Newtons4th Ltd

Frequency Response Analyzer

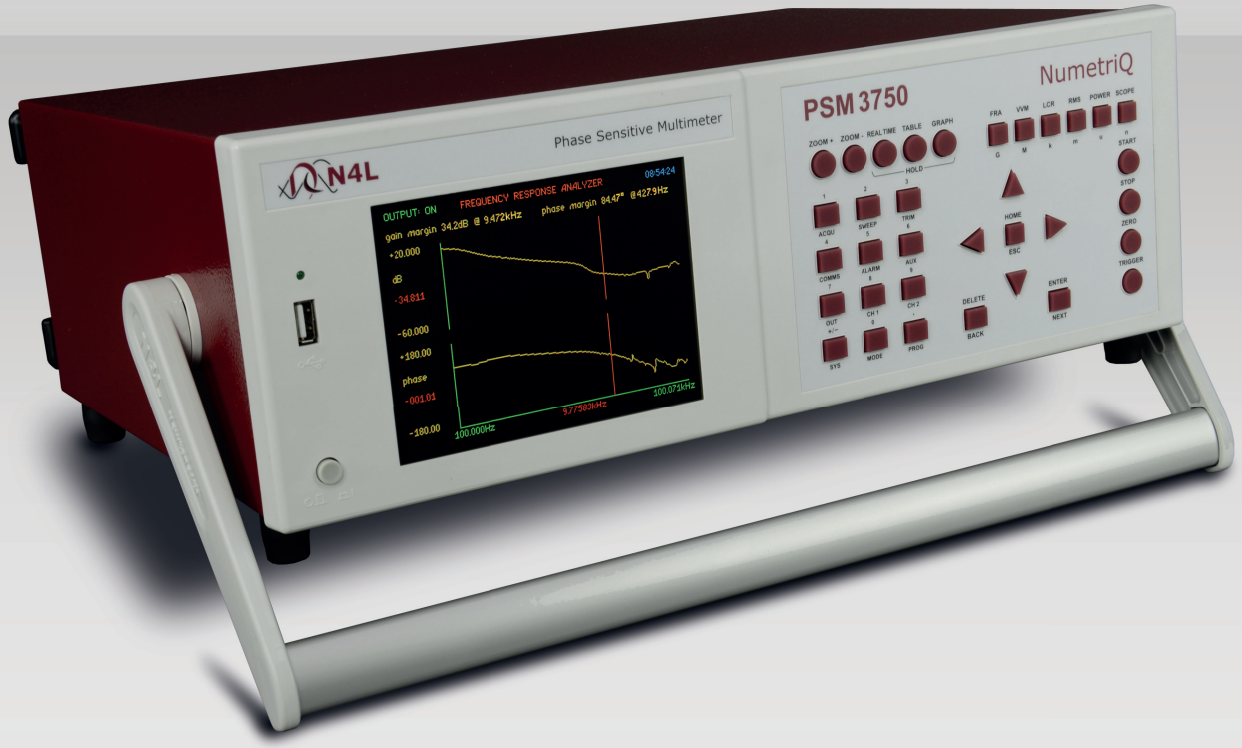
PSM3750

High Accuracy - Wide Bandwidth - 500Vpk Inputs

Leading wideband accuracy	Basic 0.02dB with class leading high frequency performance
Wide frequency range	DC, 10uHz to 50MHz
High Voltage Floating Inputs	Galvanically Isolated fully floating Inputs - 500Vpk range
Fully Isolated Generator	Enables direct connection to feedback loops with no need for isolation transformers
Leading Phase Accuracy	0.025 degrees
Versatile Interfaces	RS232, USB, LAN and GPIB
PC Software Options	Remote control, tables, graphs and database management of results
Various Measurement Modes	FRA, PAV, POWER, LCR, RMS Voltmeter, Scope

Frequency Response Analysis

The PSM3750 offers a complete solution for high frequency, high accuracy frequency response measurements. Featuring a unique 10Vrms output, 500Vpk isolated generator and 500Vpk isolated inputs the PSM3750 is an innovative step forward in frequency response measurement. The PSM3750 also offers market leading gain and phase accuracy (0.01dB, 0.025deg) for an isolated input frequency response analyzer.

