

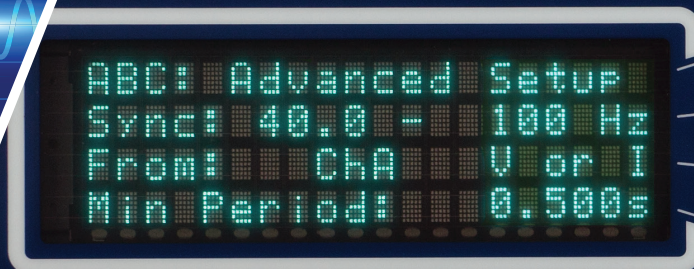
## 2503AH Series

## High Performance Power Analysis System

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

### Quality and Reliability

Vitretek, founded in 1990, is the premier source of precision power testing and measuring equipment for industrial and consumer product development and manufacturing. Vitrek's sophisticated technology provides companies the edge in design verification and product manufacturability.



The 2503AH Analyzers measure power, voltage, and current 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.

Vitretek 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 application such as power supply and appliance testing.

- > 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 measurable with internal shunt and optional internal Hall effect CTs\*
- > 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 170kHz, 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

### INDUSTRIES SERVED

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

**25**  
Years Industry  
EXPERTISE

# 2503 AH Series

## High Performance Power Analysis System

Test Like You  
MEAN IT



### Condensed Specifications

(Contact Vitrek for complete specifications)

#### ISOLATION

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

#### SETTING 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 >5kHz, 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

#### POWER FACTOR ACCURACY

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

#### PHYSICAL SPECIFICATIONS

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

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

**Weight:** 28 lbs.

**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  
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 market units

#### WARRANTY

Two years

#### 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:

0.001Hz-10 kHz 0.05% 10kHz-20kHz 0.10%

20kHz-50kHz 0.33% 50kHz-100kHz

0.55%

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 50 Apk, 3000 Vpk

#### VOLTAGE PROTECTION

Up to 3000 Vpk. Max slew rate 2500 V/uSec

#### CURRENT PROTECTION

Max 500 Amp peak via HALL effect CT\*

Max 15V peak using shunt bypass input

Max. 50 Amp peak using internal shunt

### ORDERING INFORMATION

ITEM#	DESCRIPTION
822-2503AH-1CH	Single Channel Power Analyzer
822-2503AH-2CH	Two Channel Power Analyzer
822-2503AH-3CH	Three Channel Power Analyzer
F	IEC61000-3-3 Flicker Analysis Capability
822-AIO	12 Channel Analog Output, 16 Channel Digital Output
822-HE-1CH	Add 150A peak internal Hall Effect Current Transducer to 2503AH-1CH
822-HE-2CH	Add 150A peak internal Hall Effect Current Transducer to 2503AH-2CH
822-HE-3CH	Add 150A peak internal Hall Effect Current Transducer to 2503AH-3CH
UG2503AH	Additional Operating Manual Set
HA	High Accuracy Calibration 40-400Hz, 0.05% all Parameters
RE	19" Rack Adapter Kit

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REV 3/19

Please visit [www.vitrek.com](http://www.vitrek.com) for ordering information.

CE