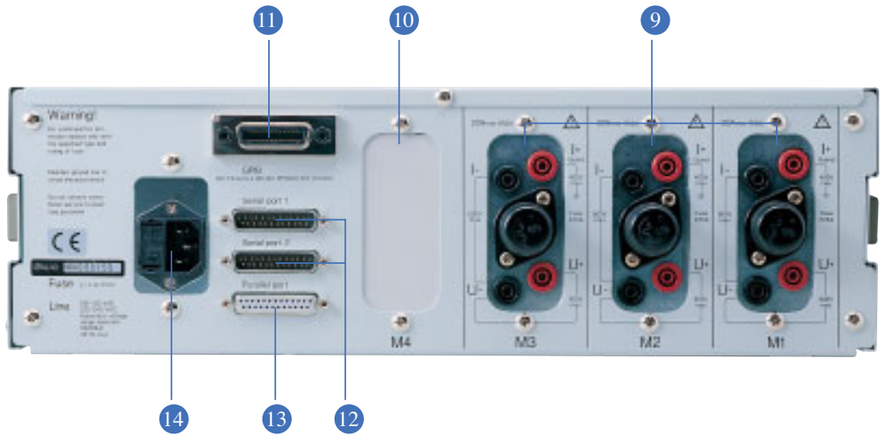
Channel:	L1, L2 or L3	
Parameter:	Voltage (U)	Frequency (f)
	Current (I)	Crest factor (CF)
	Active power (P)	Power factor (PF)
	Reactive power (Q)	Phase angle (φ)
	Apparent power (S)	
Measurement mode:	AC, DC or (AC+DC)	
Incremental value:	Max and min or mean of collected measurements per increment	
Vertical axis scaling:	Full range or interval	

MEASUREMENT

Frequency range:	DC and 40-70 Hz fundamental
Frequency source:	Voltage or current channel
Filter:	LP 2 kHz
Horizontal axis length (time window):	8, 15 or 30 min. 1, 2, 4, 8 or 24 hours
Measurements per increment [7]:	1, 2, 4, 8, 15, 30, 60, 180
Measurement window:	1 s
Window type:	Fixed or adapted to full periods of source frequency fundamental

7. Due to horizontal axis length. One at 8 min. increasing to 180 at 24 hours





PANEL:

1. Graphic LCD Display
Graphic LCD shows test setup, operating status, readings and waveforms.

2. Soft Key Group
The 6 soft keys each have a text area on the display defines the function. The soft key functions change following the current menu level.

3. Arrow Key Group
This key group is used to step through the input fields on a display page, and predefined choices on input fields.

4. Numeric Key
For entering numeric data.

5. Floppy Disk Unit
A 3.5" disk drive that reads, writes and formats standard PC-AT compatible 1.44MB disks.

6. Power ON/OFF Switch

7. Print Key
To print or to save the current display contents on disk.

8. Quit Key
To return one level in the instruments menu level tree.

9. Measurement Module Inputs
The measurement modules Current/Voltage input connectors and current measurement input fuses. The instrument can have a maximum of three installed measurement modules.

10. Spare Module Slot
Spare module slot reserved for instrument options or future expansion.

11. GPIB Interface

12. Serial Ports

13. Parallel Port
Centronic compatible parallel port for connecting a hardcopy device such as a printer or plotter to the instrument.

14. Power Input Connector and Fuse holder

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WAVEFORM:

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Testing:	Mask for pass/fail testing according to IEC1000-3-2 class D
Wave measurements:	A vertical cursor is available for wave measurements setting.
Phases/channels:	One or three
Result storage:	Hardcopy or floppy disk

