

VALHALLA SCIENTIFIC – 2400 SERIES WIDEBAND SPECTRUM POWER ANALYZER

Solid performances and simple operation in a compact easy to use package

Valhalla's state of the art 2400 Series Power Analyzers offer high performance in both single and three-phase. Unlike other instruments at this price level the 2400 is designed to operate with extreme signals generated on frequency inverter drivers. These analyzers provide precise reliable measurements for any waveform. Large clear monitor lets you read displayed values from a distance of four meters.

Simple to use:

Checking power to determine the pertinent power parameters of a frequency inverter driven system is simple. All values display large letters easily read even in dark rooms. The user menu makes operation easy.

Measured values can be:

Printed, (Centronics Printer Interface)
Sent to a PC via IEEE-488 or RS232 interface.
Sent to a chart recorder via the analog outputs.

You can have all available options installed in your instrument.

Extraordinary features, attractive display:

Much effort went into the design of the 2400 Power Analyzers to give the highest performance at low costs.

- The analyzer inputs are all galvanically isolated.
- Broad band DC-300kHz.
- Wide input range (0.3V - 1000V, 15mA - 40A).
- Exceptional common mode rejection for use in frequency inverter driven systems.
- The accuracy is 0.1% (0.05% versions are available).
- The bright LCD monitor displays up to 10 measured values in well legible 9mm high numbers.
- The Three-Phase Power Analyzer puts up to 32 measured values on the screen.

Features:

- Single-Phase and 3-Phase
- Perfect Resolution for Stand-by Power Measurements
- Suitable for frequency inverter drivers
- Large and bright display for up to 10 values
- Scope function
- Stores up to 20 setups
- Harmonics 1-99, Bar charts
- DC-300kHz, 15mA-40A, 0.3V-1000V
- 0.1% or 0.05% accuracy
- Interface: IEEE 488, RS 232, Centronics

You have the choice to visualize wave forms, bar graphs or trend plots. A unique feature of these instruments allows a combination of meter mode and graphic mode.

Computed Values

The new 2400 power analyzer measures, computes, and displays all of your critical power variable to let you concentrate on more efficient reliable testing. It is available in single or three phase versions and combines a wattmeter, oscilloscope, and a power spectrum analyzer in a single compact package.

From the simultaneous and precise voltage and current measurements, you can measure and monitor all of the power parameters you need. You can display them in the format that fits your application.

Current and Voltage. RMS, Peak and Harmonics through the 99th order.

Power. Watts, VA, VAR, and Power Factor

Integrated Measurements. Watt-Hours, VA Hours, VARH and Amp Hours

General Values. Frequency, Harmonic Distortion, Crest Factor, Form Factor, and Oscilloscope Display



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2400 SERIES

WIDEBAND SPECTRUM POWER ANALYZER



Specifications

Voltage	
Ranges	.3V, 1V, 3V, 10V, 30V, 100V, 300V, 1000V
Frequency Range	DC, 0.1Hz-300kHz
Crest Factor	4:1 at 50% full scale (fs)
Input Impedance	>1MΩ
Common Mode-50Hz/100kHz	155dB/95dB
Standard Accuracy 23°K ±3°K	
1Hz-1kHz	±(0.1%rdg + 0.1% range)
DC, 1kHz-10kHz	±(0.2%rdg + 0.2% range)
10kHz-100kHz	±(0.3%rdg + 0.04% range)
100kHz-300kHz	±(0.2%rdg + 0.2% range)
Improved Accuracy	±(0.05%rdg + 0.05% range)
Current	
Ranges	15mA, 50mA, 150mA, 500mA, 1.5A, 5A, 1A, 3A, 10A, 30A, 100A, 300A
Frequency Range	DC, 0.1Hz-300kHz
Crest Factor	4:1 at 50% full scale (fs)
Common Mode-50Hz/100kHz	160dB/120dB
Standard Accuracy 23°K ±3°K	
5A Input/Shunt Input	
1Hz-1kHz	±(0.1%rdg + 0.1% range)
DC, 1kHz-10kHz	±(0.2%rdg + 0.2% range)
10kHz-100kHz	±(0.3%rdg + 0.04% range)
100kHz-300kHz	±(0.3%rdg + 0.04% range)
Improved Accuracy	±(0.05%rdg + 0.05% range)
Standard Accuracy 23°K ±3°K	
30A Input	
1Hz-1kHz	±(0.1%rdg + 0.1% range)
DC, 1kHz-10kHz	±(0.9%rdg + 0.2% range)
10kHz-100kHz	±(0.3%rdg + 0.5% range)
100kHz-300kHz	±(0.3%rdg + 0.5% range)
Improved Accuracy	±(0.05%rdg + 0.05% range)
Power	
Ranges	80 Ranges corresponding to the products VxA
Frequency Range	DC, 0.1Hz-300kHz
Standard Accuracy 23°K ±3°K – Add accuracy % of I and V	
1Hz-1kHz	PF = 0 to ±1
DC, 1kHz-10kHz	PF = 0 to ±1
10kHz-100kHz	PF = 1
Frequency	
0.1Hz-300kHz, A or V triggered Accuracy	±0.1%
Computed Values	
Accuracy; Reactive Power, Var = ±(VA2-W2) ₂ ; Apparent Power: VA = ArmsVrms; Power Factor: PF = W/VA; Crest Factor: CF = Ap/Arms, Vp/Vrms; Form Factor: FF = At/Arms, Vt/Vrms; Impedance: Z = Vrms/Arms; Total Harm Dist: THD = (Irms2 - Ifund2) /Irms	
Integrator	
Energy, Charge; Accuracy - Wh, Vah, Varh, Ah; Basic accuracy of integrated quantity.	
Harmonic	
Frequency range of fundamental - 2.5Hz - 100kHz	
Analysis	
Accuracy, Harmonic current and voltage	
2Hz-1kHz	±(0.2% rdg + 0.1% range)
1kHz-10kHz	±(0.5% rdg + 0.5% range)
10kHz-100kHz	±(0.7%range + 0.1%/kHz rdg)