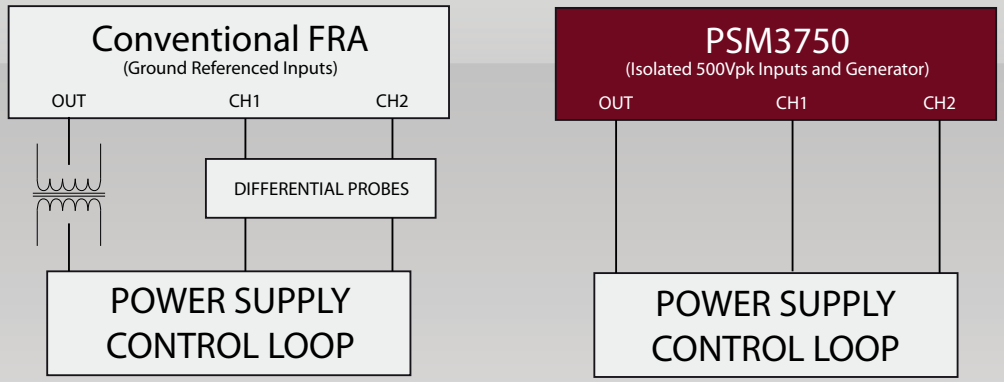


Impedance Analysis with the IAI2

When combined with the IAI2 (Impedance Analysis Interface) the PSM3750 provides an accurate solution for LCR measurements, using a true 4 wire Kelvin technique without the need for external shunts. The IAI2 has a bandwidth up to 50MHz, with a wide measurement range this technology builds on years of expertise Newtons4th has gained in the impedance measurement field.

Isolation for High Voltage Feedback Loop Analysis

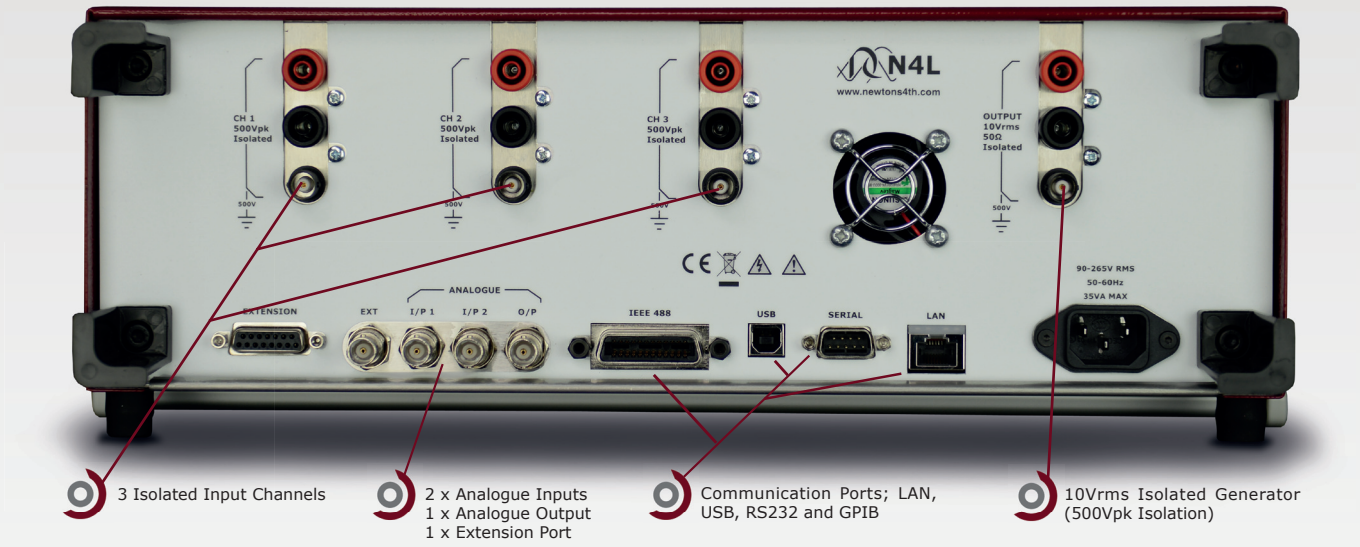
The PSM3750 features a 500Vpk isolated generator, this enables the engineer to connect directly to the feedback loop with no need for an injection transformer. This has been made possible through the development of a truly isolated generator card providing DC & 10uHz up to 50MHz injection bandwidth. In most cases there will be no requirement for attenuators due to the presence of 500Vpk isolated inputs, making feedback analysis simple, fast and flexible.



As illustrated above, the PSM3750 eliminates the requirement for an isolation transformer and differential probes. Another disadvantage when using conventional FRA instruments whilst performing analysis over a wide frequency band is that many different isolation transformers will be required for the different frequency ranges of the test. The PSM3750 eliminates this problem and generates frequencies throughout its entire frequency range from a single output.

