

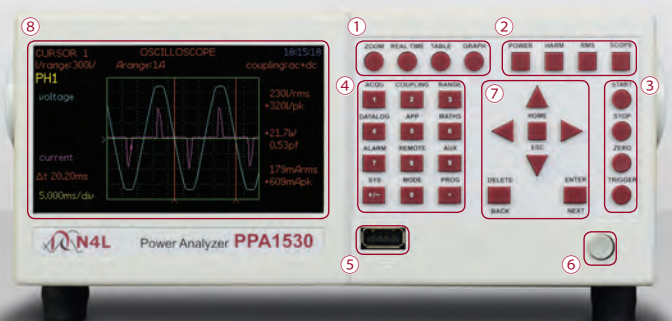
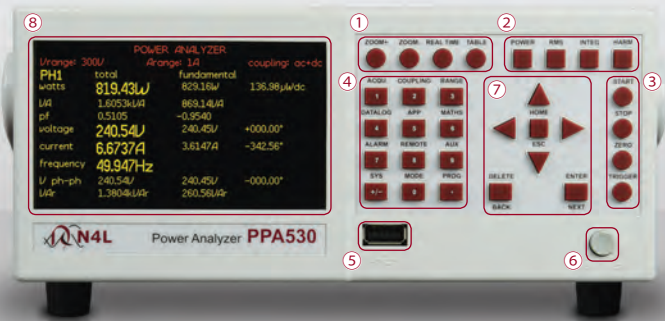
**PPA500 Series**  
**PPA1500 Series**



## High Accuracy - Low Cost

|                                       |   |
|---------------------------------------|---|
| Leading wideband accuracy             | Basic 0.05% with class leading high frequency performance                     |
| Oscilloscope/Graphical Display        | PPA1500 features Oscilloscope and graphical datalog display                   |
| Wide frequency range                  | DC, 10mHz to 1MHz (DC, 10mHz to 500kHz PPA500)                                |
| Fast sample rate and No-Gap           | 1M samples/s - High accuracy in noisy applications                            |
| Leading phase accuracy                | 0.005 degrees plus 0.01 degrees per kHz                                       |
| Built in high precision current shunt | 20Arms 300Apk or 30Arms 1000Apk direct plus a wide range of external sensors  |
| Versatile interfaces                  | RS232, USB and optional LAN(Standard on PPA1500), GPIB                        |
| Range of PC software options          | Remote control, monitoring and recording of real time data, tables and graphs |

# PPA5/15xx Precision Power Analyzer



## FRONT VIEW

### ① SCREEN DISPLAY OPTIONS

PPA5xx: Zoom, Real time and Table

PPA15xx: Zoom, Real Time, Table, Graph

### ② MEASUREMENT FUNCTION SELECTION BUTTONS

PPA5xx: POWER ANALYZER, TRUE RMS VOLTMETER, POWER INTEGRATOR, HARMONIC ANALYZER

PPA15xx: POWER ANALYZER, HARMONIC ANALYZER, TRUE RMS VOLTMETER, OSCILLOSCOPE

Note: The PPA15xx includes the following modes via sub menu: POWER INTEGRATOR, PHASE METER, IMPEDANCE METER

### ③ START, STOP, ZERO AND TRIGGER

Trigger button refreshes measurement, Zero resets datalog or allows an offset trim

Start and Stop buttons provide manual control of a measurement period

### ④ MEASUREMENT SETTINGS BUTTONS

Acquisition settings - Sets wiring configuration, Smoothing and data logging, Set coupling to AC, DC or AC+DC, Range - Internal or external attenuator, autoranging settings, scale factors, Application mode - Ballast, inrush current and standby power

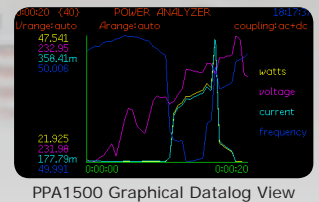
### ⑤ FRONT USB PORT

USB memory port allows data and colour screen prints to be saved directly to a USB pen drive

### ⑥ POWER BUTTON ⑦ MENU SELECTION AND CURSOR CONTROL

### ⑧ DISPLAY SCREEN

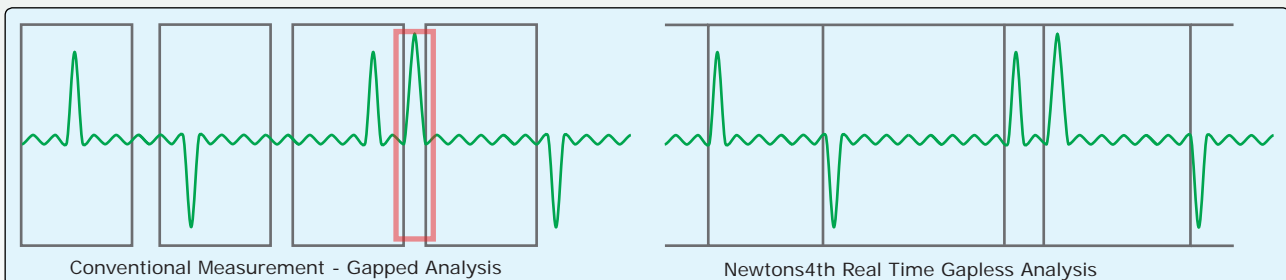
White LED backlit colour TFT display with high contrast and wide viewing angle



