



ProPower 3

**Data download & analysis software for the
Profile Portable Energy Recorder**

Software Manual



Park View House, Worrall Street, Congleton, Cheshire CW12 1DT
Tel: (01260) 290151 Fax: (01260) 290811
Web: www.newfound-energy.co.uk e-mail info@newfound-energy.co.uk

ProPower 3

Software Manual

Contents

Page	
3.	Introduction
	ProPower3 System Requirements
	Installation
	Software Startup
4.	Main Menu
6.	PP3 Software Settings

Communicating with a Profile

10.	Data Download & Setup Menu
11.	Downloading Survey Data
14.	Profile Hardware Settings
	Logging & Clock Setup
15.	Current Setup
16.	Voltage Setup

Analysing Survey Data

17.	Loading a Data File
18.	Summary Report
19.	XLS Report
	PDF Report
20.	Charts
21.	Chart Menus
22.	Chart Options
24.	Addendum 1 – Importing Recon T Survey Data
27.	Notices

Introduction

The ProPower3 (PP3) software can be used to **communicate** with a Profile Portable Energy Monitor to download survey data and change the unit's settings and recording modes/parameters.

The same software provides comprehensive **data analysis tools** allowing the user to gain a good understanding of the energy use recorded during a Profile survey. From PP3 version 3.7 onwards, **analysis of Recon T energy survey data** is also possible with data first being exported as a CSV file from the MedcalScope software. For details of the Profile's capabilities and instructions in its use please refer to the hardware documentation.

System Requirements

The ProPower3 software relies on the Java Runtime Environment. This is however included within the software installation routine so no other installations are required.

For PC installation Window 7 or later is required.

PP3 is a 64 bit application and hence requires a 64 bit environment in which to run.

Before connecting your Profile Portable Energy Monitor to a computer and attempting communications from the ProPower 3 software, it is necessary to install the USB drivers.

Drivers appropriate for your operating system can be downloaded from <https://www.ftdichip.com/Drivers/VCP.htm>.

Installation

To install the ProPower3 software on your machine;

PC; Run the *PP3-Setup-V*.exe* installation package and follow any on screen instructions.

Before installing a later version of the ProPower 3 software, it is advisable to first uninstall any existing version.

The ProPower 3 software can be uninstalled in the usual way via the Windows Control Panel.

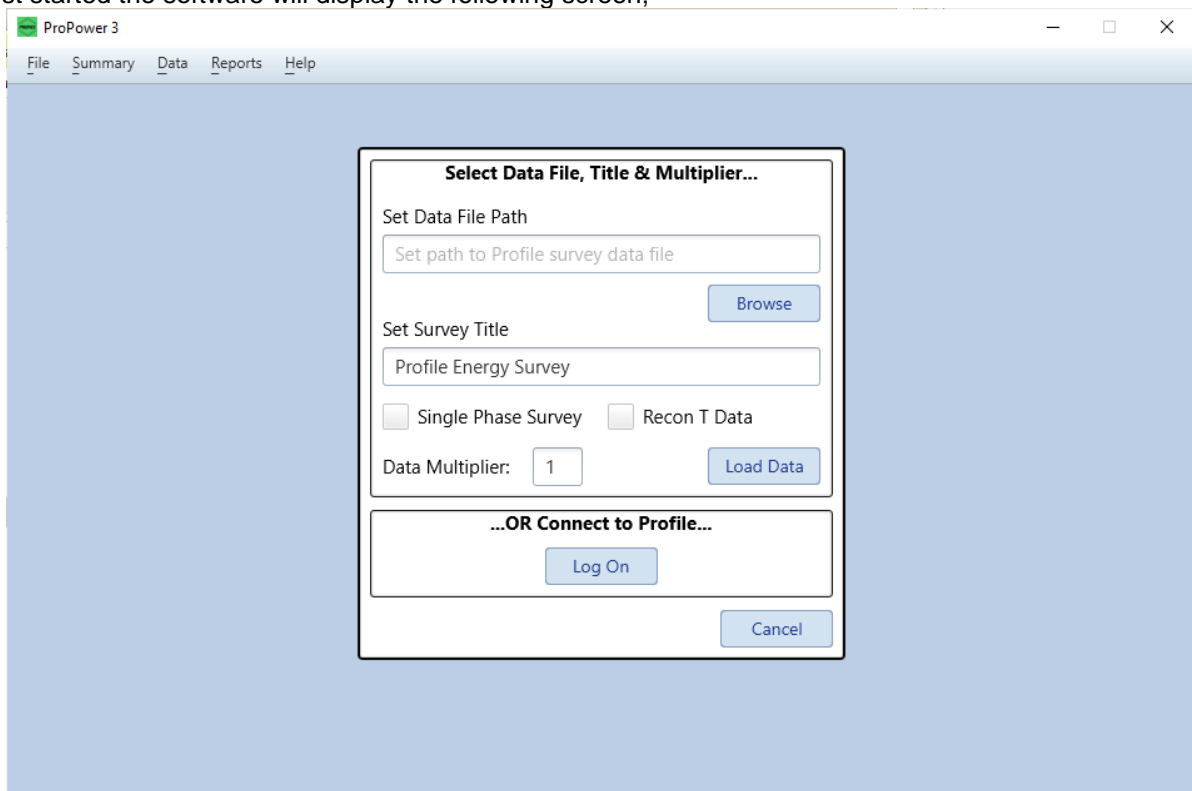
Software Startup

Once installed, ProPower3 can be started via the desktop or start menu shortcuts in Windows.