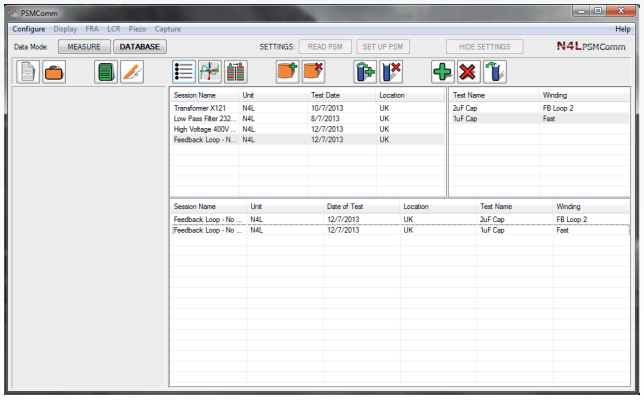
Connections

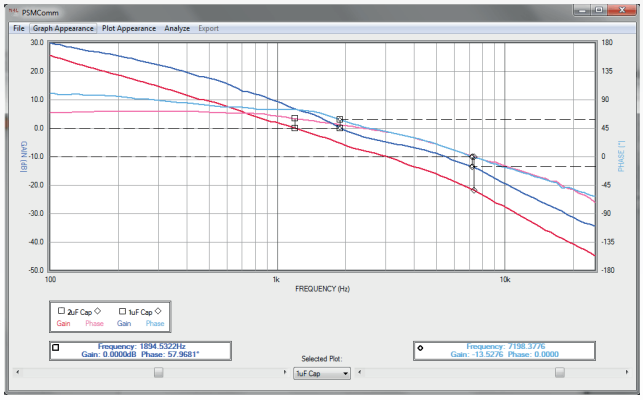
The rear of the PSM3750 features up to 3 isolated input channels and an isolated generator. All 3 input channels and the output channel offer both BNC and 4mm safety connectors. With LAN, RS232, GPIB and USB offered as standard, the PSM3750 is equipped for all modern communication environments.



N4L PSMComm Software - PSMComm2

The PSM3750 is supplied with a free comprehensive software package, PSMComm2. This enables the user to perform multiple sweeps during development and compare the sweeps on one single plot. PSMComm2 also includes a database function in which the user can store their projects and organise large amounts of data in a managable, structured format.





MEASUREMENT SPECIFICATION

Frequency Response Analyser	
Measurement	Magnitude, Gain (CH1/CH2, CH2/CH1), Gain (dB), offset gain (dB), phase(°)
Frequency Range	10uHz - 50MHz
Gain Accuracy in dB	0.01dB + 0.1dB/MHz <5MHz 0.31dB + 0.04dB/MHz < 50MHz
Phase Accuracy	0.025° < 10kHz 0.05deg + 0.00015deg/kHz < 50MHz
Frequency Source	Generator or CH1 Input
Measurement	Real Time DFT, no missing data
Speed	Up to 100 reading per second
Filter	Selectable from 0.2 seconds
Phase Angle Voltmeter	
Measurement	In Phase, Quadrature, Tan Ø, Magnitude, Phase, in-phase ratio, rms, rms ratio, LVDT differential, LVDT ratiometric
Frequency Range	10uHz - 50MHz
Basic Accuracy (AC)	0.075% range + 0.075% reading + 50uV < 10kHz 0.075% range + 0.25% + 0.001%/kHz rdg + 50uV < 1MHz 0.075% range + 0.01% +0.00025%/kHz rdg + 50uV < 50MHz
L C R Meter	
Functions	L, C, R (AC), Q, Tan Delta, Impedance, Phase - Series or Parallel Circuit
Frequency Range	10uHz - 50MHz
Current Shunt	External or Optional IAI2 Impedance Interface
Ranges (External Shunt)	Inductance 1uH to 100H Capacitance 100pF to 100uF Resistance 1Ω to 1MΩ
Basic Accuracy	0.1% + Tolerance of Shunt
Sweep Capability	all AC functions
True RMS Voltmeter	
Channels	2 (Optional 3rd Channel Available)
Frequency Range	DC to 5MHz 5MHz to 50MHz fundamental only
Measurement	RMS, AC, DC, Peak, CF, Surge, dBm
Basic Accuracy (AC)	As PAV + 0.05mV
Basic Accuracy (DC)	0.1% range + 0.1% reading + 0.5mV
Power Meter	
Measurements	W, VA, PF, V, A, - Total, Fundamental and Integrated, Power Harmonics
Frequency Range	DC & 10mHz to 5MHz 5MHz to 50MHz fundamental only
Current Shunt	External
Current Accuracy	As Voltage + External Shunt Tolerance
Watts Accuracy	0.1% VA range + 0.1% reading + external shunt tolerance
Signal Generator	
Type	Fully isolated 10Vrms output protected to 500Vpk. Direct Digital Synthesis
Frequency	10uHz to 50MHz
Waveforms	Sine, Square, Triangle, Sawtooth, White Noise
Accuracy (no trim)	Frequency ±0.05% Amplitude ±5% < 10MHz, Amplitude ±10% < 50MHz
Impedance	50 Ohm ± 2%
Output Level	35mVrms to 10Vrms
Offset	±10Vdc, Resolution 20mV
Harmonic Analyser	
Scan	Single or Series
Frequency Range	20mHz to 5MHz 5MHz to 50MHz Fundamental only
Measurement	Harmonic, Series THD, Difference THD
Max Harmonic	100