PPA1500 Graphical Datalog View

## Real Time No Gap Analysis

The PPA5xx/PPA15xx series Power Analyzers use a real time no gap analysis technique unique to Newtons4th that enables real time measurements to be taken with no gap in incoming data from the ADC. This ensures that no events are missed, which is particularly important for the correct measurement of asynchronous waveforms.

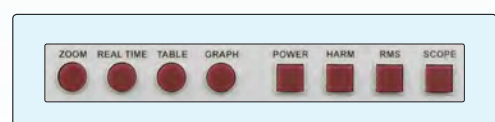


## Intuitive User Interface Simplifies Setup

The PPA5xx/PPA15xx user interface has been developed with ease of use in mind. A simple button layout eases setup of the instrument allowing the engineer to commence measurements quickly with no fuss.



PPA5xx



PPA15xx

# Example Applications

## Example Application : Standby Power Measurement IEC62301/EN50564

The PPA5xx and PPA15xx are the perfect instruments for tests such as EN50564 Standby Power Testing. PC software that provides simple testing and reporting for EN50564 is available from the N4L website.

**Clear, Flexible Display**  
Backlit LED display with zoom functions to customise the parameters displayed

**External USB Port**  
Datalogs, Results and instrument configurations can be saved to internal memory, an external USB device or directly into N4L software.

Meets or exceeds the requirements and methodology of U.S. EPA (Energy Star), U.S.DOE, California Energy Commission (CEC), among others.

## Example Application : AC-DC Power Supply Efficiency Testing using a PPA500/PPA1500

The PPA5/1520 or PPA5/1530 can be used in 2 Phase 2 Wattmeter configuration for efficiency testing of power supplies, ballasts and many other devices.

**On-screen efficiency readings**  
The PPA5/1500 instruments can be configured to display the real time efficiency of a system.

**1, 2 or 3 Phase measurements**  
The PPA5/1510 (1 Phase), PPA5/1520 (2 Phase) and PPA5/1530 (3 Phase) use fully isolated and independent measurement channels.

## ACCESSORIES

| High Performance Voltage Attenuating Probes |               |                 |   |
|---|---------------|-----------------|---|
| Model                                       | Voltage Range | Frequency Range | Details   |
| TT-HV250                                    | 2500Vpk       | 300MHz          | High Voltage Probe (Passive) 2.5kVpk 100:1  |
| TTV-HVP                                     | 15000Vpk      | 50MHz           | High Voltage Probe (Passive) 15kVpk 1000:1  |
| ATT10                                       | 30Vpk         | 30MHz           | 10:1 Voltage Attenuator Box (For use in conjunction with HV Probes when output voltage of probe is >3Vpk, BNC Input/BNC Output) |
| ATT20                                       | 60Vpk         | 30MHz           | 20:1 Voltage Attenuator Box (For use in conjunction with HV Probes when output voltage of probe is >3Vpk, BNC Input/BNC Output) |
| ULCP  | 3000Vpk       | 2MHz            | 1000:1 Ultra Low Capacitance Probe (Active), For use in applications such as Ballast Testing (<1pF Capacitance)                 |



TT-HV250 2.5kVpk Probes



TTV-HVP 15kVpk Probes



ATT10



ULCP

| High Performance External Current Measurement Options |                   |                 |                |                |  |
|---|-------------------|-----------------|----------------|----------------|--|
| Model Number  | Measuring Range   | Frequency Range | Basic Accuracy | Phase Accuracy | Details  |
| HF003   | 3Arms - 30Apk     | DC - 2MHz       | 470mΩ (±0.1%)  | 0.0001° / kHz  | 3Arms External Current Shunt, BNC Output (Use with PPA External Input)   |
| HF006   | 6Arms - 60Apk     | DC - 2MHz       | 100mΩ (±0.1%)  | 0.001° / kHz   | 6Arms External Current Shunt, BNC Output (Use with PPA External Input)   |
| HF020   | 20Arms - 200Apk   | DC - 2MHz       | 10mΩ (±0.1%)   | 0.01° / kHz    | 20Arms External Current Shunt, BNC Output (Use with PPA External Input)  |
| HF100   | 100Arms - 1000Apk | DC - 2MHz       | 1mΩ (±0.1%)    | 0.05° / kHz    | 100Arms External Current Shunt, BNC Output (Use with PPA External Input) |
| HF200   | 200Arms - 2000Apk | DC - 2MHz       | 0.5mΩ (±0.1%)  | 0.1° / kHz     | 200Arms External Current Shunt, BNC Output (Use with PPA External Input) |
| HF500   | 500Arms - 5000Apk | DC - 2MHz       | 0.2mΩ (±0.1%)  | 0.1° / kHz     | 500Arms External Current Shunt, BNC Output (Use with PPA External Input) |