These can be identified by the PP3 icon:



When first started the software will display the following screen;



From this screen the user can choose **to load a survey data file** for analysis, or to **instigate communications** with a Profile.

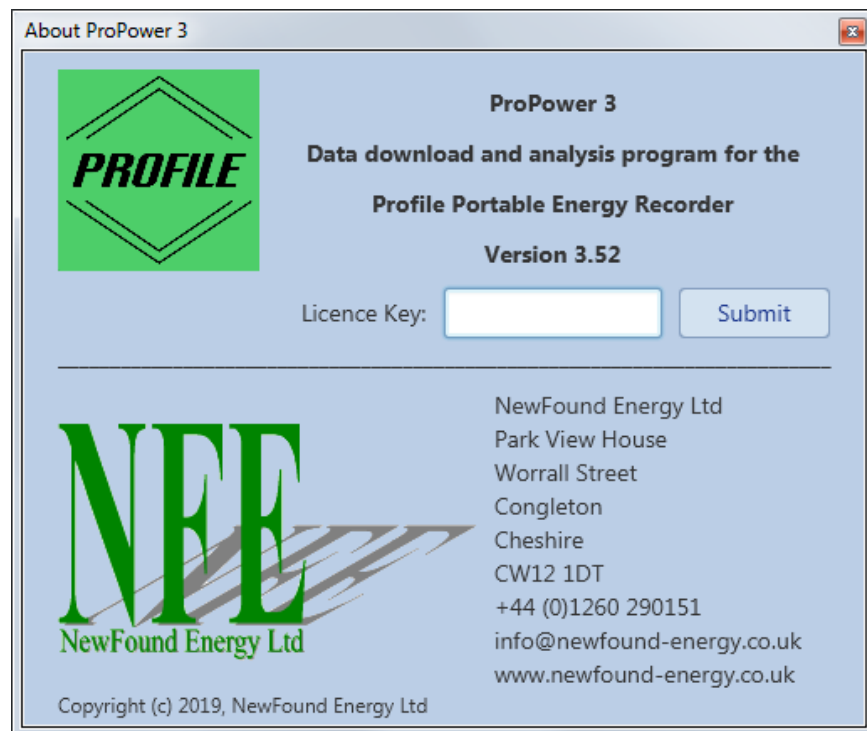
Installing a License Key

When first installed, the ProPower 3 software will run in demonstration mode.

In demo mode data analysis is limited to internal data only. Downloaded survey data files can not be loaded into the software.

To enable full software operation a valid license key must be purchased and installed.

To install a license key, open the ProPower3 software and select 'About' from the 'Help' menu;



Enter your license key in the text box and click the 'Submit' button.

The license key will be in the form XXXX-XXXX-XXXX and must be entered in capital letters and including the two dashes (-).

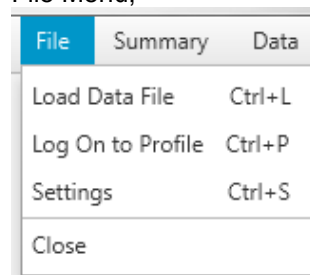
To purchase a license for the ProPower 3 software please contact NewFound Energy Ltd.

Main Menu Bar

The main (Summary Report) screen has a menu bar with five menus.



File Menu;



Load data File

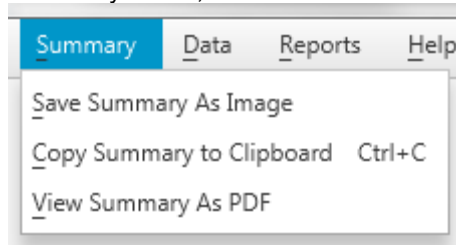
Log On to Profile

Settings

Close

- displays the '**Select Data File....**' window from where a Profile data file can be loaded.
- instigates **communications** with a connected Profile.
- displays the system setting window.
- closes PP3.

Summary Menu;



Save Summary As Image

- saves the summary report as a PNG file with a user specified location & file name.

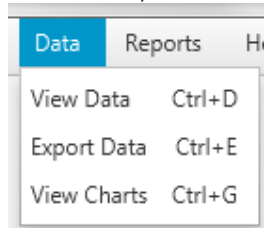
Copy Summary to Clipboard

- saves the summary report as an image to the clipboard for pasting into other documents or programs.

