



Newton's4th Ltd

Standby POWER Software

USER MANUAL

EN50564:2011

The screenshot displays the 'N4L Standby POWER - 62301 & 50564 - v1.0.1.7' window. It features a top bar with the Newton's4th Ltd logo and title. Below this are tabs for 'Test Details', 'Test Conditions', and 'Test'. The 'Test' tab is active, showing a table of power readings and a 'Test Result' of 'STABLE'. The table includes columns for 'Present Reading', 'Min Reading', and 'Max Reading' for Power (W), Crest Factor, Average Power (W), and Accumulated Power (Whr). A 'Power Gradient (Whr)' field is also present. Below the table is a 'Monitor' section with fields for Vrms, Arms, Total Power Factor, Apparent Power (VA), Supply Frequency (Hz), and Load Duty Cycle (Hz). At the bottom, there are controls for 'Test - Automatic' (including a test period timer and Run/Abort buttons) and 'Test - Manual' (including an interval timer and Start/Stop buttons).

	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22353	0.22197	0.22605	STABLE
Crest Factor	1.41366	1.41346	1.41511	
Average Power (W)	0.22422			
Accumulated Power (Whr)	0.05605			

Power Gradient (Whr): 0.00000

Monitor:

Vrms	230.236	Total Power Factor	0.04725	Supply Frequency (Hz)	50.0000
Arms	0.02055	Apparent Power (VA)	4.73082	Load Duty Cycle (Hz)	0.00000

Test - Automatic:

Test Period: Mins: 00, Secs: 00

Run, Abort

Interval: 1 (Sec(s))

Elapsed Time: 15 : 00

Test - Manual:

Start, Stop

Version 1.01

10th September 2019

ABOUT THIS MANUAL

Standby Power is a self contained “.net” software program for use with the N4L PPA500, PPA1500, PPA2500, PPA2600, PPA3500, PPA4500 and PPA5500 power analyzers.

Accordingly, this manual first describes the general features and specification of the software as a whole; and then describes the individual functions in detail.

Each function is described in turn, in its own chapter, with details of the principles on which it is based, how to use it, the options available, display options etc.

Revision: 1.01

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10th September 2019

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1 About Standby POWER

N4L Standby POWER software was developed to allow the measurement of the power consumed by household devices in standby mode when connected to the mains supply.

This manual concentrates on how to setup and use the software to perform these measurements in accordance with EN50564:2011 which has superseded IEC62301.

There are 4 different test measurement modes available in the software. To ensure the correct mode is used we have created the following guidance document:

[A guide to the Analysis of Standby Power \(EN50564:2011\)](#)

This guide can be found on our website. The link below will take you directly to the document.

<https://www.newtons4th.com/applications/en505642011-guide-compliant-testing-standby-power>

It is recommended to refer to this document before performing any measurements. The guide gives an overview of the reasons for measuring Standby Power and the EN50564:2011 Standard.

Reference to this document will give more details on the measurement modes and when to use each mode. The document also contains much more useful information to aid the user in performing Standby Power measurements.

2 Introduction

2.1 Introduction to Standby POWER

Standby POWER is a self-contained package that is deployed by a .net installer.

Microsoft® .NET Framework 2.0 runtime libraries are required to run Standby POWER. If these files are not installed on the computer select a 'full install' type from the install wizard, this will run the additional "dotnetfx.exe" installer that will be placed in your install path before using Standby POWER.

Standby Power has the ability to connect to the PPA series of instruments via RS232, USB and LAN. The software includes all measurement modes to reflect instrument operation.

Standby POWER supports the ability to export text files directly to Microsoft Excel®.

This guide was written using a PPA5530 with Firmware version V2.179.

Note: Microsoft and Excel are registered trademarks of the Microsoft Corporation.

2.2 Minimum Requirements

The minimum requirements to run the PSMComm2 Software are as follows:

- Windows XP (Service Pack 3) or later
- At least 1GHz Processor
- Minimum of 1GB RAM
- 10MB of Hard Drive space.

3 Getting Started

3.1 Download

As with all N4L Software, it is available for free download from our website. See www.newtons4th.com/support for more details.

Once registered and your account has been activated you will have access to the software downloads section.

Account activation will be confirmed within 24 hours but can take longer if applied for at weekends.

3.2 Installation

Wherever possible, at N4L we try to develop software that enables the engineer to be ready and performing tests as soon as possible. With this in mind, we have made the Standby POWER installation method as simple as possible.

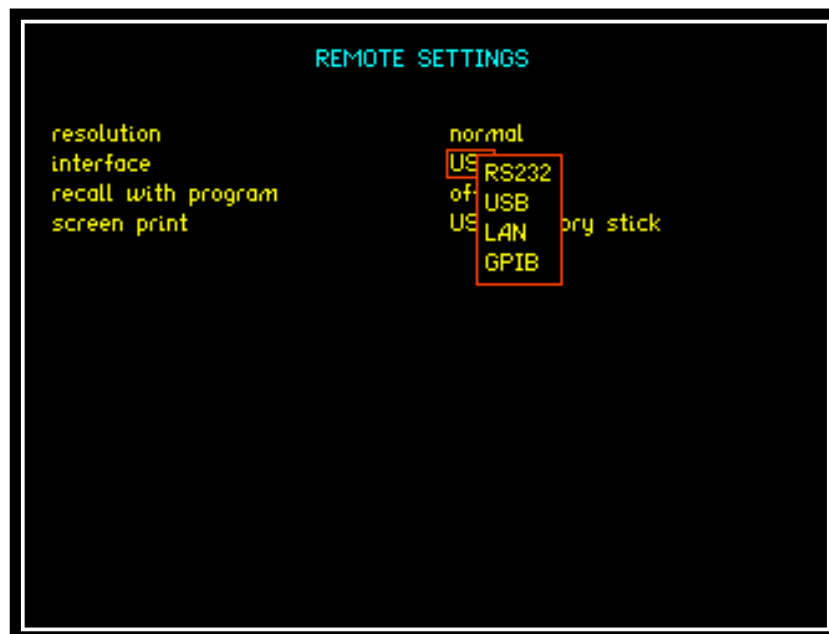
To install Standby Power, simply download the zip folder onto your PC's hard drive or an external drive such as a USB memory stick. Unzip the folder and click on the installer icon to install the software onto the PC.

4 Connecting

4.1 Preparing the PPA

Before the software can connect, the PPA must be ready to accept the connection. To prepare your PPA for connection with Standby POWER, ensure the unit is powered on and the cables are connected.

Next you must ensure the Instrument is correctly set up to reflect the type of connection you are using. To do this, access the REMOTE menu on the unit; navigate to the Interface option and select the interface you are using to connect to the software: RS232, USB or LAN.



If you select RS232, you will need to additionally set the Baud Rate of the cable you intend to use

interface	RS232
baud rate	19200

And for LAN you'll need to set an IP Address for the Instrument.

interface	LAN
IP address	192.168.0 .105

4.2 Connecting to your PPA

Clicking on the desktop icon will display the following window:

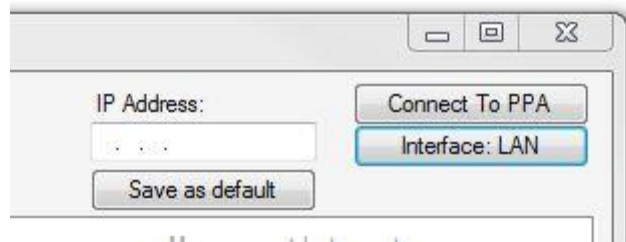
The screenshot shows the main window of the 'N4L Standby POWER - 62301 & 50564 - v1.0.1.7' application. The window has a title bar with standard OS controls. The main area is divided into several sections: a top right corner with 'Com Port:' dropdown, 'Connect To PPA' button, and 'Interface: USB' button; a 'Save as default' button; and a 'Test Details' tab. The 'Test Details' tab is active, showing fields for 'Device Under Test' (Brand, Model, Serial No., Rated Voltage, Rated Current, Rated Frequency, Rated Power), 'Test Environment' (Lab Name, Location, Date, Time, Temperature, Humidity, Test No.), and 'Measurement Instrument' (Manufacturer, Model, Serial No., Firmware Level). There are also 'Get Date/Time' and 'Read Data' buttons, a 'Test phase:' dropdown set to 'Phase 1', and a 'Test Mode' section with radio buttons for 'Non cyclic modes', 'Non cyclic varying power modes', 'Cyclic modes', and 'Limited duration modes'. At the bottom, there are two large text areas for 'DUT Notes' and 'Test Notes'.

