

PSM2200

Phase Sensitive Multimeter

QuanteQ



Functions:

- 2 channel wideband true RMS Voltmeter with direct input up to 500Vpk
- Signal Generator
- Frequency Response Analyser
- Vector Voltmeter
- Pulse Generator
- Selective Level Meter
- Phase Meter
- LCR Analyser
- Transformer Analyser
- Harmonic Analyser
- 2 channel low frequency DSO
- Dual Frequency Generator
- White Noise Generator
- Power Meter
- Phase Sensitive Detector

Example Applications:

- Electrochemical materials analysis, current transformer testing, phase meter calibration
- LCR testing of passive components
- Electronic Filter design and test
- Electrochemistry Impedance Testing
- Audio Sensor, Speaker, Amplifier Testing
- Power analysis
- Gain and Phase testing e.g.
 - PSU Closed Loop Feedback
 - Mechanical vibration and resonance
 - Instrumentation Frequency Response
- Testing electroluminescent lamps
- Transformer testing:
 - All conventional transformer functions plus telecom transformer tests. Frequency sweep available on all functions.
- Testing high voltage capacitors or piezo electric transducers up to 100kHz at 800V pk-pk

PSM2200 QuanteQ offers engineers in design, production and test environments with the ultimate measurement flexibility and performance in a bench or rack mounted test instrument.

With synthesized signal generator, two isolated measurement channels, DFT and true rms analysis over a 100uHz to 2.4MHz frequency range, QuanteQ provides the ideal alternative to many separate test instruments.

In either 19" rack or space-saving tower versions and with its wide range of accessories, PSM2200 QuanteQ provides the solution to many demanding measurement applications.

Features:

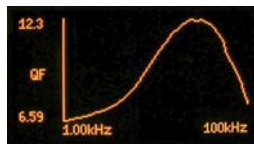
- Isolated inputs
- dc, 10uHz to 2.4MHz
- RS232, printer port and optional GPIB
- Graphic electroluminescent display
- 10mV to 500V (cat II) ranges
- Automatic frequency sweep
- Alarm on any measurement
- 100 non-volatile program stores



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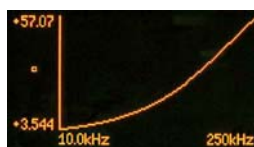
Input Ranges	
Inputs	2 isolated (500V cat II)
Display	5 digits
Frequency range	dc, 10uHz to 2.4MHz *
Frequency source	Generator or CH1
Coupling	ac or ac+dc
Max input	±500V peak
Input ranges	±500V peak from earth 500V, 300V, 100V, 30V, 10V, 3V, 1V, 300mV, 100mV, 30mV, 10mV
Scaling	1×10^{-9} to 1×10^9
Ranging	Full auto, up only, or manual
Input impedance	1M // 30pF (exc. leads)
Accuracy (ac)	0.05% range + 0.05% reading + 0.1mV < 1kHz 0.15% range + 0.15% reading + 0.1mV < 10kHz 0.5% range + 0.5% reading + 0.0025%/kHz + 0.1mV > 10kHz
Phase accuracy	0.02° < 100Hz 0.05° < 1kHz 0.2° + 0.005°/kHz > 1kHz
CMRR	Typical 60dB @ 10V 1MHz Typical 120dB @ 100V 1kHz Typical 140dB @ 240V 50Hz
Time constant	None, 0.2s, 1.5s or 12s



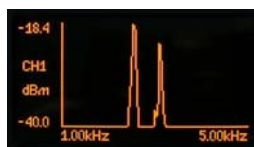
1	1.000kHz	-48.54dB	-88.01°
2	1.160kHz	-47.43dB	-88.46°
3	1.346kHz	-46.28dB	-88.59°
4	1.561kHz	-45.13dB	-88.84°
5	1.811kHz	-43.99dB	-89.00°
6	2.102kHz	-42.80dB	-89.19°
7	2.438kHz	-41.62dB	-89.37°
8	2.829kHz	-40.44dB	-89.43°



rms CH1 V	1.4214	rms CH2 V	1.4117
inphase CH2 V	998.17m	quad CH2 V	-998.27m



	true	fund
watts	18.448W	18.401W
V/A	25.507V/A	24.864V/A
pf	0.723	+0.740
freq	50.067Hz	



	CH1 3V	CH2 10V
rms	1.3039V	4.3004V
dc	0.0000V	4.0976V
ac	1.3039V	1.3051V
dBm	4.523dBm	4.531dBm