PRESENTATION

Displayed input parameters:	Rms values of voltage and current. Frequency of frequency source
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No. of waveforms:	2 at single phase and 3 at three phase
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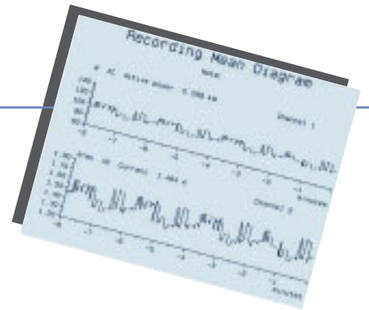
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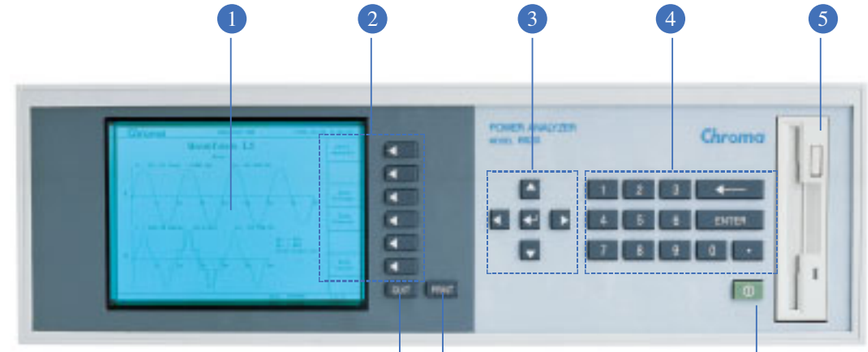
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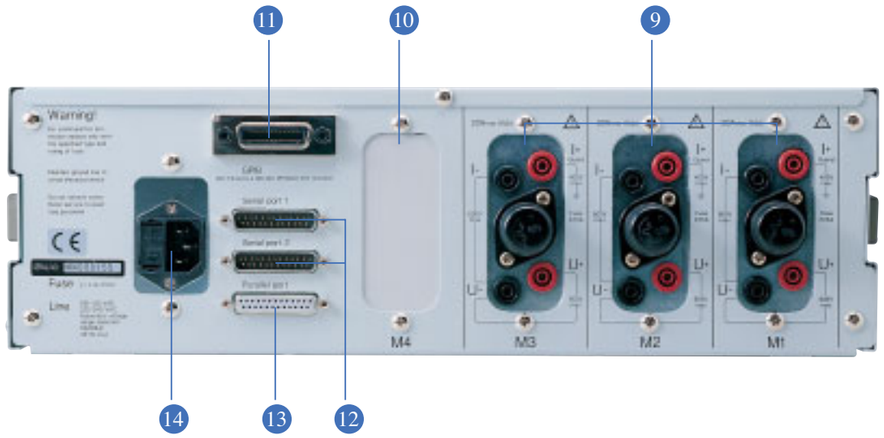
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	Active power (P)	Power factor (PF)
	Reactive power (Q)	Phase angle (φ)
	Apparent power (S)	
Measurement mode:	AC, DC or (AC+DC)	
Incremental value:	Max and min or mean of collected measurements per increment	
Vertical axis scaling:	Full range or interval	

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POWER ANALYZER MODEL: 6630

SPECIFICATIONS

Display:	LCD 640x480 pixels with backlight
Printer output for hardcopy:	Parallel (Centronics compatible) or serial (RS232)
Floppy drive:	1.44MB 3” PC-format. For software updates and result storage
Rack mounting:	With optional rack mount kit. Size 19” 3HE
Dimensions:	(HxWxD) 132x425x340 mm (5.2x16.7x13.4 inches)
Weight:	Single phase 9 kg (20 lbs), three phase 11.4 kg (25 lbs)
Operating environment:	0 to +40°C < 80 % R.H. non condensing
Storage environment:	-30 to +60°C non condensing
Power supply:	100-130V or 200-240V, automatic range selection
Power line frequency:	50/60 Hz
Power consumption:	45 W max
Protection:	Fuse 2xF1A on rear panel
Safety:	Designed to comply with the Low Voltage Directive 73/23/EEC plus parts of 93/68/EEC. Applied standard, EN61010-1:1993, Installation category Ⅱ.
EMC:	Designed to comply with the EMC Directive 89/336/EEC and 92/31/EEC Applied standards, EN50081-1:92 and EN50082-1:92
Warranty:	One year from date of delivery for manufacturing and material failures

Chroma AC Power Source Family

6500 series

Power: 1200VA, 2000VA, 3000VA, 6000VA, 9000VA
Voltage: 0-150V/0-300V/Auto
Frequency: 15-2000Hz, or 45-1000Hz



61500/ 61600 series

Power: 500k-18kVA
Voltage: 0-150V/0-300V/Auto
Frequency: 15-1000Hz



6400 series

Power: 375VA, 800VA, 1500VA, 2000VA, 3000VA, 6000VA, 9000VA
Voltage: 0-150V/0-300V/ Auto
Frequency: 45-500Hz, or 45-1000Hz