Display	
Blue liquid crystal graphic display with FL back light; 64x120mm; 128x240 pixels	
Power	
AC, 50-400Hz; 85V-240V; 2AF/30VA	
Dielectric Strength	
Input to case or power supply	2.5kV/50Hz/1minute
Line input to case	1.5kV/50Hz/1minute
Input to Input	4kV/50Hz/1minute
Dimensions	
H 150mm x W 235mm x D 320mm Weight 4Kg	

Power Analyzers

- 2410-1S Single Phase Basic Model, 0.1% accuracy
- 2410-1HS Single Phase Power Analyzer, w/Harmonics & Scope 0.1% accuracy
- 2410-1HE Single Phase Power Analyzer, w/ Harmonics or Scope, 0.05% accuracy
- 2430-3S Three-Phase Basic Model, 0.1% accuracy
- 2430-3HS Three-Phase Power Analyzer, w/Harmonics & Scope 0.1% accuracy
- 2430-3HE Three-Phase Power Analyzer, w/ Harmonics or Scope, 0.05% accuracy

Accessories

- ACS1 Current clamp with connector to 106A shunt input; 0-200A / 0-1000A, DC-1kHz, 2 %, other ranges and accuracies on request
- ACS2 Portable printer (106 x 180 x 88mm) with Centronics interface and cable (weight400gr.)
- ACS3 Soft carrying case for 2400
- ACS4 Set of test leads, max. 32A, 1.5m (2 red, 2 black)
- ACS5 Shunt input connector
- ACS6 Service Manual
- ACS7 Rack Mounting Kit

Options

- Opt-01 RS-232 Interface and Centronics printer output including Windows Operating Software (95, 98, NT, 2000, ME, XP) to control, read, and store data
- Opt-02 RS-232- and IEEE-488 Interface, Centronics printer output including Windows Operating Software (95, 98, NT, 2000, ME, XP) to control, read, and store data
- Opt-03 RS-232- and IEEE-488 Interface, Centronics printer output, and 4 analog outputs, 8 analog inputs including Windows Operating Software (95, 98, NT, 2000, ME, XP) to control, read, and store data, read analog inputs. inputs
- Opt-03A RS-232 and IEEE-488 Interface, Centronics printer output 4 analog outputs with provision to also output total power, 8 analog inputs including Windows Operating Software (95, 98, NT, 2000, ME, XP) to control, read, and store data, read analog inputs. inputs
- Opt-04 3-Phase current sensors model 0-100A (supply by 2400)
- Opt-05 Operating software under DOS to control 2400, read data and store data via RS-232 or IEEE-488 (National, Keithly Interface)
- Opt-06 2400 driver for Nat. Instrument LabView
- Opt-07 Standalone software based on LabView
- Opt-07M Software for Motor Testing
- Opt-07T Software for Transformer Testing
- Opt-08 TTL-input for external synchronization
- Opt-09 Network to form artificial neutral (mainly frequency inverter measurements)
- Opt-10 0-300A, 0-3000A flexible current clamps with connector to clamp input of Power Analyzer (1 per phase). 1% 50/60Hz.