Input Ranges	
Differential Inputs	2 or 3 x Isolated Inputs 500Vpk
Connectors	Isolated BNC
Coupling	AC+DC, AC (<10VDC), AC (<500VDC)
Max Common Mode	500Vpk from earth
Input Ranges	3mV, 10mV, 30mV, 100mV, 300mV, 1V, 3V, 10V, 30V, 100V, 300V, 500V, 300mV*, 1V*, 3V*, 10V* *High Voltage Attenuator
Scaling	1x10^-9 to 1x10^9
Ranging	Full auto, Up only or Manual
Input Impedance	1M Ohm

Model Numbers

Available Packages	
PSM3750-2CH	2 Channel PSM3750
PSM3750-3CH	3 Channel PSM3750
PSM3750-2CH+IAI2	2 Channel PSM3750 + IAI2
PSM3750-3CH+IAI2	3 Channel PSM3750 + IAI2

IAI2 - Impedance Analysis Interface

Specification	
Frequency Range	10uHz to 50MHz
Measurement Parameters	L, C, R, Z, Phase, QF, Tan(δ), Series and Parallel circuit
Measurement Ranges	10nH to 10kH, 1pF to 1000uF, 1mΩ to 500MΩ
Basic Accuracy	0.1% < 1kHz 0.2% + 0.002%/kHz < 1MHz 0.2% + 0.0005%/kHz < 35MHz 0.2% + 0.001%/kHz < 50MHz
Internal Shunts	5Ω, 50Ω, 5kΩ, 500kΩ

ACCESSORIES AND PORTS

Accessories	
Probes	4 off with 2 Channel, 6 off with 3 Channel
Leads	Output, RS232, Power
Software	CommView, PSMComm2
Documentation	Calibration Certificate, User Manual
Ports	
RS232	Baud Rate to 19200, RTS/CTS flow Control
Analog Output	Bipolar ±10V on any measured function - BNC
Sync output	Pulse synchronised to generator
Extension Ports (N4L accessories)	2 15 pin female D type
LAN (Standard)	10/100 base-T Ethernet auto sensing RJ45
GPIB (Standard)	IEEE488.2 Compatible

SYSTEM SPECIFICATIONS

Datalog	
Functions	Up to 4 measured functions, user selectable
Datalog Window	From 10ms with no gap between each log
Memory	RAM or Non-Volatile Memory up to 16,000 records
General	
Display	480x272 dot full colour TFT, White LED backlit
Dimension	92Hx215Wx312D mm excluding feet
Weight	3.3kg (2Channel), 3.5kg (3Channel)
Program Stores	100, Location 1 loaded on power up
Sweep Stores	2000, all parameters in any sweep function
Remote Operation	Full Capability, Control and Data
Temperature	5 to 40°C ambient temperature, 20 to 90% non-condensing RH
Power Supply	90-264Vrms 47-63Hz 30VA max
CMRR	140dB @ 240Vrms - 50Hz, 120dB @ 100Vrms - 1kHz
Warranty	3 Years

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

Newtons4th

Contact your local N4L Distributor for further details

Newtons4th Ltd (abbreviated to N4L) was established in 1997 to design, manufacture and support innovative electronic equipment to a worldwide market, specialising in sophisticated test equipment particularly related to phase measurement. The company was founded on the principle of using the latest technology and sophisticated analysis techniques in order to provide our customerswith accurate, easy to use instruments at a lower price than has been traditionally associated with these types of measurements

Flexibility in our products and an attitude to providing the solutions that our customers really want has allowed us to develop many innovative functions in our ever increasing product range

Newtons4th Ltd are ISO9001 registered, the internationally recognised standard for the quality management of businesses

In recognition of the technical innovation and commercial success of the PPA series, N4L received the "Innovation 2010" Queen's award for enterprise

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