Ordering Information

6630-1D:Power Analyzer 6630 with DSP Measurement Module x 1 (1ø)
6630-3D:Power Analyzer 6630 with DSP Measurement Module x 3 (3ø)
6630-1DA:Power Analyzer 6630-1D without Flicker function
6630-3DA:Power Analyzer 6630-3D without Flicker function
6632-1D:Power Analyzer 6632 with DSP Measurement Module x 1 (1ø)
6632-3D:Power Analyzer 6632 with DSP Measurement Module x 3 (3ø)

Options

A663003:Measurement input cables
A663004:Rack Mounting Kit for Model 6630 Series
A663008:Spare current measurement input fuse
A663009:Measurement Fixture 1
A663010:DSP Measurement Model
A600009:GPIB Cable(200 cm)
A600010:GPIB Cable(60 cm)

All specifications are subject to change without notice.

Developed and Manufactured by :

CHROMA ATE INC.

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Fax : +886-2-2298-3596
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Fax : +86-755-2641 9620

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6630E-0103-4000



POWER MEASUREMENT SYSTEM
POWER ANALYZER

Chroma introduces a completely new concept, Power Measurement System, for fast and accurate power related measurements in compliance with international standards.

The Power Measurement System consisting of an advanced 6630 Power Analyzer and a 6530 Series or other Chroma family AC Power Source is the ATE for Voltage and Current Harmonics test in compliance with IEC 555-2, EN60555-2, EN61000-3-2, IEC 1000-3-2, and for Flicker test (voltage fluctuations) following the IEC 555-3, EN60555-3, EN61000-3-3, and IEC 1000-3-3 international standards. Performance testing is preprogrammed limits to specifications against standardized limits. The user-specified limits can be added.

Chroma 6630 Power Analyzer is a modular instrument that is equipped with DSP type measurement module. Each measurement module contains Processor, Memory (ROM, RAM, Flash ROM), and two channels 18 bits A/D converter. As the Discrete Fourier Transform (DFT) technology is implemented in the software with 32-bit floating point mathematical algorithms, it can measure instruments related power at high-speed and analyze the measurement parameters (value) accurately. The instrument is also a combination of all standard instruments generally used for power measurements. It provides Voltage (U), Current (I), Active Power (P), Reactive Power (Q), Apparent Power (S), Active Energy (W), Reactive Energy (Wr), Apparent Energy (Wa), Frequency (f), Crest Factor (CF), Power Factor (PF), Phase Angle (ϕ).

Chroma 6630 Power Analyzer is a flexible and unique multipurpose instrument designed for using stand-alone and integrated. Harmonics, Flicker, Multimeter, Recording, and Waveform are the five major function modules that can work stand-alone, or be integrated into an ATE environment to facilitate the system for testing and analysis. Future revisions of the supported standards are able to implement by software updates. The built in floppy disk drive gives users a convenient way to save the test parameters and results.

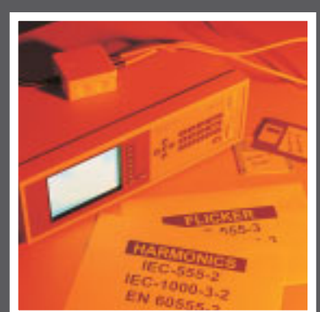
The 6630 Power Analyzer is easy to operate through the front panel keypad or remote controller via IEEE-488 or RS-232C. The printer interface is also available for printing harmonic bar charts, results tables, waveforms, or the instrument conditions and measurement readings.



MODEL 6630

Key Features:

- Test Voltage and Current Harmonics in compliance with IEC555-2, IEC1000-3-2, EN60555-2, EN61000-3-2
- Test Flicker (voltage fluctuations) in compliance with IEC555-3,IEC1000-3-3, EN60555-3, EN61000-3-3
- Advanced DFT and DSP technology
- Multi-processor system configuration
- Modular instrument with three measurement modules in DSP type
- 5 unique test function modules with Harmonics, Flickers, Multimeter, Recording, and Waveform for multipurpose test application requirements
- Harmonic analysis and bar graph / table results display up to 40 harmonics
- 2-channel 18-bit A/D converter in each measurement module
- Simultaneous presentation for voltage and current curves. (1~16 periods)
- Preprogrammed functions against standardized limits
- Wide voltage (6V to 2000Vpk) and current(0.1A to 300Apk)input range.
- 3 1/2” floppy driver for software update and result storage.
- RS-232C and IEEE-488 bus interface.
- 1 parallel & 2 serial communication ports.



Chroma

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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