The Interface settings are displayed in the top right hand corner of the test window. The actual settings displayed will depend on the settings saved using the "Save as Default" button. Clicking on the Interface button will toggle between displaying Interface:USB and Interface:LAN. Click on the button until the required interface option is displayed.

Note: If using a Serial/RS232 cable select Interface:USB.

This is a close-up view of the top right corner of the software window. It shows the 'Com Port:' dropdown menu with 'COM3' selected. Below it is a 'Save as default' button. To the right of the dropdown is a 'Connect To PPA' button and a 'Interface: USB' button, which is highlighted with a blue border.

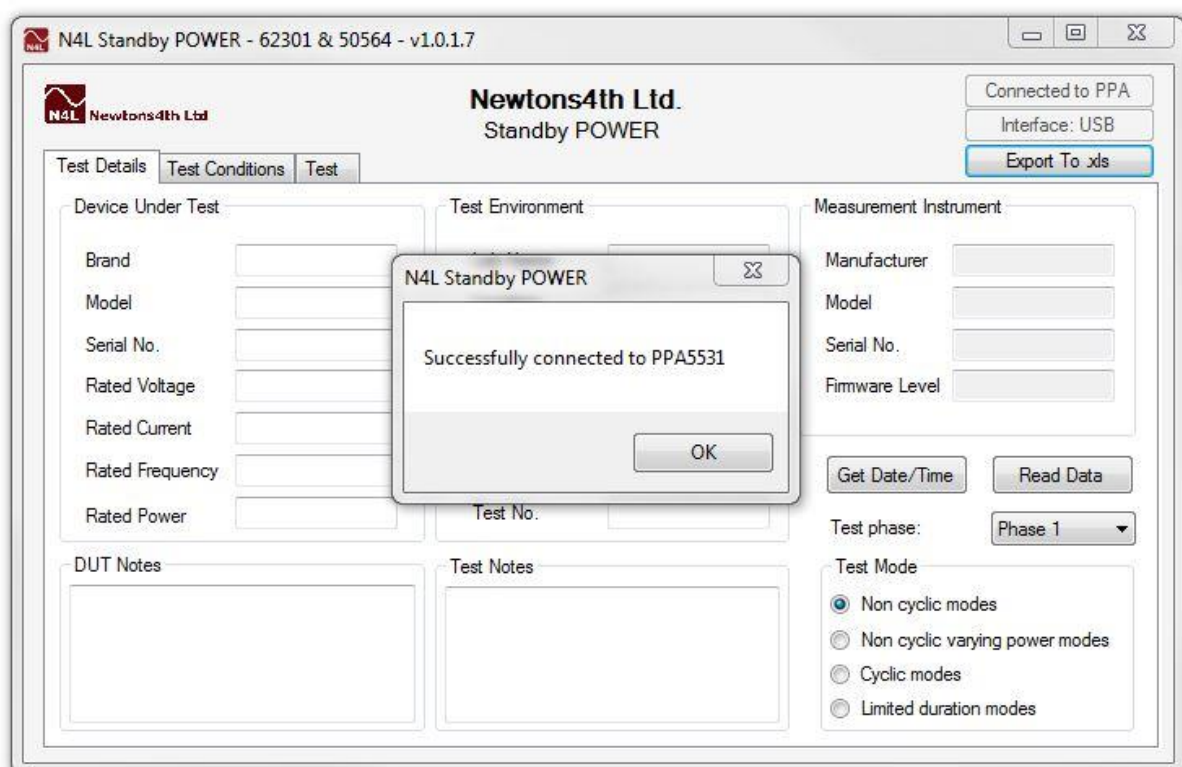
When using a USB or Serial RS232 connection the Com Port options are displayed. Select the required Com Port from the drop down menu.



When the LAN interface is selected the IP Address is displayed. Enter the IP Address of the PPA. E.g. 192.168.0.116



When the required interface settings have been entered, click on Connect to PPA. The following message will be displayed if the connection was successful.



5 Test Details Tab

The screenshot shows the 'Newtons4th Ltd. Standby POWER' software window. The title bar indicates 'N4L Standby POWER - 62301 & 50564 - v1.0.1.7'. The interface has three tabs: 'Test Details' (highlighted in yellow), 'Test Conditions', and 'Test'. On the right, there are buttons for 'Connected to PPA', 'Interface: USB', and 'Export To .xls'. The main area is divided into several sections: 'Device Under Test' with fields for Brand, Model, Serial No., Rated Voltage, Rated Current, Rated Frequency, and Rated Power; 'Test Environment' with fields for Lab Name, Location, Date, Time, Temperature, Humidity, and Test No.; 'Measurement Instrument' with fields for Manufacturer, Model, Serial No., and Firmware Level; 'DUT Notes' and 'Test Notes' as text areas; and 'Test Mode' with four radio button options: 'Non cyclic modes' (selected), 'Non cyclic varying power modes', 'Cyclic modes', and 'Limited duration modes'. There are also 'Get Date/Time' and 'Read Data' buttons, and a 'Test phase' dropdown menu set to 'Phase 1'.

5.1 Selecting the Test Mode

The test Mode needs to be selected. Please refer to section 1 – About Standby Power for more details on these test modes.

There are 4 options to choose from:

Non Cyclic modes

Non cyclic varying power modes

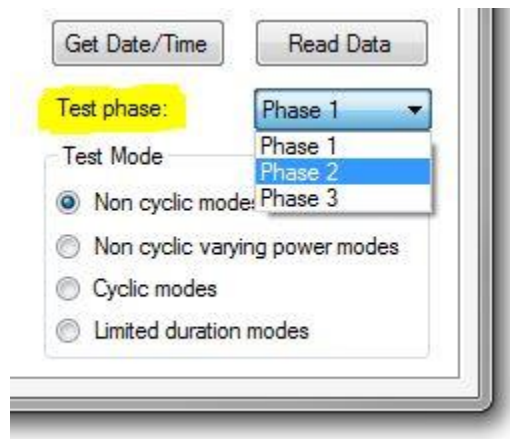
Cyclic modes

Limited duration modes

This close-up screenshot focuses on the 'Test Mode' section of the software. It shows the 'Get Date/Time' and 'Read Data' buttons at the top. Below them is the 'Test phase' dropdown menu, which is set to 'Phase 1'. The 'Test Mode' label is highlighted in yellow. Underneath, there are four radio button options: 'Non cyclic modes' (which is selected), 'Non cyclic varying power modes', 'Cyclic modes', and 'Limited duration modes'.

5.2 Selecting the Test Phase

The Standby Power measurements can be performed on 1 phase only. The required phase should be selected from the drop down menu.