External Shunt HF-003



External Shunt HF-100



External Shunt HF-200



External Shunt HF-500

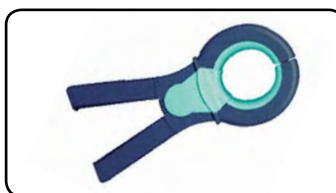
| Probe/Current Clamp Transformer: AC |                        |                 |                             |                                       |                                       |             |  |
|-------------------------------------|------------------------|-----------------|-----------------------------|---------------------------------------|---------------------------------------|-------------|--|
| Model Number                        | Measuring range        | Frequency range | Accuracy                    | Details                               | Clamp diameter                        | Category    |  |
| M3 UB 50A-1V                        | 100mA ~ 50A            | 40Hz ~ 5kHz     | 1%                          | 100mA to 50A AC Current Clamp         | 15mm×17mm                             | 600V CATIII |  |
| M3 U 100A-1V                        | 1A ~ 100A              | 40Hz ~ 5kHz     | 1%                          | 1A to 100A AC Current Clamp           | 15mm×17mm                             | 600V CATIII |  |
| S UE 200A-1V                        | 1A ~ 200A              | 40Hz ~ 5kHz     | 1%                          | 1 A to 200A AC Current Clamp          | 50mm ø                                | 600V CATIII |  |
| S UE 250 500 1000-1V                | 1A ~ 250A/500A/1000A   | 40Hz ~ 5kHz     | 1%(250A)<br>0.5%(500+1000A) | 1 A to 250/500/1000A AC Current Clamp | 50mm ø                                | 600V CATIII |  |
| US UE 1000A-1V                      | 1A ~ 1000A             | 40Hz ~ 5kHz     | 1%                          | 1A to 1000A AC Current Clamp          | 43mm ø                                | 600V CATIII |  |
| SM UE 1000A-1V                      | 0.5A ~ 1000A(1%>100A)  | 15Hz ~ 15kHz    | 1%                          | 0.5A to 1000A AC Current Clamp        | 54mm ø                                | 600V CATIII |  |
| SM UB 1000A-1V                      | 0.5A ~ 1000A(0.5%>10A) | 15Hz ~ 15kHz    | 0.5%                        | 0.5A to 1000A AC Current Clamp        | 54mm ø                                | 600V CATIII |  |
| P32 UE 1000A-1V                     | 5A ~ 1000A             | 40Hz ~ 5kHz     | 1%                          | 5 A to 1000A AC Current Clamp         | 83mm ø<br>(125mm×47mm or 100m m×58mm) | 600V CATIII |  |
| P32 UE 3000A-1V                     | 5A ~ 3000A             | 40Hz ~ 5kHz     | 1%                          | 5 A to 3000A AC Current Clamp         | 83mm ø                                | 600V CATIII |  |



Current Clamp M3-UB 50A-1V



Current Clamp S-UE 200A-1V



Current Clamp SM-UB 1000A-1V



Current Clamp P32-UE 1000A-1V

**Probe / Current Clamp (Hall effect): AC + DC**

| Model number    | Measuring range  | Frequency range | Accuracy | Details                          | Clamp diameter | Category    |
|-----------------|------------------|-----------------|----------|----------------------------------|----------------|-------------|
| SC 3C 100A-1V   | 1A ~ 100A        | DC ~ 5kHz       | 2%       | 1A to 100A AC+DC Current Clamp   | 50mm $\phi$    | 600V CATIII |
| SC 3C 1000A-1V  | 1A ~ 1000A       | DC ~ 2kHz       | 1%       | 1A to 1000A AC+DC Current Clamp  | 59mm $\phi$    | 600V CATIII |
| P20 3C 2000A-2V | 40A ~ 1000/2000A | DC ~ 2kHz       | 1%       | 40A to 2000A AC+DC Current Clamp | 83mm $\phi$    | 600V CATIII |
| P40 3C 4000A-2V | 40A ~ 2000/4000A | DC ~ 2kHz       | 1.5%     | 40A to 4000A AC+DC Current Clamp | 83mm $\phi$    | 600V CATIII |
| P50 3C 5000A-2V | 50A ~ 1000/5000A | DC ~ 2kHz       | 1.5%     | 50A to 5000A AC+DC Current Clamp | 83mm $\phi$    | 600V CATIII |



