

PSM2201

Phase Sensitive Multimeter

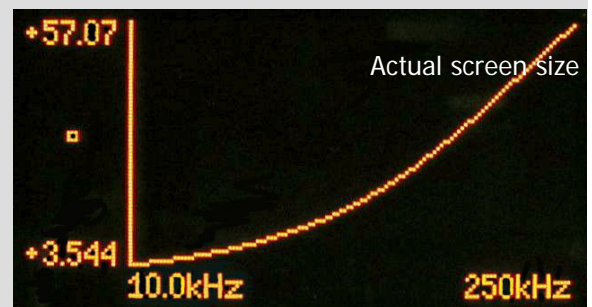
Veqtor



Features:

- Phase accuracy better than 0.1° at 100kHz and better than 1° at 1MHz (same range).
- Tan of angle resolved to 0.0001.
- 100uHz to 2.4MHz frequency range.
- In-phase and quadrature magnitudes, ratio, phase, LVDT measurement.
- Magnitudes, gain, dB and phase. Displays and prints bode plots.
- Parallel and series LCR, phase, $\tan\delta$ and Q factor. Displays and prints sweep results.
- True rms, oscilloscope, harmonics & thd.
- 1mV to 10V peak isolated input ranges.
- Data streaming to 1500 readings/s.
- Continuously variable generator frequency, or uses test circuit frequency.
- RS232 and printer port; IEEE488 option.
- Graphic electroluminescent display.
- Convenient tower format lifts display and keyboard above leads, or 19" rack format.

Versatile DFT analysis instrument (Discrete Fourier Transform) using DSP & FPGA technology with modern analogue techniques for optimum performance, speed of measurement and convenience.



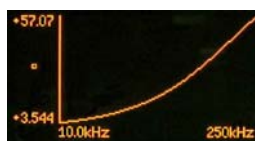
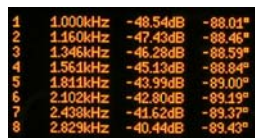
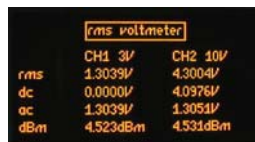
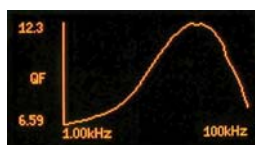
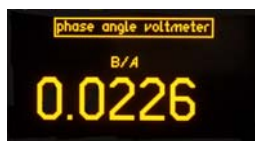
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Veqtor is a high accuracy phase sensitive multimeter, which incorporates several sophisticated measurement functions under DSP control, including vector analysis, frequency response analysis, LCR analysis and phase measurement. Phase accuracy is better than 0.1° at 100kHz, and 1° at 1MHz; tan of the angle is resolved to 0.0001 – DFT analysis gives excellent results even with distorted signals. Applications include: electronic R&D, production test (manual and ATE), field service, University research and teaching etc. Despite its sophisticated measurement capability, it is very easy to use. The versatile graphic display allows results to be viewed as graphs or tables, multiple data values or large single values.

Vector voltmeter	
inputs	2 isolated
measurements	magnitude, A and B components, B/A, phase, A2/A1, rms, LVDT (ratiometric and differential), frequency
display	5 digit numeric values table of sweep results graph of $\tan\phi$ or phase
frequency	100uHz to 2.4MHz +
coupling	ac or ac+dc
max input	$\pm 10V$ peak (operation) $\pm 100V$ peak (withstand) $\pm 500V$ peak from earth
input ranges	10V, 3V, 1V, 300mV, 100mV, 30mV, 10mV, 30mV, 1mV
ranging	full auto, up only, or manual
input impedance	1M // 30pF (exc. leads)
accuracy	0.05% range + 0.05% reading + 0.02mV < 1kHz
	0.15% range + 0.15% reading + 0.02mV < 10kHz
	0.3% range + 0.3% reading + 0.02mV < 50kHz
	0.5% range + 0.5% reading + 0.001%/kHz + 0.02mV
phase accuracy	0.02° < 1kHz 0.04° < 20kHz $0.002^\circ/\text{kHz}$ > 20kHz
resolution	A or B to 0.0001 of magnitude phase to 0.01° tan (B/A) to 0.0001
CMRR (typ)	140dB @ 240V 50Hz 120dB @ 100V 1kHz 55dB @ 10V 1MHz
data streaming	1500 readings/s max
filter time constant	0.2s, 1.5s or 12s

Frequency response analyser	
inputs	as above
frequency range	100uHz to 2.4MHz +
measurements	magnitude, gain (CH2/CH1), gain (dB), offset gain (dB), phase, frequency
display	5 digit numeric values table of sweep results graph of dB & phase
gain accuracy	0.01dB < 1kHz 0.03dB < 10kHz 0.1dB < 50kHz 0.1dB + 0.001dB/kHz

L C R meter	
frequency range	100uHz to 2.4MHz *
measurements	L, C, R (ac), Q, $\tan\delta$, impedance, phase series or parallel circuit
conditions	manual or auto
display	numeric values table of sweep results graph of any measurement
ranges (with external shunt)	100pF to 100uF 1 μ H to 100H 1 Ω to 1M Ω
ranges (with active head)	10pF to 1000uF 100nH to 1kH 10m Ω to 100M Ω
basic accuracy	0.25% < 1kHz 0.5% < 10kHz 1.5% < 50kHz 5% < 1MHz 10% < 2.4MHz



True rms voltmeter	
channels	2 isolated
display	5 digits
measurement	rms, ac, dc, dBm, peak, cf, surge
frequency	dc to >2.4MHz
accuracy (ac)	as PAV + 0.1mV
accuracy (dc)	0.1% range + 0.1% reading + 0.1mV

Generator	
type	digitally synthesised 16 bit 20Msamples/s
waveform	sine, triangle, square, sawtooth
frequency	100uHz to 2.4MHz continuously variable adjustable inc/decrement
sweep steps	192 max
sweep type	logarithmic
accuracy	frequency $\pm 0.05\%$ amplitude $\pm 2.5\%$ (to 100kHz)
output impedance	50 Ω $\pm 10\%$
output voltage	$\pm 2mV$ to $\pm 10V$ peak continuously variable adjustable inc/decrement
offset	0V to $\pm 10V$

Phase meter	
accuracy	as PAV
data streaming	1500 readings/s max
offset	fixed time

Harmonic analyser	
scan	single or series
accuracy	0.1% fundamental
results	magnitude and % or dB
measurement	single harmonic, series THD or difference THD
max harmonic	50

Low frequency DSO	
channels	2
timebase	20us to 5s per division
trigger	auto, normal or single
roll mode	timebase $\geq 1s/\text{div}$
pretrigger	none, 25%, 50%, 75%
sample rate	800k samples/s

General	
display	160 x 80 dot graphic electroluminescent
communications	RS232 full control capability and data return IEEE488 (GPIB) as an option direct drive to inkjet
printer alarm	any displayed function hi, lo, inside or outside window 99 + 1 autoloop on power up
NV program stores	30 x 15 x 25 cm approx.
size	0 to 40 $^\circ\text{C}$
temperature range	approx. 5kg
weight	230 V rms $\pm 10\%$ 50Hz 115V rms 60Hz as option 40VA max
power supply	

* 10MHz to 1MHz if not using generator specifications at $23^\circ\text{C} \pm 5^\circ\text{C}$

These specifications are quoted in good faith but Newtons4th Ltd reserves the right to amend any specification at any time without notice.

The PSM2201 is designed and manufactured in the UK by Newtons4th Ltd