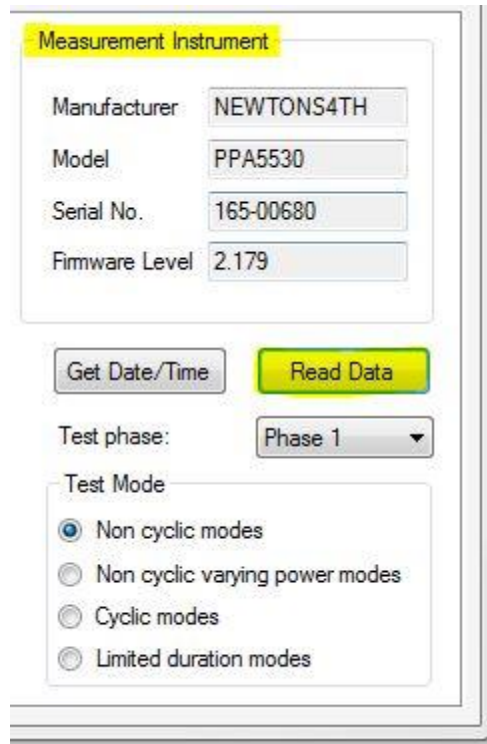
5.3 Date/Time Data Button

Click on the “Get Date / Time” button to enter these details in to the Test Details window.

A screenshot of a 'Test Details' window. It is divided into several sections. The 'Test Environment' section on the left contains input fields for 'Lab Name', 'Location', 'Date' (pre-filled with '04/09/2019'), 'Time' (pre-filled with '11:07'), 'Temperature', 'Humidity', and 'Test No.'. The 'Measurement Instrument' section on the right contains input fields for 'Manufacturer', 'Model', 'Serial No.', and 'Firmware Level'. Below these sections are two buttons: 'Get Date/Time' (highlighted in yellow) and 'Read Data'. At the bottom, there is a 'Test phase:' dropdown menu set to 'Phase 1' and a 'Test Mode' section with four radio button options: 'Non cyclic modes' (selected), 'Non cyclic varying power modes', 'Cyclic modes', and 'Limited duration modes'. A large text area for 'Test Notes' is located on the bottom left.

5.4 Read Data button

Click on the “Read Data” button to enter the Measuring Instrument (PPA) details in to the Test Details window.



The screenshot shows a software window titled "Measurement Instrument" with a yellow header. It contains several input fields for instrument details: "Manufacturer" (NEWTONS4TH), "Model" (PPA5530), "Serial No." (165-00680), and "Firmware Level" (2.179). Below these fields are two buttons: "Get Date/Time" and "Read Data" (highlighted in yellow). Under the buttons is a "Test phase:" dropdown menu set to "Phase 1". At the bottom is a "Test Mode" section with four radio button options: "Non cyclic modes" (selected), "Non cyclic varying power modes", "Cyclic modes", and "Limited duration modes".

5.5 Entering other information

The Device Under Test (DUT) and Remaining Test Environment information can be entered into the Test Details window.

Alternatively this can be entered after the test by returning to the Test Details tab before exporting the data to the Excel report. The information entered at this stage can also be updated if required before exporting the data.

6 Test Conditions Tab

The screenshot shows the 'Test Conditions' tab of the 'N4L Standby POWER - 62301 & 50564 - v1.0.1.7' software. The interface includes a header with the company logo and name, and a status bar indicating 'Connected to PPA' and 'Interface: USB'. The 'Test Conditions' tab is highlighted. The main area is titled 'Nominal Test Conditions' and contains a table for setting test parameters. The table has columns for 'Measured Value', 'Lower Limit', 'Upper Limit', and 'Test Result'. The 'Expected Voltage (Vrms)' and 'Expected Frequency (Hz)' fields are empty. The 'Read Data' button is at the bottom right.

	Measured Value	Lower Limit	Upper Limit	Test Result
Voltage (Vrms)				
Frequency (Hz)				
Vthd (%)		0.00000	2.00000	
Crest Factor		1.34000	1.49000	

6.1 Entering the expected Voltage & Frequency

The Test Voltage and Frequency must be entered at this stage.

This screenshot shows the same 'Test Conditions' tab as the previous one, but with the 'Expected Voltage (Vrms)' field set to 230 and the 'Expected Frequency (Hz)' field set to 50. The 'Read Data' button is now highlighted in blue.

	Measured Value	Lower Limit	Upper Limit	Test Result
Voltage (Vrms)				
Frequency (Hz)				
Vthd (%)		0.00000	2.00000	
Crest Factor		1.34000	1.49000	

6.2 Read Data test

Click on the “Read Data” button. The window will display “Testing” for a short period whilst the test progresses.

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newtons4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details Test Conditions **Test**

Nominal Test Conditions

Voltage (Vrms)	Testing...	Expected Voltage (Vrms)	230		
Frequency (Hz)	Testing...	Expected Frequency (Hz)	50		
Vthd (%)	Testing...	Measured Value	Lower Limit	Upper Limit	Test Result
		0.00000	2.00000		
Crest Factor	Testing...	1.34000	1.49000		

Read Data

On completion of the test the results will be displayed and the Test Result for Vthd and Crest Factor will display PASS or FAIL.

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newtons4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details Test Conditions **Test**

Nominal Test Conditions

Voltage (Vrms)	230.152	Expected Voltage (Vrms)	230		
Frequency (Hz)	49.9950	Expected Frequency (Hz)	50		
Vthd (%)	0.05881	Measured Value	Lower Limit	Upper Limit	Test Result
		0.00000	2.00000		PASS
Crest Factor	1.41323	1.34000	1.49000		PASS

Read Data

7 Test Tab

The test tabs vary slightly depending on which Test Mode was selected. The example below is Non cyclic modes.

The screenshot displays the 'Test' tab of the 'N4L Standby POWER - 62301 & 50564 - v1.0.1.7' application. The interface is organized into several sections:

- Header:** Includes the Newtons4th Ltd. logo, the title 'Standby POWER', and status indicators 'Connected to PPA' and 'Interface: USB'. There is also an 'Export To .xls' button.
- Test Details:** A table with five columns: 'Power (W)', 'Crest Factor', 'Average Power (W)', 'Accumulated Power (Whr)', and 'Test Result'. The first four columns have sub-headers for 'Present Reading', 'Min Reading', and 'Max Reading'. The 'Accumulated Power (Whr)' row also includes a 'Power Gradient (Whr)' column.
- Monitor:** A section for real-time monitoring with fields for 'Vrms', 'Ams', 'Total Power Factor', 'Apparent Power (VA)', 'Supply Frequency (Hz)', and 'Load Duty Cycle (Hz)'.
- Test - Automatic:** Contains a 'Test Period' section with 'Mins.' and 'Secs.' spinners (both set to 00), and 'Run' and 'Abort' buttons.
- Interval:** A central section with an 'Interval' spinner set to 1 'Sec(s)' and an 'Elapsed Time' display showing '00 : 00'.
- Test - Manual:** Includes 'Start' and 'Stop' buttons.

The parameters displayed in the test tab vary slightly for each test mode. The test duration also varies between tests and in the case of the cyclic tests, two tests must be performed.

Each test will be explained in more detail in the following sections of this manual.

7.1 Non Cyclic mode tests

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newton's4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details | Test Conditions | **Test**

Standby Power

	Present Reading	Min Reading	Max Reading	Test Result
Power (W)				
Crest Factor				
Average Power (W)				
Accumulated Power (Whr)				Power Gradient (Whr)

Monitor

Vrms		Total Power Factor		Supply Frequency (Hz)	
Arms		Apparent Power (VA)		Load Duty Cycle (Hz)	

Test - Automatic

Mins. Secs.
Test Period 00 00

Run Abort

Interval 1 Sec(s)

Elapsed Time
00 : 00

Test - Manual

Start Stop

Click on the start button to begin the test.