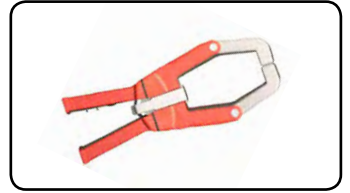
Current Clamp SC 3C 100A-1V



Current Clamp SC 3C 1000A-1V



Current Clamp P20 3C 2000A-2V



Current Clamp P50 3C 5000A-2V

**Rogowski Current Transducer: AC / Zero Flux Current Transducer: AC+DC**

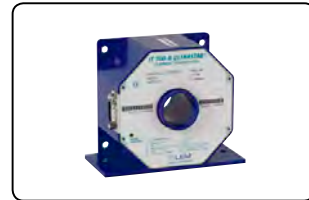
| Model number                              | Measuring range           | Frequency range | Accuracy | Details                           | Coil/Through Hole Circumference | Category    |
|---|---------------------------|-----------------|----------|-----------------------------------|---------------------------------|-------------|
| WR5000 Rogowski                           | 1A ~ 5000A                | 1Hz ~ 1MHz      | 0.05%    | 1A to 5000A AC Rogowski Coil      | 600mm                           | 600V CATIII |
| WR10000 Rogowski                          | 1A ~ 10000A               | 1Hz ~ 1MHz      | 0.05%    | 1A to 5000A AC Rogowski Coil      | 600mm                           | 600V CATIII |
| Danisense Zero Flux Current Transducer    | 0A ~ 200A                 | DC ~ 250kHz     | 0.01%    | 200A Zero Flux Current Transducer | 27.6mm                          | 600V CATIII |
| Danisense Zero Flux Current Transducer    | 0A ~ 600A                 | DC ~ 250kHz     | 0.01%    | 600A Zero Flux Current Transducer | 27.6mm                          | 600V CATIII |
| LEM IT 60-S Zero Flux Current Transducer  | 0A ~ 60A DC/pk (42Arms)   | DC ~ 800kHz     | 0.01%    | 60A Zero Flux Current Transducer  | 26mm                            | 600V CATIII |
| LEM IT 200-S Zero Flux Current Transducer | 0A ~ 200A DC/pk (141Arms) | DC ~ 500kHz     | 0.01%    | 200A Zero Flux Current Transducer | 26mm                            | 600V CATIII |



WR5000 Rogowski Coil



Danisense DS600



LEM IT 700-S

**PPA500 SERIES MODELS**

| Phases | Model  | Specification  |
|--------|--------|--|
| 1 Ph   | PPA510 | DC,<br>10mHz ~ 500kHz<br>Normal: 100mA <sub>pk</sub> ~ 300A <sub>pk</sub><br>x10: 10mA <sub>pk</sub> ~ 30A <sub>pk</sub> |
| 2 Ph   | PPA520 |  |
| 3 Ph   | PPA530 |  |

| Phases | Model     | Specification  |
|--------|-----------|--|
| 1 Ph   | PPA510-HC | DC,<br>10mHz ~ 500kHz<br>Normal: 300mA <sub>pk</sub> ~ 1000A <sub>pk</sub><br>x10: 30mA <sub>pk</sub> ~ 100A <sub>pk</sub> |
| 2 Ph   | PPA520-HC |  |
| 3 Ph   | PPA530-HC |  |

**PPA1500 SERIES MODELS**

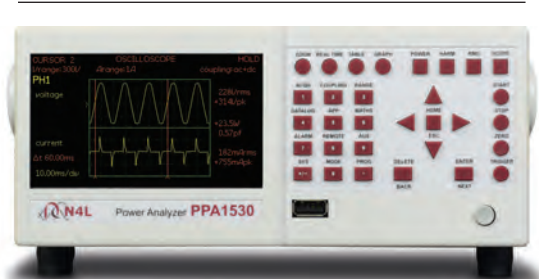
| Phases | Model   | Specification  |
|--------|---------|--|
| 1 Ph   | PPA1510 | DC,<br>10mHz ~ 1MHz<br>Normal: 100mA <sub>pk</sub> ~ 300A <sub>pk</sub><br>x10: 10mA <sub>pk</sub> ~ 30A <sub>pk</sub> |
| 2 Ph   | PPA1520 |  |
| 3 Ph   | PPA1530 |  |

| Phases | Model      | Specification  |
|--------|------------|--|
| 1 Ph   | PPA1510-HC | DC,<br>10mHz ~ 1MHz<br>Normal: 300mA <sub>pk</sub> ~ 1000A <sub>pk</sub><br>x10: 30mA <sub>pk</sub> ~ 100A <sub>pk</sub> |
| 2 Ph   | PPA1520-HC |  |
| 3 Ph   | PPA1530-HC |  |

