

# HIGH PERFORMANCE POWER ANALYSIS SYSTEM 2503AH



**2503AH high performance Power Analyzers are the most advanced available. Perfect for lighting, power conversion, and appliance test and development applications.**



## Industries Served

Lighting  
Consumer Products  
Medical  
Automotive  
Regulatory Agencies  
Process Control  
Power Supply  
Power Quality Monitoring  
HVAC  
Military  
Aerospace

The 2503AH analyzers measure power, voltage, current and frequency up to 500 kHz with premier precision. Available parameters include V,A,W, Power Factor, Crest Factor, K Factor, THD, Harmonics, Phase, VA, VAR, W.Hr, Triplens, Impedance, Inrush, Mean-Peak Values, Efficiency-Loss, etc.

Xitron power analysis instruments have set the standard for production testing. Independent channel control and unparalleled flexibility and speed have made the 2503AH-3CH the instrument of choice in 3-phase power analysis. The 2503AH-1CH/2CH offers cost effective solutions for single or two-phase applications such as power supply and appliance testing.

## QUALITY AND RELIABILITY

XITRON Technologies, founded in 1990, is the premier source for precision power testing and measurement instruments used in industrial manufacturing and medical electronics. Using the latest digital signal processing and circuitry, XITRON's sophisticated technology gives our customers the edge in design verification and product manufacturability. XITRON is ISO 9001:2000, EN46001 registered, and FDA (GMP 820) compliant.

- 18-bit, 500 kHz sampling speed provides 0.05% basic accuracy
- Ultrafast FFT's per channel produce measurements in 10ms
- 3000 V Peak, 50 Amp Peak internal shunt and Hall effect CT's\*
- Pre-configured for ballast, motor, power supply and appliance tests
- Real-time, ultra-fast, harmonic analysis
- Application specific configurations
- External CT and PT capability ratio: 0.000001-1000000 to 1, for A/V, A/A or V/V
- Frequency Measurement: 500  $\mu$ Hz to 500kHz, 0.01% of reading
- Measurement Period: User defined from 1 mSec to 27.8 hours
- Watt, VA & VAR Accuracy highest of V\* Amp error or Amp\* V error yields max. error for either Watts, VA, or VAR
- Accumulation accuracy WHr, VAHr, AHr up to 9999.9 GWHr/GVAHr
- Timing Accuracy: 0.01% + 10 mSec. start/stop error

## ORDERING INFORMATION

ITEM #	DESCRIPTION
2503AH-1CH	Single channel analyzer
2503AH-2CH	Two channel analyzer
2503AH-3CH	Three channel analyzer

## HIGH PERFORMANCE POWER ANALYSIS SYSTEM

# 2503AH



## CONDENSED SPECIFICATIONS

(Contact XITRON for complete specifications)

### Input Ranges

User may select fixed or autorange.

**Voltage:** 15-30-60-150-300-600-1200 VRms

**Current:** Shunt: 0.05-0.1-0.2-0.5-1-2-5-10-20 Arms

\*Int. CT: 7.5-15-30-60 Arms

Bypass: 12.5-25-50-125-250-500 mV RMS, 1.25-2.5-5V RMS

All ranges allow for up to 2.5X range peak

### Resolution

Better than 0.05% of range

### Voltage & Current Accuracy

DC Volts: 0.05% +/- 0.15% range +/- 50 mV

DC Amp: 0.05% +/- 0.15% range +/- 200  $\mu$ A

### AC Volts/Amp

Frequency Range	Accuracy
0.001Hz-10 kHz	0.05%
20kHz-50kHz	0.33%
100kHz-200kHz	1.00%
200kHz-500kHz	2.35%

For voltage add 0.05% of range + 20 mV

For internal shunt add 0.05% of range + 100  $\mu$ A

For shunt bypass add 0.05% of range + 10  $\mu$ V

Min input > 10% of range (1% with filter on)

### High Accuracy Option

0.05% of reading for freq. 40-400 Hz, and input >25% of range

### Hall Effect CT\* Accuracy

DC Amp: 0.15% +/- 0.15%, range +/- 25mA

AC Amp: 0.1Hz- 10kHz: 0.25%

10kHz-20kHz: 0.65%

20kHz-50kHz: 2.25%

50kHz-100kHz: 4.25 %

For AC add 0.05% of range + 10 mA

### Crest Factor

Better than 2.5 at full scale input, linearly increasing to 250:1 at 1% of full scale. For max. inputs of 100 Apk, 3000 Vpk

### Voltage Protection

Up to 3000 Vpk. Max slew rate 2500 V/ $\mu$ Sec

### Current Protection

Max 500 Amp peak via HALL effect CT\*

Max 15V peak using shunt bypass input

Max. 50 Amp peak using internal shunt

### Isolation

Inputs are isolated from each other and ground for voltages up to 3000 Vpk

### Settling Time

0.0015 mSec (low pass filter disabled)

### Low Pass Filters

User definable 5 Hz - 250 kHz, or disabled

### Filter Amplitude Accuracy

Add 0.01%/kHz for signal frequencies > 5 kHz, Filter rejection > 40 dB @ 3x selected filter frequency, current and voltage accuracy specifications apply for input signals < 0.05x selected filter frequency

### Harmonic & Spectrum Analysis

**Bandwidth:** 0.001 Hz to 170 kHz

**Max. harmonic:** 2047

**Max FFT size:** 4096 point complex FFT, Typical THD, harmonic and phase accuracy at line frequencies of 50/60 Hz

**THD accuracy:** +/- 0.3%

**Harmonic accuracy:** 0.03% of range

**Phase accuracy:** 0.1° for freq., <5 kHz, linearly increasing to 5° @ 170 kHz, Fully compliant IEC 1000-3-2 harmonic analysis (Pre-A14)

### Power Factor Accuracy

Approximately 0.001 for freq. 10 kHz (5 kHz w/filter) increasing linearly to 0.01 @ 200 kHz (20 kHz w/filter)

### AIO Option

Up to twelve analog outputs, proportional to user offset & span of parameters

**Analog output level/resolution:** 5V/5mA @ 16 bits

**Accuracy:** 0.1% +/- 2mV

**Digital Range Output:** Contact Xitron Technologies

### Physical specifications

**Power input:** 85-265 VRms autoselect, 40-400 Hz @ 100VA max

**Size:** 17.71" wide by 7" high by 14" deep

**Weight:** 24 lbs., 35 lbs. Shipping weight

**Operating range:** 0°C to 50°C, <85% RH @ 40°C non-condensing

**Storage range:** -30°C to 65°C <95% RH @ 40°C non-condensing

**Configuration:** Benchtop or optional 19" rack mount

### Digital interfaces (standard)

IEEE488 (1), RS-232 (2), Parallel Printer

### Options

**HA:** High accuracy calibration 40-400Hz, 0.05% all parameters

**AIO:** 12ea. analog out, 16 digital out

**HE 1CH** Internal Hall effect for single channel analyzer\*

**HE 2CH** Internal Hall effect for two channel analyzer\*

**HE 3CH** Internal Hall effect for three channel analyzer\*

**RE 19"** Rack Adapter

\* Internal HALL effect CT options not available on CE marked units



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