Frequency Response Analyser	
Frequency range measurement	10uHz to 2.4MHz *
Display	Magnitude, gain (CH2/CH1), gain (dB), offset gain (dB), phase, 5 digit numeric values Table of sweep results Frequency graph of dB or phase
Gain accuracy in dB	0.02dB < 1kHz 0.05dB < 10kHz 0.2dB < 50kHz 0.2dB + 0.001dB/kHz > 50kHz

Phase Sensitive Detector	
Noise rejection	60dB (no integration)
1V white noise	70dB (10 minutes integration) 80dB (2 hour integration)

True RMS Voltmeter	
Channels	2
Measurement	rms, ac, dc, peak, cf, surge, dBm
Accuracy (ac)	As above + 0.2mV
Accuracy (dc)	0.15% range + 0.15% reading + 0.5mV

Phase Meter	
Accuracy	As above
Offset	Fixed time
Data streaming	1500 readings/s max

L C R Meter	
Frequency range	10uHz to 2.4MHz *
Functions	L, C, R (ac), Q, tanδ, impedance, phase
Display	Series or parallel circuit Numeric values Table of sweep results Graph of any measurement
Ranges (with active head)	10pF to 1000uF 100nH to 10kH 10mΩ to 100MΩ
Accuracy	0.25% < 1kHz 0.75% < 10kHz 2.5% < 50kHz 12.5% < 1MHz 20% < 2MHz
Sweep capability	all ac functions

Vector Voltmeter	
Measurement	B/A, magnitude, phase, A2/A1, LVDT differential or ratiometric data or LVDT null meter
Display	

* 20mHz to 1MHz if not using generator

Signal Generator	
Waveforms	Sine, triangle, square, sawtooth, dc
Frequency	10uHz to 2.4MHz (sine) 10uHz to 1MHz (other)
Accuracy	Frequency ±0.05% Amplitude ±5% (to 100kHz)
Output impedance	50Ω ±10%
Output voltage	±10mV to ±10V peak
Offset	0V to ±10V

Pulse Generator	
Frequency	10mHz to 2.4MHz
Pulse width	200ns to 10s
Resolution	50ns
Output voltage	±100mV to ±10V peak
Offset	0V to ±10V
Rise and fall time	50ns (adjustable) 5V peak

Noise Generator	
Output voltage	~10mV to ~0.5V rms (White noise)

Frequency Sweep	
Number of steps	190 max
Step type	Logarithmic
Step rate	0.04s, 0.3s or 2.5s

Low Frequency DSO	
Channels	2
Timebase	20us to 5s per division
Roll mode	Timebase ≥1s/div
Pretrigger	None, 25%, 50%, 75%
Sample rate	800k sample/s

Power Meter	
Measurements	W, VA, power factor, V, A total, fundamental, integrated
Current accuracy	as voltage + 0.1% reading
Watts accuracy (power factor >0.7)	0.15% rng + 0.15% rdg, <1kHz 1.5% rng + 1.5% rdg <50kHz 2% rng + 8% rdg < 1MHz

Selective Level Meter	
Frequency range	10Hz to 2MHz
Scan	Single, dual, or sweep
Selectivity (-3dB)	0.4Hz, 3Hz, 24Hz, or 100Hz
Tuning	Manual or automatic

Harmonic Analyser	
Scan	Single or series
Measurement	Harmonic, series or difference THD
Max harmonic	50

Transformer Analyser	
Measurements	Inductance, leakage inductance, turns ratio, turns, ac resistance, dc resistance, insertion loss, return loss, interwinding capacitance, longitudinal balance, harmonics, thd, magnetising current
Sweep capability	All ac functions

General	
Display	160 x 80 dot electroluminescent
Communications	RS232 Baud rate to 19200 IEEE488.2 (Option)
Printer	Direct drive to inkjet
Alarm	Any displayed function hi, lo, inside or outside window
Program stores	100, one loaded on power up
Size	Tower 300H x 150W x 250D mm approx 19" Rack 90H x 485W x 250D mm approx
Temperature	5 to 35 °C
Weight	5kg approx
Power supply	110 or 230 V rms ± 10% 50/60Hz 30VA max

All specifications at 23°C +/- 5°C
These specifications are quoted in good faith but Newtons4th Ltd reserves the right to amend any specification at any time without notice

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