**PPA500**



**PPA1500**



**PPA5/1530**



# Calibration and ISO17025 Certification



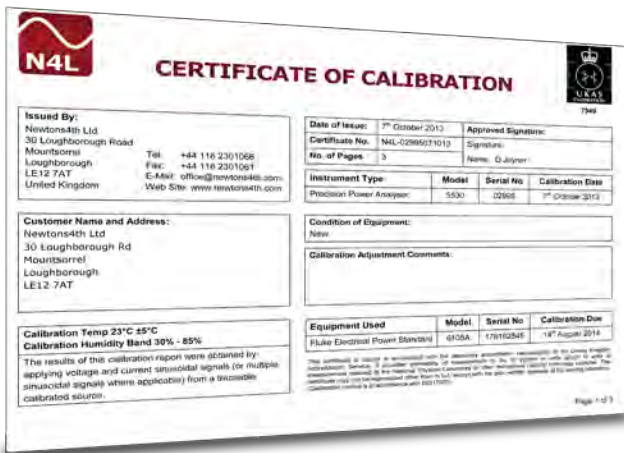
Newtons4th are an accredited UKAS Calibration laboratory, all PPA500 and PPA1500 Power Analyzers are supplied with an ISO17025 UKAS Calibration Certificate as standard. Calibration of N4L Power Analyzers is an integral and important part of our service to our clients, we offer quick turnaround times at a competitive price. Re-Calibration is also available at our international offices and various distributors throughout the world\*.



## Schedule of Accreditation

N4L's schedule of accreditation to ISO17025 is wide ranging and an overview of the schedule is detailed below, for more specific information please see the UKAS website to view the full accreditation schedule.

| ISO17025 UKAS Accreditation Schedule       |  |                 |
|--|--|-----------------|
|  | Signal Amplitude                               | Frequency Range |
| Voltage Sine Amplitude                     | 1V to 1008V                                    | 16Hz to 850Hz   |
| Voltage Harmonic Amplitude                 | 0V to 302V                                     | 16Hz to 6kHz    |
| Current Sinewave Amplitude                 | 100mA to 48A                                   | 16Hz to 850Hz   |
| Current Harmonic Amplitude                 | 0A to 15A                                      | 16Hz to 6kHz    |
| Current to Voltage Phase Angle             | -180° to +180°                                 | 16Hz to 850Hz   |
| Apparent Power (VA Product)                | 100mVa to 48.4kVA                              | 16Hz to 850Hz   |
| AC Power                                   | 0W to 48.4kW                                   | 16Hz to 850Hz   |
| Current Harmonic Amplitude to IEC61000-4-7 | 0A to 6A                                       | 16Hz to 6kHz    |
| Flicker to IEC61000-4-15                   | Pinst(Sinusoidal Modulation)                   | As per IEC61000 |
|  | Pinst(Rectangular Modulation)                  |                 |
|  | Pst  |                 |
|  | Frequency Changes                              |                 |
|  | Distorted Voltage with Multiple Zero Crossings |                 |
|  | Harmonics with Sidebands                       |                 |
|  | Phase Jumps                                    |                 |
| Rectangular Changes with Duty Cycle        |  |                 |



Due to the specialist nature of Power Measurement Instrumentation Calibration, N4L utilise both commercially available calibration equipment (such as the Fluke 6105A for UKAS Certification) along with N4L bespoke designed signal generation equipment in order to calibrate our instruments over the full frequency range (up to 2MHz). Calibration over the full frequency range is uncommon given that such signal generation equipment is not commercially available. When supplied with an N4L analyzer, all customers will receive a calibration certificate covering the complete frequency range.



\*UKAS Calibration is available from N4L UK HQ only, details of calibration performed at other locations is subject to local accreditation, please contact your local office for more details.

