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Valhalla 2400 Wideband Spectral Power Analyzer



- | Single-Phase and Three-Phase
- | Perfect Resolution for Stand-by Power Measurements (your solution for 1Watt Testing)
- | Suitable for frequency inverter drivers
- | Large and bright display for up to 10 values
- | Scope function, 20 setups can be stored
- | Harmonics 1-99, Bar charts
- | DC-300KHz, 15mA-40A, 0.3V-1000V
- | 0.1% or 0.05% accuracy
- | Interfaces: IEEE 488, RS 232, Centronics

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Our new spectral power analyzer gives you solid performance and simple operation in a compact easy to use package.

Introduction:

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 options that we make available 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.

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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.

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, RM, 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

Technical Data:

General:

- | Display: graphic display 64 x 120 mm / 240 x 128 pixels
- | Operation: foil keyboard with 11 function keys, menu-driven, additional remote control via RS232 or IEEE 488
- | Mains: 115V/230V \pm 15%, 45-65 Hz, 30 VA, fuse T 2A / 1A
- | Dimensions: 150 x 230 x 320 mm (H x W x D)
- | Weight: 4 kg
- | Reference Temp: 23° C \pm 3° C
- | Working temp. range: 0 . 40° C
- | Storage temp. range: -20° C . +50° C
- | Climatic class: KYG according to DIN 40040 (0 - 40° C)
- | Humidity max.: 85%, annual avg. 65% no dewing

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	>1M Ω
Common Mode - 50Hz/100kHz	155dB/95dB
Standard Accuracy 23°K \pm 3°K	
1Hz-1kHz	\pm (0.1%rdg + 0.1% range)
DC, 1kHz - 10kHz	\pm (0.2%rdg + 0.2% range)
10kHz - 100kHz	\pm (0.3%rdg + 0.04% range)
100kHz - 300kHz	\pm (0.2%rdg + 0.2% range)
Improved Accuracy	\pm (0.05%rdg + 0.05% range)
Current	
Ranges	15mA, 50mA, 150mA, 500mA, 1.5A, 5A, 1,3,10,30,100,300A
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 \pm 3°K	
5A Input/Shunt Input	

1Hz-1kHz DC, 1kHz - 10kHz 10kHz - 100kHz 100kHz - 300kHz Improved Accuracy	±(0.1%rdg + 0.1% range) ±(0.2%rdg + 0.2% range) ±(0.3%rdg + 0.04% range) ±(0.3%rdg + 0.04% range) ±(0.05%rdg + 0.05% range)
Standard Accuracy 23°K ±3°K 30A Input 1Hz-1kHz DC, 1kHz - 10kHz 10kHz - 100kHz 100kHz - 300kHz Improved Accuracy	±(0.1%rdg + 0.1% range) ±(0.9%rdg + 0.2% range) ±(0.3%rdg + 0.5% range) ±(0.3%rdg + 0.5% range) ±(0.05%rdg + 0.05% range)
Power	
Ranges	80 Ranges corresponding to the products V x A
Frequency Range	DC, 0.1Hz-300kHz
Accuracy 23°K ±3°K 1Hz-1kHz DC, 1kHz 10kHz 10kHz 100kHz	Add accuracy % of I and V PF = 0 to ±1 PF = 0 to ±1 PF = 1
Frequency	
0.1Hz-300kHz, A or V triggered Accuracy	±0.1%
Computed Values	
Accuracy; Reactive Power, $Var = \pm(VA^2 - W^2)$; 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: $THD = (Irms^2 - Ifund^2)/Irms$	
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 1kHz-10kHz 10kHz-100kHz	±(0.2% rdg + 0.1% range) ±(0.5% rdg + 0.5% range) ±(0.7%range + 0.1%/kHzrdg)
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 Line input to case Input to Input	2.5kV/50Hz/1minute 1.5kV/50Hz/1minute 4kV/50Hz/1minute
Dimensions	
H 150mm x W 235mm x D 320mm Weight 4Kg	

Ordering Information:

Power Analyzer:

- 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:

- Option-01: RS-232 Interface and Centronics printer output including Windows Operating Software (95, 98, NT, 2000, ME, XP) to control, read, and store data
- Option-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
- Option-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
- Option-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
- Option-04: 3-Phase current sensors model 0-100A (supply by 2400), +/- .45% Accuracy
- Option-05: Operating software under DOS to control 2400, read data and store data via RS-232 or IEEE-488 (National, Keithly Interface)
- Option-06: 2400 driver for Nat. Instrument LabView
- Option-07: Standalone software based on LabView
- Option-07M: Software for Motor Testing
- Option-07T: Software for Transformer Testing
- Option-08: TTL-input for external synchronization
- Option-09: Network to form artificial neutral (mainly frequency inverter measurements)
- Option-10: 0-300A, 0-3000A flexible current clamps with connector to clamp input of Power Analyzer (1 per phase). 1% 50/60Hz.

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