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newton's4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details | Test Conditions | **Test**

Standby Power

	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22311	0.22194	0.22311	STABLE
Crest Factor	1.41484	1.41462	1.41484	
Average Power (W)	0.22243			
Accumulated Power (Whr)	0.00043			Power Gradient (Whr)

Monitor

Vrms	230.284	Total Power Factor	0.04652	Supply Frequency (Hz)	50.0000
Arms	0.02083	Apparent Power (VA)	4.79591	Load Duty Cycle (Hz)	0.00000

Test - Automatic

Mins. Secs.
Test Period 00 00

Run Abort

Interval 1 Sec(s)

Elapsed Time
00 : 07

Test - Manual

Start Stop

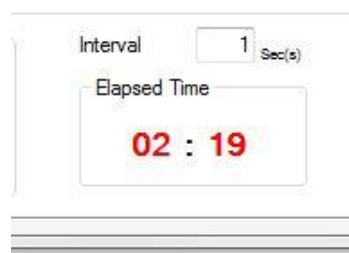
The default test duration for Non cyclic mode tests is set to 15 minutes, this can't be adjusted. The test will end automatically after the elapsed time counter in the software window reaches 15 minutes.

When the test begins the Elapsed time counter will change colour to blue and start incrementing. Results data will be entered in to the window and will be updating at regular intervals.

Above the elapsed time is the Interval setting. The default setting is 1 second. This value can be increased if required by the user but nominally the 1 second interval should be used.

The increments in the Elapsed time counter and the refresh rate of the data displayed in the test window are determined by the selected interval value. Therefore for the default interval of 1 second, the Elapsed time with increment every second and the data results will also be updated every second.

The test can be stopped at any time but the Elapsed time counter will turn red to highlight that the test was ended before the 15 minute test duration had been completed.



Completed test:

The elapsed time counter turns green and the test ends after 15 minutes. The results will also turn green if no issues were found during the test.

The screenshot shows the 'Newtons4th Ltd. Standby POWER' software interface. The 'Test' tab is active, displaying a table of power readings. The 'Test Result' is 'STABLE' in green. The 'Elapsed Time' is 15:00 in green. The 'Test - Automatic' section shows 'Run' and 'Abort' buttons. The 'Test - Manual' section shows 'Start' and 'Stop' buttons.

Standby Power	Present Reading	Min Reading	Max Reading	Test Result	
Power (W)	0.22353	0.22197	0.22605	STABLE	
Crest Factor	1.41366	1.41346	1.41511		
Average Power (W)	0.22422				
Accumulated Power (Whr)	0.05605				
				Power Gradient (Whr)	0.00000

Monitor		Total Power Factor	Supply Frequency (Hz)
Vrms	230.236	0.04725	50.0000
Arms	0.02055	Apparent Power (VA)	Load Duty Cycle (Hz)
		4.73082	0.00000

Test - Automatic	Interval	Test - Manual
Test Period: Mins. 00, Secs. 00	1 Sec(s)	Start, Stop
Run, Abort	Elapsed Time: 15 : 00	

Whilst the test is running the parameters may turn red if the value is outside of the specified limits or blue if the power level is unstable. Please see the example below:

The screenshot shows the 'Newtons4th Ltd. Standby POWER' software interface. The 'Test' tab is active, displaying a table of power readings. The 'Test Result' is 'UNSTABLE' in blue. The 'Elapsed Time' is 01:57 in blue. The 'Test - Automatic' section shows 'Run' and 'Abort' buttons. The 'Test - Manual' section shows 'Start' and 'Stop' buttons.

Standby Power	Present Reading	Min Reading	Max Reading	Test Result	
Power (W)	0.23014	0.00002	22.6253	UNSTABLE	
Crest Factor	1.45348	-794.93	7.36044		
Average Power (W)	4.79209				
Accumulated Power (Whr)	0.15574				
				Power Gradient (Whr)	0.20909

Monitor		Total Power Factor	Supply Frequency (Hz)
Vrms	231.329	0.04737	50.0000
Arms	0.02100	Apparent Power (VA)	Load Duty Cycle (Hz)
		4.85871	0.00000

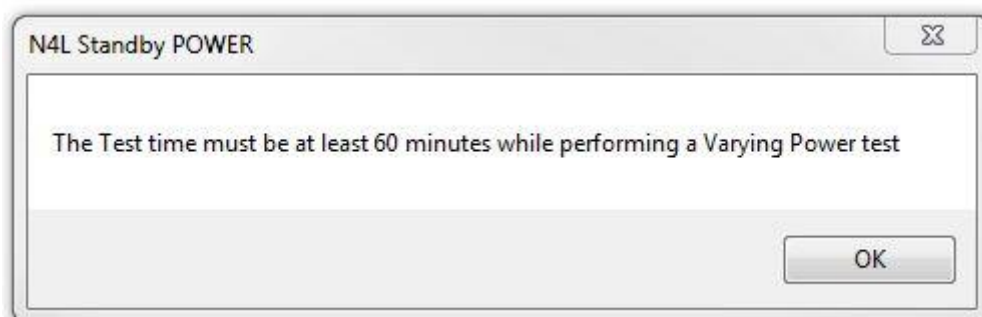
Test - Automatic	Interval	Test - Manual
Test Period: Mins. 00, Secs. 00	1 Sec(s)	Start, Stop
Run, Abort	Elapsed Time: 01 : 57	

7.2 Non Cyclic varying power modes

Whilst the other tabs are the same, the Test tab is slightly different for this test mode:

The screenshot shows the 'Test' tab of the 'N4L Standby POWER - 62301 & 50564 - v1.0.1.7' application. The interface includes a header with the company logo and name, and a status bar indicating 'Connected to PPA' and 'Interface: USB'. The main area is divided into several sections: 'Standby Power' with a table for 'Present Reading', 'Min Reading', 'Max Reading', and 'Test Result' for 'Power (W)', 'Crest Factor', 'Average Power (W)', and 'Accumulated Power (Whr)'; 'Monitor' with fields for 'Vrms', 'Ams', 'Total Power Factor', 'Apparent Power (VA)', 'Supply Frequency (Hz)', and 'Load Duty Cycle (Hz)'; and 'Test' controls. The 'Test' section has two modes: 'Test - Automatic' (highlighted in yellow) and 'Test - Manual' (also highlighted in yellow). The 'Test - Automatic' mode includes a 'Test Period' with 'Mins.' and 'Secs.' fields (both set to 00) and 'Run' and 'Abort' buttons. The 'Test - Manual' mode includes an 'Interval' set to 1 'Sec(s)', an 'Elapsed Time' display showing '00 : 00', and 'Start' and 'Stop' buttons.

In addition to running the test manually there is also the option to run an automatic test. The minimum test duration for this test option is 60 minutes. If a test period of less than 60 minutes is entered for an automatic test the following message is displayed.



In this test mode the stability of the average power is also checked in addition to the Power levels. This can be seen in the following screenshot:

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newton's4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details | Test Conditions | **Test**

Standby Power	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22398	0.22372	0.22473	STABLE
Crest Factor	1.41468	1.41451	1.41491	
Average Power (W)	0.22417	0.22422	0.22429	STABLE
Accumulated Power (W/hr)	0.00392			

Monitor

Vrms	230.278	Total Power Factor	0.04707	Supply Frequency (Hz)	50.0000
Arms	0.02066	Apparent Power (VA)	4.75819	Load Duty Cycle (Hz)	0.00000

Test - Automatic: Mins. Secs.
Test Period: 00 00
Run Abort

Interval: 1 Sec(s)
Elapsed Time: **01 : 03**

Test - Manual: Start Stop

Completed test:

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newton's4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details | Test Conditions | **Test**

Standby Power	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22395	0.22287	0.22531	STABLE
Crest Factor	1.41448	1.41422	1.41504	
Average Power (W)	0.22413	0.22412	0.22413	STABLE
Accumulated Power (W/hr)	0.24897			

Monitor

Vrms	230.305	Total Power Factor	0.04674	Supply Frequency (Hz)	50.0000
Arms	0.02081	Apparent Power (VA)	4.79163	Load Duty Cycle (Hz)	0.00000