# SPECIFICATION

|  |   | PPA500   |  | PPA1500  |   |        |   |
|--|---|--|--|--|---|--------|---|
| <b>Frequency Range</b>   |   |  |  |  |   |        |   |
|  |   | Normal   | DC, 10mHz ~ 500kHz                           | Normal   | DC, 10mHz ~ 1MHz                        |        |   |
|  |   | x10  | DC, 10mHz ~ 100kHz                           | x10  | DC, 10mHz ~ 100kHz                      |        |   |
| <b>Voltage Input</b>   |   |  |  |  |   |        |   |
| Internal   | Range   | Normal   | 1Vpk ~ 2500Vpk(1000Vrms) in 8 ranges         | Normal   | 1Vpk ~ 2500Vpk(1000Vrms) in 8 ranges    |        |   |
|  | Accuracy                                      | x10  | 100mVpk ~ 300Vpk(1000Vrms) in 8 ranges       | x10  | 100mVpk ~ 300Vpk(1000Vrms) in 8 ranges  |        |   |
| External   | Range   | Normal   | 0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5mV      | Normal   | 0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5mV |        |   |
|  | Accuracy                                      | x10  | 0.05% Rdg+0.1% Rng+(0.01%×kHz Rdg)+1mV       | x10  | 0.05% Rdg+0.1% Rng+(0.01%×kHz Rdg)+1mV  |        |   |
|  |   | 1mVpk ~ 3Vpk in 8 ranges [BNC connector 3Vpk max input]  |  | 1mVpk ~ 3Vpk in 8 ranges [BNC connector 3Vpk max input]                |   |        |   |
|  |   | 0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5uV  |  | 0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5uV                                |   |        |   |
| 40-850Hz   |   | As per standard spec with Rng error reduced from +0.1% V Rng to 0.05%  |  | As per standard spec with Rng error reduced from +0.1% V Rng to 0.05%  |   |        |   |
| <b>Current Input</b>   |   |  |  |  |   |        |   |
| Internal   | 20Arms Current Shunt<br>4mm safety connectors | Ranges   | Normal                                       | 100mApk ~ 300Apk(20Arms) in 8 ranges                                   | Ranges                                  | Normal | 100mApk ~ 300Apk(20Arms) in 8 ranges              |
|  |   |  | x10  | 10mApk ~ 30Apk in 8 ranges   |   | x10    | 10mApk ~ 30Apk in 8 ranges                        |
|  |   | Accuracy   | Normal                                       | 0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 500uA                      | Accuracy                                | Normal | 0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 500uA |
|  |   |  | x10  | 0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 100uA                       |   | x10    | 0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 100uA  |
|  | 30Arms Current Shunt<br>4mm safety connectors | Ranges   | Normal                                       | 300mApk ~ 1000Apk(30Arms) in 8 ranges                                  | Ranges                                  | Normal | 300mApk ~ 1000Apk(30Arms) in 8 ranges             |
|  |   |  | x10  | 30mApk ~ 100Apk in 8 ranges  |   | x10    | 30mApk ~ 100Apk in 8 ranges                       |
|  |   | Accuracy   | Normal                                       | 0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 1mA                        | Accuracy                                | Normal | 0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 1mA   |
|  |   |  | x10  | 0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 300uA                       |   | x10    | 0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 300uA  |
| External input (External shunt Current sensor)   |   | BNC Connector (Max input 3Vpk)   |  | BNC Connector (Max input 3Vpk)   |   |        |   |
|  |   | Ranges   |  | Ranges   |   |        |   |
|  |   | Accuracy   |  | Accuracy   |   |        |   |
|  |   | 0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg) + 5uV  |  | 0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg) + 5uV                              |   |        |   |
| 40-850Hz   |   | As per standard spec with Rng error reduced from +0.1% A Rng to 0.05%  |  | As per standard spec with Rng error reduced from +0.1% A Rng to 0.05%  |   |        |   |
| <b>Phase Accuracy</b>  |   |  |  |  |   |        |   |
|  |   | Normal   | 0.01deg+(0.01deg x kHz)                      | 0.01deg+(0.01deg x kHz)  |   |        |   |
|  |   | x10  | 0.01deg+(0.02deg x kHz)                      | 0.01deg+(0.02deg x kHz)  |   |        |   |
| <b>Power Accuracy</b>  |   |  |  |  |   |        |   |
|  |   | Normal   | [0.1%+0.1%/pf+(0.01%×kHz)/pf] Rdg+0.1%VA Rng | [0.1%+0.1%/pf+(0.01%×kHz)/pf] Rdg+0.1%VA Rng                           |   |        |   |