Test - Automatic: Mins. Secs.
Test Period: 00 00
Run Abort

Interval: 1 Sec(s)
Elapsed Time: **66 : 39**

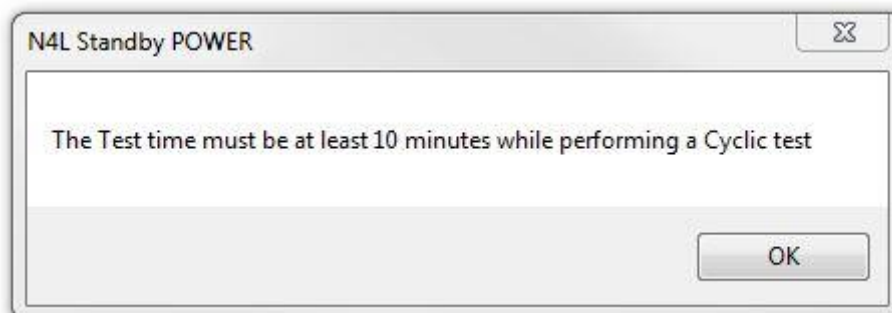
Test - Manual: Start Stop

An automatic test will stop once the entered test period is reached. For manual tests, the test will keep running indefinitely but will turn green after 60 minutes to confirm that the minimum test period has been reached.

7.3 Cyclic modes

The screenshot shows the Newtons4th Ltd. Standby POWER software interface. The window title is "N4L Standby POWER - 62301 & 50564 - v1.0.1.7". The interface includes a "Test" tab with a table for Standby Power readings (Power (W), Crest Factor, Average Power (W), Accumulated Power (Whr)) and a "Test Count" field. Below this is a "Monitor" section with fields for Vrms, Ams, Total Power Factor, Apparent Power (VA), Supply Frequency (Hz), and Load Duty Cycle (Hz). At the bottom, there are two test modes: "Test - Automatic" with a "Test Period" of 00 Mins and 00 Secs, and "Test - Manual" with an "Interval" of 1 Sec(s). Both modes have "Run" and "Stop" buttons. The "Elapsed Time" is displayed as 00 : 00.

In addition to running the test manually there is also the option to run an automatic test. The minimum test duration for this test option is 10 minutes. If a test period of less than 10 minutes is entered for an automatic test the following message is displayed.



This test mode requires two tests to be performed; each test must be a minimum of 10 minutes. There is a Test Count displayed in the Test window to indicate which test is presently being performed.

An automatic test will stop once the entered test period is reached. For manual tests, the test will keep running indefinitely until stopped by the user. The Elapsed Time counter does not turn green at the end of a test or once the minimum test period is achieved because this is only part 1 of a 2 part test.

The screenshot displays the 'Newtons4th Ltd. Standby POWER' software window. The title bar indicates the version is v1.0.1.7. The interface is divided into several sections:

- Top Bar:** Includes the Newtons4th Ltd. logo, the text 'Newtons4th Ltd. Standby POWER', and status indicators: 'Connected to PPA', 'Interface: USB', and an 'Export To .xls' button.
- Test Tab:** The 'Test' tab is selected, showing a table of power-related metrics.

Standby Power	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22460	0.22297	0.22515	STABLE
Crest Factor	1.41464	1.41377	1.41500	PASS
Average Power (W)	0.22403	Mid Point		Test Count
Accumulated Power (Whr)	0.03728	-1.87628		1
- Monitor Section:** Displays various electrical parameters:

Vrms	230.285	Total Power Factor	0.04855	Supply Frequency (Hz)	50.0000
Ams	0.02009	Apparent Power (VA)	4.62594	Load Duty Cycle (Hz)	0.00000
- Test Configuration:**
 - Test - Automatic:** Includes a 'Test Period' set to 00 Mins and 00 Secs, with 'Run' and 'Abort' buttons.
 - Interval:** Set to 1 Sec(s).
 - Elapsed Time:** A large digital display showing '10 : 00'.
 - Test - Manual:** Includes 'Start' and 'Stop' buttons.

For an automatic test the second part of the test stops once the entered test period is achieved. A manual test will keep running indefinitely but the elapsed time counter turns green after 10 minutes confirming that the minimum test period has been achieved.

The various test parameters will also be green if they remained within limits. The test result will also be green if the Power level remained stable during the test.

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newton's4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details | Test Conditions | **Test**

Standby Power	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22387	0.22288	0.22523	STABLE
Crest Factor	1.41453	1.41402	1.41471	
Average Power (W)	0.22410			
Accumulated Power (W/hr)	0.03934			
		Mid Point		Test Count
		0.00745		2

Monitor		Total Power Factor	Supply Frequency (Hz)
Vrms	230.288	0.04786	50.0000
Ams	0.02031	Apparent Power (VA)	Load Duty Cycle (Hz)
		4.67717	0.00000

Test - Automatic: Mins. 00, Secs. 00, Test Period, Run, Abort

Interval: 1 Sec(s), Elapsed Time: 10 : 32

Test - Manual: Start, Stop

7.4 Limited Duration modes

N4L Standby POWER - 62301 & 50564 - v1.0.1.7

Newton's4th Ltd.
Standby POWER

Connected to PPA
Interface: USB
Export To .xls

Test Details | Test Conditions | **Test**

Standby Power	Present Reading	Min Reading	Max Reading	Test Result
Power (W)				
Crest Factor				
Average Power (W)				
Accumulated Power (W/hr)				

Monitor		Total Power Factor	Supply Frequency (Hz)
Vrms			
Ams		Apparent Power (VA)	Load Duty Cycle (Hz)

Test - Automatic: Mins. 00, Secs. 00, Test Period, Run, Abort

Interval: 1 Sec(s), Elapsed Time: 00 : 00

Test - Manual: Start, Stop

This test can be performed manually or automatically. There is no minimum test period for this mode so any test period can be entered.

With no minimum test period the elapsed time counter does not turn to green when the test ends or is stopped by the user.

Standby Power	Present Reading	Min Reading	Max Reading	Test Result
Power (W)	0.22381	0.22323	0.22723	STABLE
Crest Factor	1.41376	1.41364	1.41503	PASS
Average Power (W)	0.22420			
Accumulated Power (Whr)	0.01862			

Monitor		Total Power Factor		Supply Frequency (Hz)	
Vrms	230.300	0.05045		50.0000	
Arms	0.01926	Apparent Power (VA)	4.43629	Load Duty Cycle (Hz)	0.00000

Test - Automatic		Interval		Test - Manual	
Test Period	Mins. 00 Secs. 00	1	Sec(s)	Start	Stop
		Elapsed Time			
		05 : 00			

8 Exporting to an excel report

The software allows the test data to be exported to an Excel report. To create the report click on the "Export to .xls" button, this can be found in the top right hand corner of the software window.



This will open an excel report on the PC. This should then be saved to a location of the user choice on their PC.

9 Example Excel test report

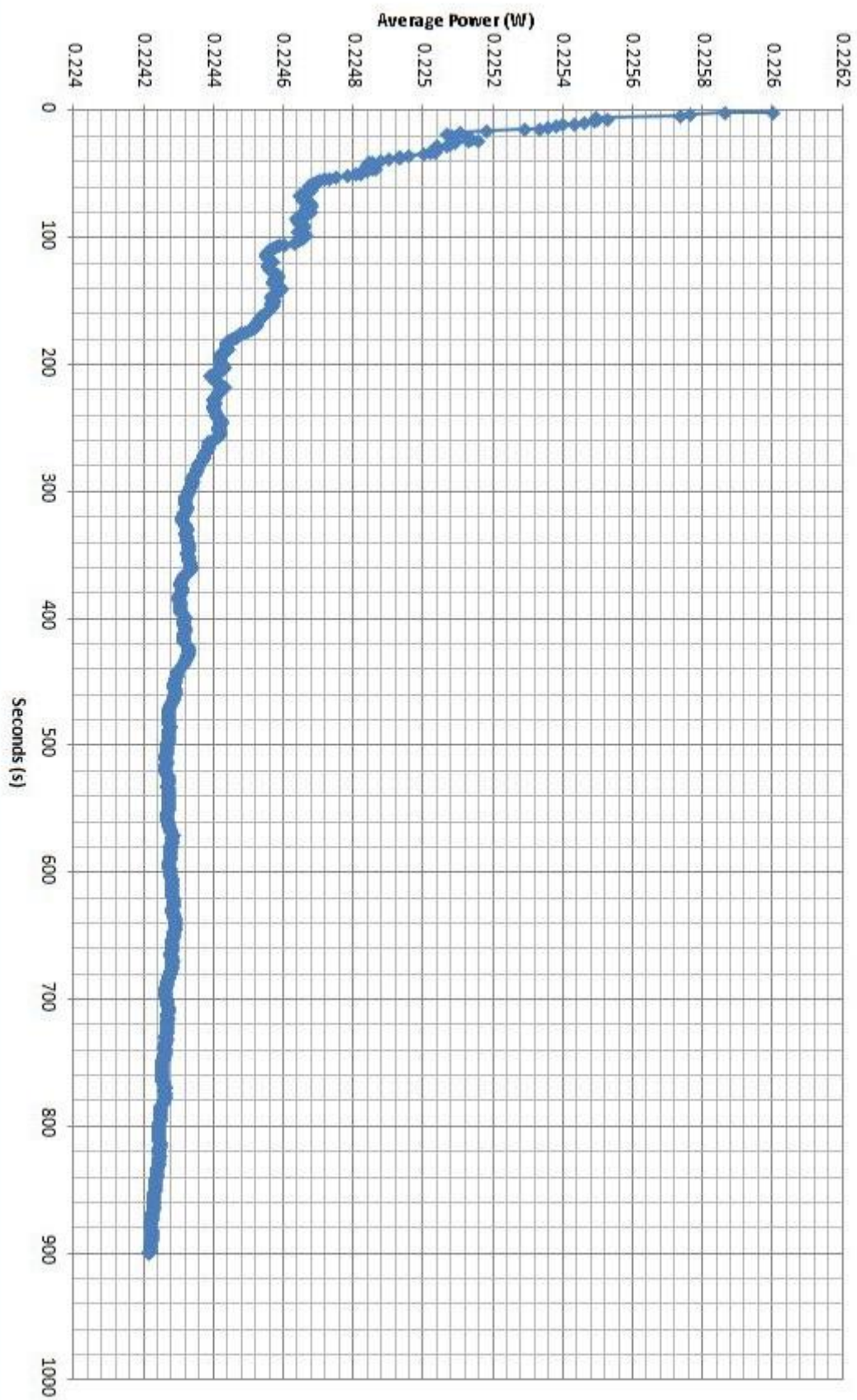
Report - Front page

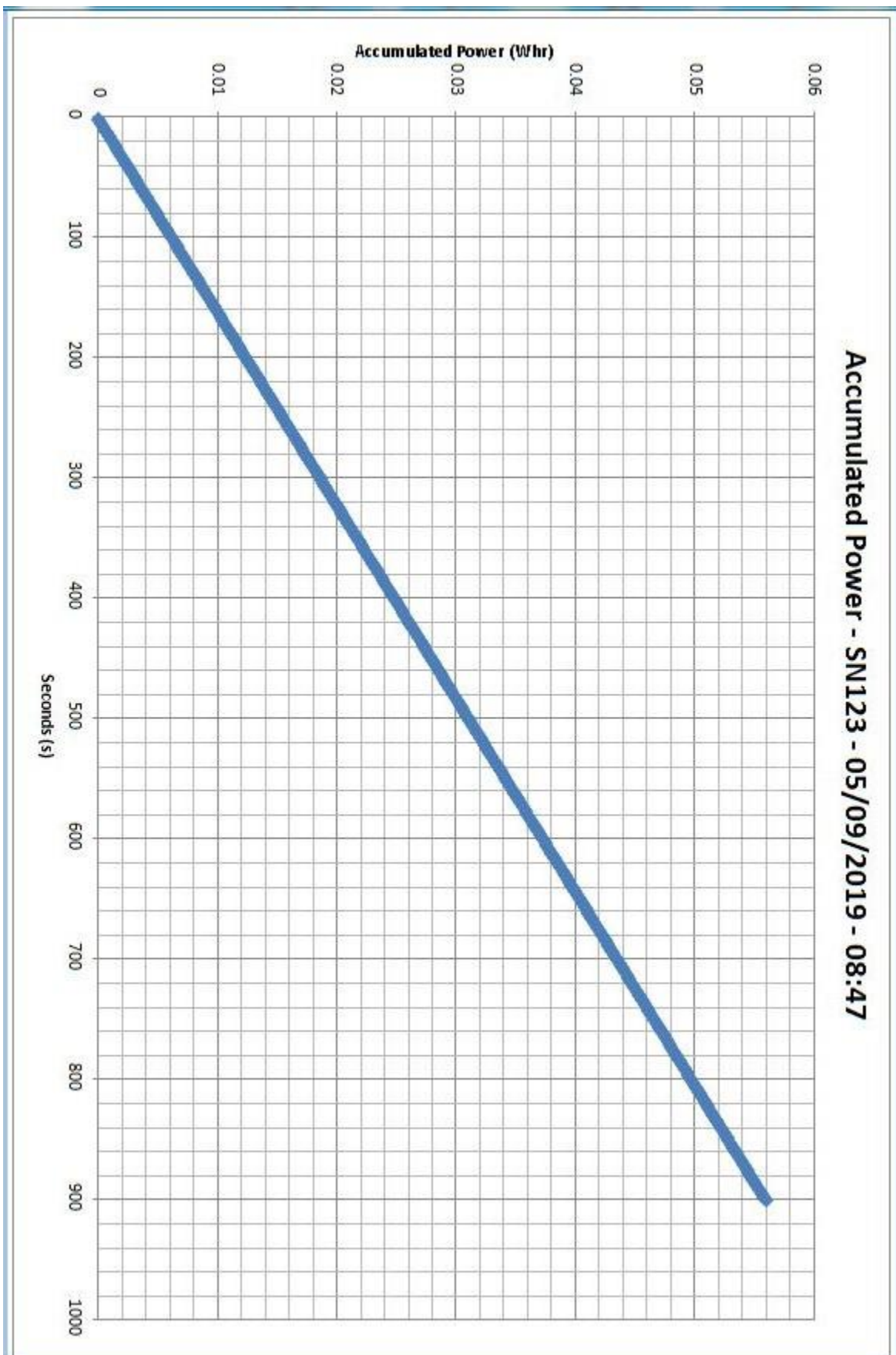
N4L - Standby Power Test Report - 62301 & 50564				
N4L Standby Power v1.0.1.7				
Test Details				
Device Under Test				
Brand	N4L			
Model	Z123			
Serial No.	SN123			
Rated Voltage (Vrms)	110-240V			
Rated Current (Arms)	2A			
Rated Frequency (Hz)	50-60Hz			
Rated Power (W)	1500W			
DUT Notes				
Test Environment				
Lab Name	N4L			
Location	Office			
Date	05/09/2019			
Time	08:47			
Temperature	21 Degrees			
Humidity	60%			
Test No.	1			
Test Notes				
Measurement Instrument				
Manufacturer	NEWTONS4TH			
Model	PPA5530			
Serial No.	165-00680			
Firmware Level	2.179			
Nominal Test Conditions				
Voltage (V)	230.203			
Frequency (Hz)	49.995			
	Measured Value	Lower Limit	Upper Limit	Test Result
Vthd (%)	0.0239214	0	2	PASS
Crest Factor	1.41519	1.34	1.49	PASS
Test Results				
Monitor				
Vrms	230.236			
Arms	0.0205477			
Total Power Factor	0.04725016			
Apparent Power (VA)	4.73082			
Supply Frequency (Hz)	50			
Load Duty Cycle (Hz)	0			
Elapsed Time (mm:ss)	15:00			
Standby Power				
	Measured Value	Lower Limit	Upper Limit	Test Result
Power (W)	0.223532	0.221965	0.226045	STABLE
Crest Factor	1.41366	1.41346	1.41511	PASS
Average Power (W)	0.22422			
Accumulated Power (Whr)	0.056054821			
Measurement Mode	None Cyclic			
Power Gradient	-4.90896E-07			PASS