|  |   | x10  | [0.1%+0.1%/pf+(0.02%×kHz)/pf] Rdg+0.1%VA Rng | [0.1%+0.1%/pf+(0.02%×kHz)/pf] Rdg+0.1%VA Rng                           |   |        |   |
| 40-850Hz   |   | As per standard spec with Rng error reduced from +0.1% VA Rng to 0.05%   |  | As per standard spec with Rng error reduced from +0.1% VA Rng to 0.05% |   |        |   |
| <b>Minimum Current Measurement at Full Accuracy</b>  |   |  |  |  |   |        |   |
| PPA5/1500 20A  |   | 1mA  |  |  |   |        |   |
| PPA5/1500 30A  |   | 3mA  |  |  |   |        |   |
| <b>General</b>   |   |  |  |  |   |        |   |
| Crest Factor   |   | 20(Voltage and Current)  |  |  |   |        |   |
| Sample Rate  |   | 1Ms/s on all channels, No-Gap  |  | 1Ms/s on all channels, No-Gap  |   |        |   |
| IEC Modes  |   | IEC62301/EN50564 Standby Power   |  | IEC62301/EN50564 Standby Power   |   |        |   |
| Application Modes  |   | Ballast, Inrush, Standby Power   |  | Ballast, Inrush, Standby Power   |   |        |   |
| <b>CMRR - Common Mode Rejection Ratio</b>  |   |  |  |  |   |        |   |
|  |   | 250V @ 50Hz - ≥ 1mA (150dB)  |  |  |   |        |   |
|  |   | 100V @ 100kHz - ≥ 3mA (130dB)  |  |  |   |        |   |
| <b>Measurement Parameters</b>  |   |  |  |  |   |        |   |
| W, VA, Var, pf, V & A - rms, rectified mean, AC, DC, Peak, Surge, Crest Factor, Form Factor, Star to Delta Voltage, +ve Pk, -ve Pk |   |  |  |  |   |        |   |
| Frequency (Hz), Phase (deg), Fundamentals, Impedance   |   |  |  |  |   |        |   |
| Harmonics, THD, TIF, THF, TRD, TDD   |   |  |  |  |   |        |   |
| Integrated Values, Datalog, Sum and Neutral values   |   |  |  |  |   |        |   |
| <b>Datalog - Up to 4 user selectable measurement functions (60 with PC software)</b>   |   |  |  |  |   |        |   |
| Datalog Window   |   | No-Gap analysis, Minimum window 10ms   |  | No-Gap analysis, Minimum window 10ms                                   |   |        |   |
| Memory   |   | 16,000 records   |  | 16,000 records   |   |        |   |
| <b>Communication Ports</b>   |   |  |  |  |   |        |   |
| RS232  |   | Baud rate up to 38.4kbps,RTS/CTS flow control  |  |  |   |        |   |
| LAN  |   | (Option L) 10/100 Base-T Ethernet auto sensing   |  | (Fitted as standard) 10/100 Base-T Ethernet auto sensing               |   |        |   |
| GPIB   |   | (Option G-E) IEEE488.2 Compatible - via external communications box  |  | (Option G-E) IEEE488.2 Compatible - via external communications box    |   |        |   |
| USB  |   | USB 2.0 and 1.1 compatible   |  |  |   |        |   |
| Extension  |   | Fitted as Standard   |  |  |   |        |   |
| <b>Standard Accessories</b>  |   |  |  |  |   |        |   |
| Leads  |   | Power, RS232, USB  |  | Power, RS232, USB  |   |        |   |
| Connection Cables  |   | 20A (Std version) or 36A (HC version) 1.5m long 4mm stackable terminals<br>1x red, 1x yellow and 2x black per phase                      |  |  |   |        |   |
| Connection Clips   |   | 4mm terminated alligator clips - 1x red, 1x yellow and 2x black per phase  |  |  |   |        |   |
| CD-ROM   |   | CommView2 (RS232/USB/LAN), Command line, Script based communication software (Datalogging software available as free of charge download) |  |  |   |        |   |
| Documents  |   | User manual, Communications manual, Calibration certificate, Quick start guide   |  |  |   |        |   |
| <b>Mechanical/Environmental</b>  |   |  |  |  |   |        |   |
| Input Impedance  |   | Voltage Attenuator and External Inputs 1MΩ    30pF   |  |  |   |        |   |
| Display  |   | 480x272 dot full colour TFT, White LED Backlit   |  |  |   |        |   |
| Dimensions   |   | 92Hx215Wx312D mm excluding feet  |  |  |   |        |   |
| Weight   |   | 3.3kg(1 Phase), 4kg(3 Phase)   |  |  |   |        |   |
| Safety Isolation   |   | 1000Vrms or DC(CATII), 600Vrms or DC(CATIII)   |  |  |   |        |   |
| Power supply   |   | 90 ~ 265Vrms, 50 ~ 60Hz, 35VAmx  |  |  |   |        |   |
| Operating  |   | 23°C ± 5°C Ambient Temperature (or air intake temperature when rack mounted), 20-90% Non-Condensing Relative Humidity.                   |  |  |   |        |   |
| <b>Voltage Attenuator Overload Capability</b>  |   |  |  |  |   |        |   |
| 20mS   |   | 2.5KV PK (1.5KV rms)   |  |  |   |        |   |
| 5Sec   |   | 2.5KV PK (1.1KV rms)   |  |  |   |        |   |
| Continuous   |   | 2.5KV PK (1.0KV rms)   |  |  |   |        |   |