First page of data log

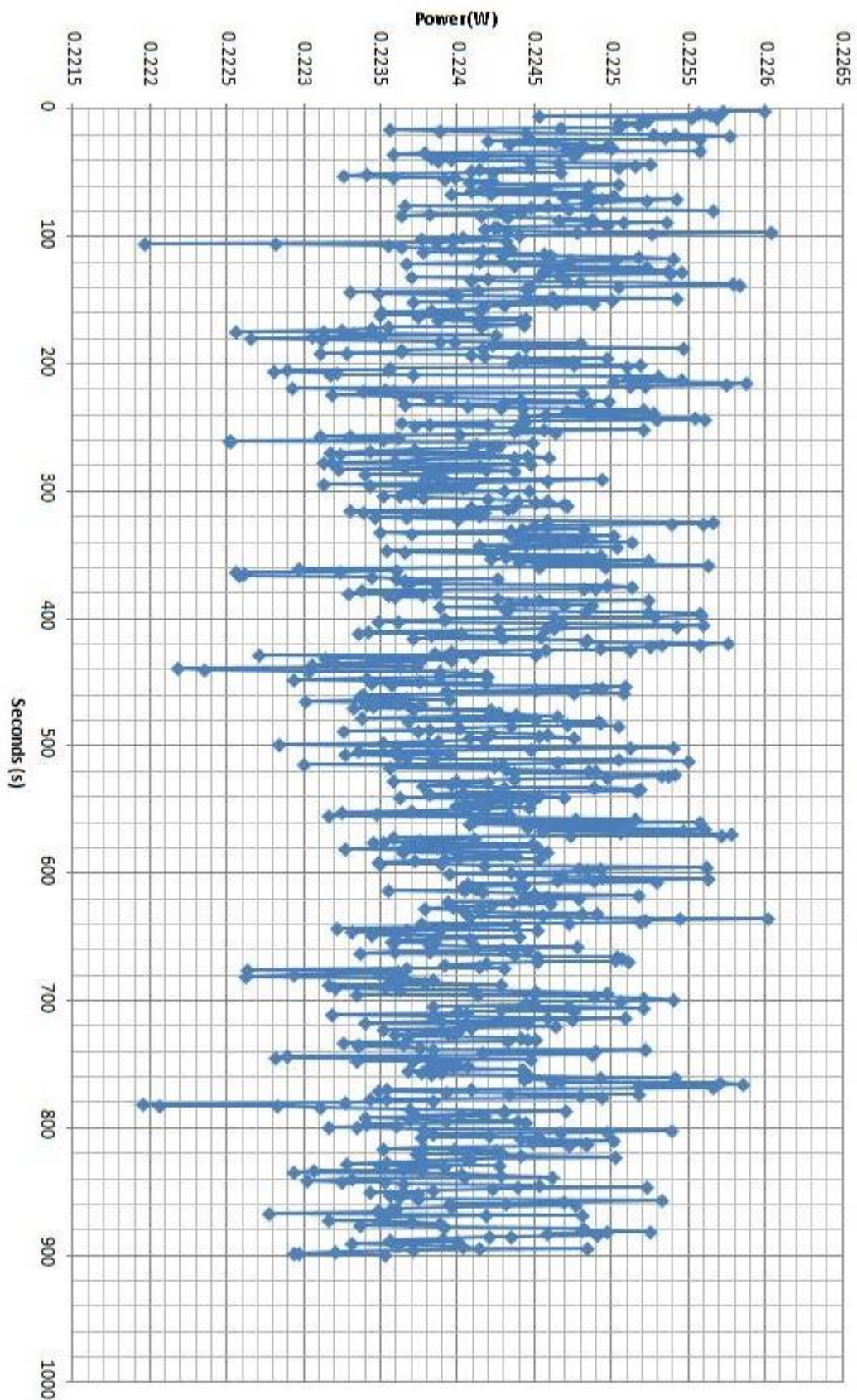
Time (s)	Average Power (W)	Accumulated Power (Whr)	Power (W)	Vrms	Arms
1	0.226005	6.27792E-05	0.226005	230.21	0.020765
2	0.225869	0.000125483	0.225733	230.21	0.020758
3	0.225769333	0.000188141	0.22557	230.21	0.020753
4	0.2257395	0.000250822	0.22565	230.2	0.020748
5	0.2255004	0.000313195	0.224544	230.2	0.020753
6	0.2255045	0.000375841	0.225525	230.2	0.020769
7	0.225531714	0.000438534	0.225695	230.2	0.020773
8	0.225492375	0.000501094	0.225217	230.21	0.020771
9	0.225464667	0.000563662	0.225243	230.2	0.020772
10	0.2254378	0.000626216	0.225196	230.2	0.020781
11	0.225402909	0.000688731	0.225054	230.2	0.020787
12	0.22538475	0.000751283	0.225185	230.2	0.020774
13	0.22536	0.0008138	0.225063	230.2	0.020764
14	0.225337714	0.000876313	0.225048	230.2	0.020746
15	0.225294067	0.000938725	0.224683	230.2	0.020735
16	0.2251865	0.001000829	0.223573	230.2	0.020735
17	0.225110294	0.001063021	0.223891	230.2	0.020745
18	0.225073833	0.001125369	0.224454	230.21	0.020743
19	0.225085053	0.001187949	0.225287	230.21	0.020735
20	0.22510165	0.001250565	0.225417	230.21	0.02073
21	0.225134	0.001313282	0.225781	230.2	0.020734
22	0.225144318	0.001375882	0.225361	230.2	0.020744
23	0.225163261	0.001438543	0.22558	230.2	0.020753
24	0.225134917	0.001500899	0.224483	230.2	0.020755
25	0.22509768	0.001563178	0.224204	230.2	0.020757
26	0.225080423	0.001625581	0.224649	230.2	0.02076
27	0.22507063	0.00168803	0.224816	230.2	0.020772
28	0.225044536	0.001750346	0.22434	230.2	0.020777
29	0.225042207	0.00181284	0.224977	230.2	0.02077
30	0.225041233	0.001875344	0.225013	230.2	0.020751
31	0.225030452	0.001937762	0.224707	230.2	0.020739
32	0.225023156	0.002000206	0.224797	230.2	0.02073
33	0.225040212	0.002062869	0.225586	230.2	0.020726
34	0.225003618	0.002125034	0.223796	230.2	0.020734
35	0.224963286	0.002187143	0.223592	230.2	0.020738
36	0.22494125	0.002249413	0.22417	230.21	0.020739
37	0.224936378	0.002311846	0.224761	230.21	0.020738
38	0.2249075	0.002374024	0.223839	230.21	0.020729
39	0.224883333	0.002436236	0.223965	230.21	0.020726
40	0.224858375	0.002498426	0.223885	230.21	0.020726
41	0.224848976	0.00256078	0.224473	230.21	0.020732
42	0.224844667	0.002623188	0.224668	230.2	0.020748

Average Power - SN123 - 05/09/2019 - 08:47

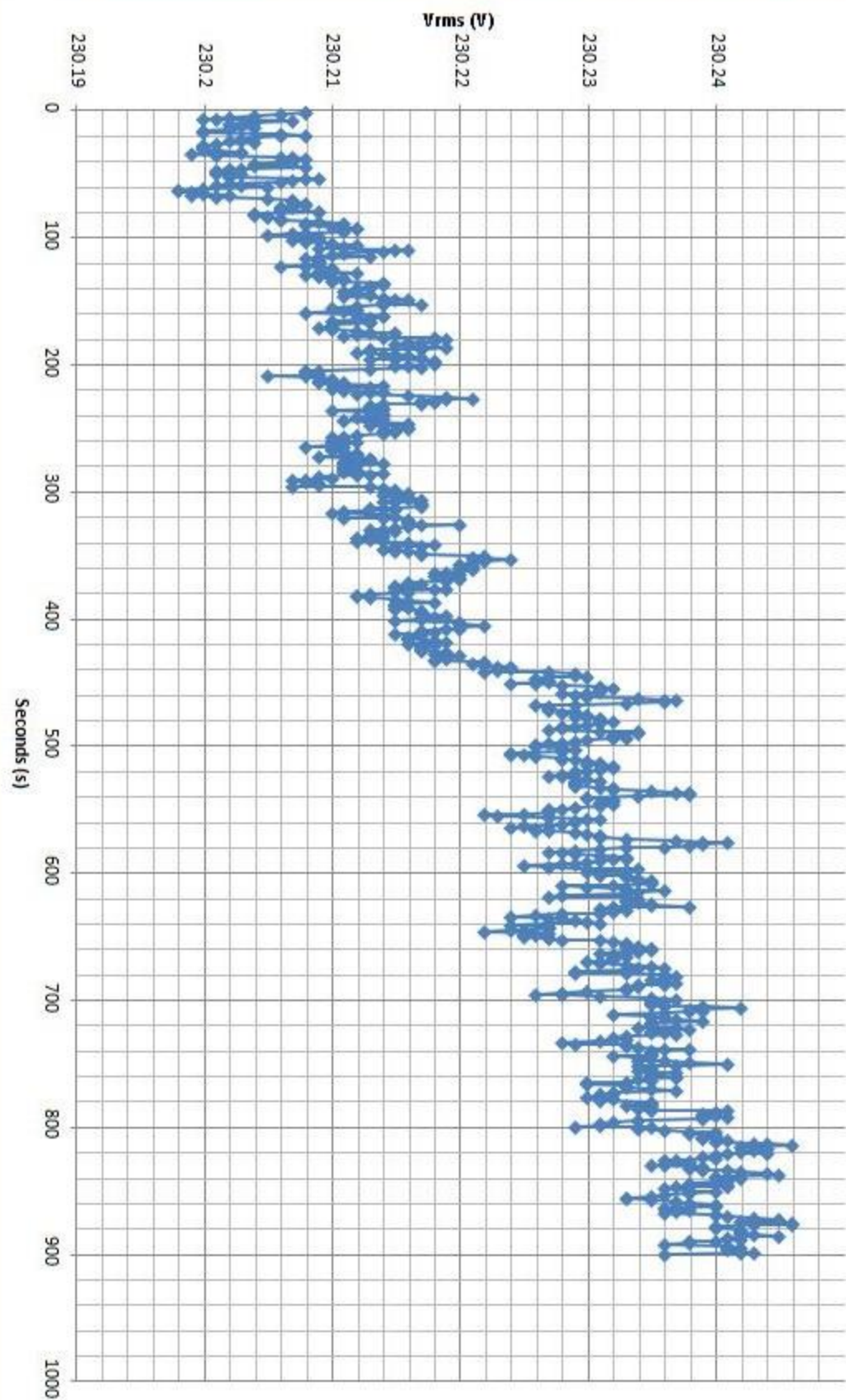




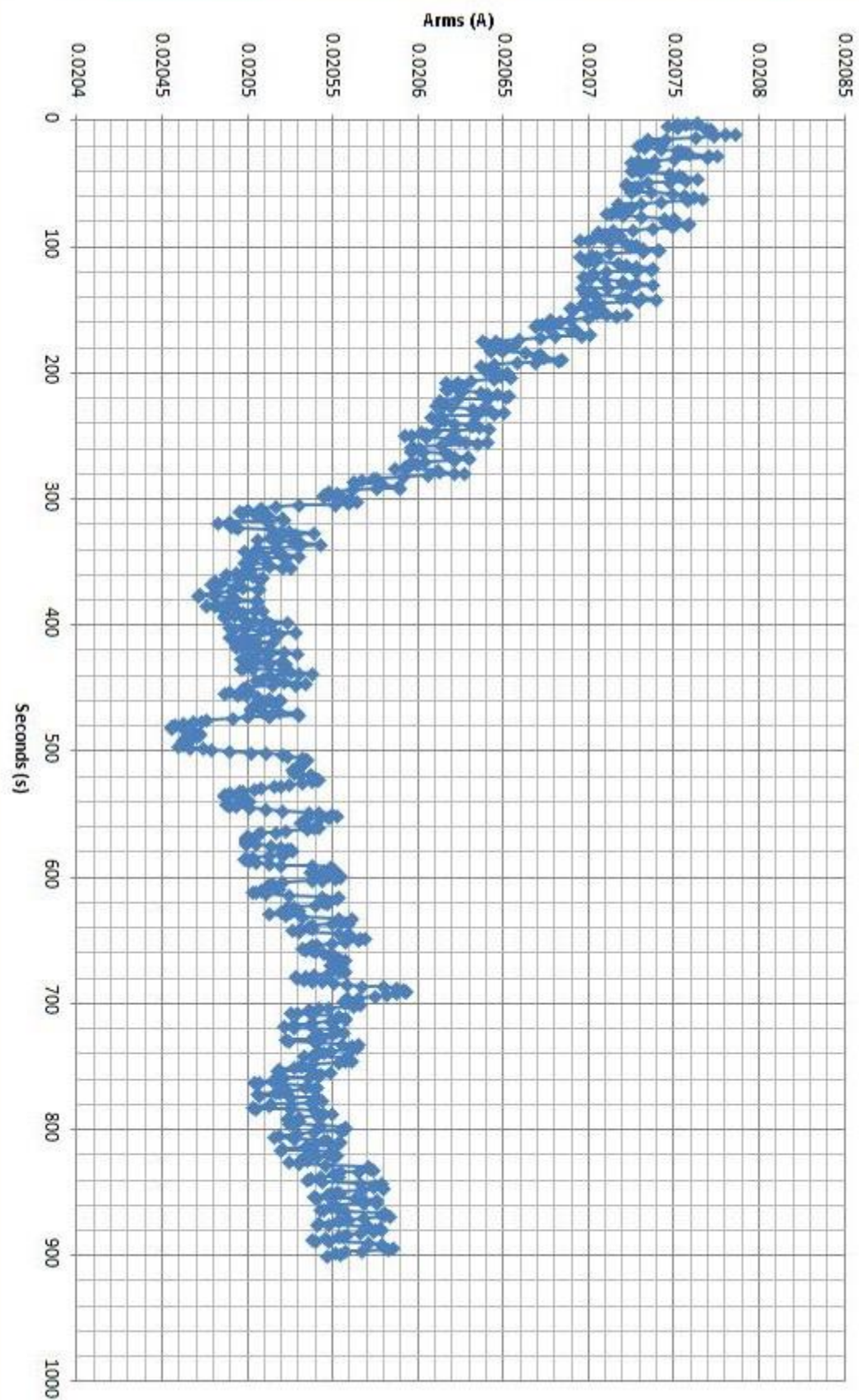
Power - SN123 - 05/09/2019 - 08:47



Vrms - SN123 - 05/09/2019 - 08:47



Arms - SN123 - 05/09/2019 - 08:47



10 Contact Details

If you require any further assistance with the operation of Standby POWER please do not hesitate to contact your local distributor or N4L on support@newtons4th.com