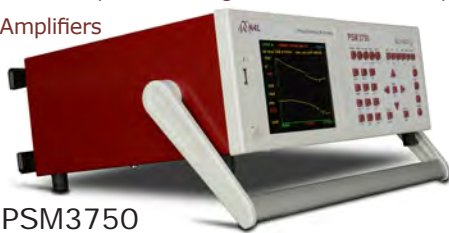
# PRODUCT COMPARISON

|   | PPA500           | PPA1500                            | PPA3500          | PPA4500          | PPA5500          |
|---|------------------|------------------------------------|------------------|------------------|------------------|
| <b>Basic Accuracy</b>                     |                  |                                    |                  |                  |                  |
| V, A rdg error                            | 0.05%            | 0.05%                              | 0.04%            | 0.03%            | 0.01%            |
| Power rdg error                           | 0.10%            | 0.10%                              | 0.06%            | 0.04%            | 0.03%            |
| <b>Phase Options</b>                      |                  |                                    |                  |                  |                  |
| Internal                                  | 1 ~ 3            | 1 ~ 3                              | 1 ~ 6            | 1 ~ 3            | 1 ~ 3            |
| Master/Slave operation                    | —                | —                                  | —                | 4 ~ 6            | 4 ~ 6            |
| <b>Bandwidth</b>                          |                  |                                    |                  |                  |                  |
| 20 & 30A Shunt                            | DC ~ 500kHz      | DC ~ 1MHz                          | DC ~ 1MHz        | —                | —                |
| 10 & 30A Shunt                            | —                | —                                  | —                | DC ~ 2MHz        | DC ~ 2MHz        |
| 50A Shunt                                 | —                | —                                  | —                | DC ~ 1MHz        | DC ~ 1MHz        |
| <b>Voltage Input</b>                      |                  |                                    |                  |                  |                  |
| Max input voltage                         | 2500Vpk (1kVrms) | 2500Vpk (1kVrms)                   | 2500Vpk (1kVrms) | 3000Vpk (1kVrms) | 3000Vpk (1kVrms) |
| No. of ranges                             | 8                | 8                                  | 8                | 8                | 9                |
| <b>Direct Current Input</b>               |                  |                                    |                  |                  |                  |
| 10Arms model                              | —                | —                                  | —                | ○                | ○                |
| 20Arms model                              | ○                | ○                                  | ○                | —                | —                |
| 30Arms model                              | ○                | ○                                  | ○                | ○                | ○                |
| 50Arms model                              | —                | —                                  | —                | ○                | ○                |
| No. of ranges                             | 8                | 8                                  | 8                | 8                | 9                |
| <b>Features</b>                           |                  |                                    |                  |                  |                  |
| Scope and Graph Modes                     | —                | ○                                  | ○                | ○                | ○                |
| USB Memory port                           | ○                | ○                                  | ○                | ○                | ○                |
| LAN Port                                  | ○                | ○                                  | ○                | ○                | ○                |
| GPiB Port                                 | ○                | ○                                  | ○                | ○                | ○                |
| RS232 Port                                | ○                | ○                                  | ○                | ○                | ○                |
| Real time clock                           | ○                | ○                                  | ○                | ○                | ○                |
| 19in Rack mount option                    | ○                | ○                                  | ○                | ○                | ○                |
| Torque and Speed                          | —                | —                                  | ○                | ○                | ○                |
| IEC61000 Mode                             | —                | —                                  | —                | —                | ○                |
| PWM Motor Drive Mode                      | —                | ○ (Via Parallel Filtering Options) | ○                | ○                | ○                |
| Oscilloscope/Graphic                      | —                | ○                                  | ○                | ○                | ○                |
| Transformer Mode                          | —                | —                                  | ○                | ○                | ○                |
| PWM Filter Options                        | —                | 2                                  | 7                | 7                | 7                |
| Speed/Harmonics/Sec                       | 300/sec          | 300/sec                            | 300/sec          | 600/sec          | 1800/sec         |
| Internal Datalogging                      | 4 Parameters     | 4 Parameters                       | 32 Parameters    | 16 Parameters    | 16 Parameters    |
| Datalog Records                           | 16000            | 16000                              | 5M               | 5M               | 10M              |
| ABD0100.1.8 Mode                          | —                | —                                  | —                | —                | ○                |
| Internal Memory                           | 192kB            | 192kB                              | 500MB            | 500MB            | 1GB              |
| Harmonics                                 | 50               | 50                                 | 100              | 100              | 417              |
| Minimum Window Size                       | 10ms             | 10ms                               | 5ms              | 2ms              | 2ms              |
| Dimensions - Excl. Feet<br>H x W x D (mm) | 92 x 215 x 312   | 92 x 215 x 312                     | 92 x 404 x 346   | 130 x 400 x 315  | 130 x 400 x 315  |
| Weight                                    | 3.3 - 4kg        | 3.3 - 4kg                          | 5 - 7kg          | 5.4 - 6kg        | 5.4 - 6kg        |

— Not Applicable      ○ Option      ● Standard

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

The N4L product range also includes Frequency Response and Impedance Analyzers, Selective Level Meters and Laboratory Power Amplifiers



**PSM3750**  
10µHz ~ 50MHz



**PSM17xx**  
10µHz ~ 35MHz

## Applications

- Power supply phase margin and gain margin (FRA)
- Inductance, Capacitance and Resistance (LCR)
- Analysis of mechanical vibration (HARM)
- Phase Angle Voltmeter (PAV)

Contact your local N4L Distributor for further details



## Newtons4th

Newtons4th Ltd (abbreviated to N4L) was established in 1997 to design, manufacture and support innovative electronic equipment to a world-wide 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 customers with 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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