View Summary As PDF

- opens the summary report as a PDF document (Acrobat Reader must be installed).

Data Menu;



View Data

- view the raw survey period by period data as a CSV document.

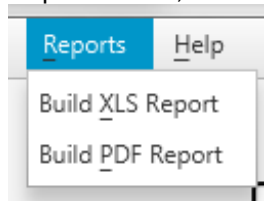
Export data

- export the raw survey period by period data as a CSV document with a user specified location & file name.

View Charts

- open a **PP3 Chart window**.

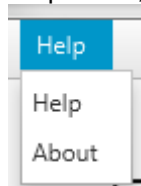
Reports Menu;



Build XLS Report - build an **XLS report** based on the **template .xls file**.

Build PDF Report - build a **PDF report** based on the **selected settings**.

Help menu;



Help

- provides access to this document.

About

- displays software version and contact information.

ProPower 3 Software Settings

The settings screen provides options for various areas of the PP3 software.

ProPower 3 Settings

Summary Report

Night Start: 00:00 Night End: 07:00

Data Export

☒ Include column headers in data export

XLS Report

Set path to XLS file to use as report template.

Leave blank to use the default XLS report template

PDF Report: Select options to include in PDF Report

☐ Title Page Set path to title page image.

Leave blank to use the default image

Reports

☒ Summary Report ☒ Consumption Report ☒ Demand Report

☒ Amps, Volts, PF Report ☐ Pulse Inputs ☒ Phase Balance

☒ Data Tables (Consumption) ☐ Data Tables (Demand)

Full Report Period Charts

☒ Consumption Charts

☒ Demand Charts

☒ Amps, Volts, PF Charts

Daily Charts

☐ kWh ☐ kVArh ☐ kVAh

☒ kW ☐ kVA ☐ kVAr

☐ Amps ☐ Volts ☐ PF

☐ Pulse Input 2 ☐ Pulse Input 1

Communication

☒ Automatically scan available ports for Profile

☒ Set communication for Profile with Firmware 5.16 or earlier

Summary Report

Set the *Night Start* & *Night End* times to be used when calculating the *Night Time Consumption* & *Day Time Consumption* figures on the **Summary Report**. If no selection is made/saved, night time will be defined as 00:00 to 07:00.

Data Export

'Include column headers in data export'

Tick this option to include headers for each column in the CSV file created when the raw survey data can is viewed or exported as a CSV file via the **'Data' menu**.

The headings are as follows.

Date, Period End Time, kW1, kW2, kW3, kW Total, kVAr1, kVAr2, kVAr3, kVAr Total, kVA1, kVA2, kVA3, kVA Total, PF1, PF2, PF3, PF Total, Volts1, Volts2, Volts3, Amps1, Amps2, Amps3, Amps Total, Pulse Input 1, Pulse Input 2.

XLS Report;

Set the path to the template Excel (.xls) file that should be used for the generation of the **XLS report**. The text box should be left entirely blank to use the default template.

PDF Report;

Tick the options to include when generating a **PDF report**.

Communication;

'Automatically scan available ports for Profile'

when ticked the software will try to find a connected Profile immediately after the **'Log On'** option is clicked via the **'File' menu**, or on the **'Select Data File...'** window.

If this option is not ticked the user will be required to select a comms port before **communications** with a Profile will be attempted.

'Set communication for Profile with Firmware v5.16 or earlier''

This option should be ticked if your Profile has firmware version 5.16 or earlier. Unticked otherwise. With an incorrect setting here, downloading of survey data may not work correctly.

Communicating with a Profile

N.B. Profiles with USB Connection

The Profile Portable Energy Recorder use a USB connection ('USB Mini B' type) to connect to the PC. It is vital that the USB drivers are installed before the Profile is connected to your PC's USB port.

A version of the USB connection drivers will be located on the PP3 installation disk. For the latest version for your operating system please visit <http://www.ftdichip.com/Drivers/VCP.htm>.

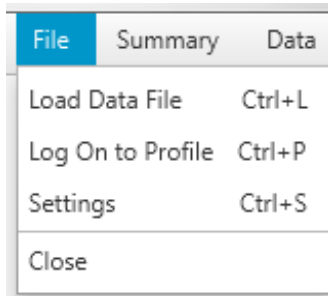
The USB drivers installation file will be of the form 'CDM21216_Setup.exe' (Windows. Version number may vary). Please run this file to install the USB drivers before connecting the Profile to a USB port.

Logging On to a Profile

Before it is possible to download survey data, or change Profile settings, a connection to the Profile must be established. You must therefore *Log On* to the Profile.

Before attempting to *Log On* to a Profile please ensure that it is powered and connected to a USB port on your computer. Please also ensure that (as per the note above) USB drivers suitable for your computer have been installed.

Communications with a connected Profile can be instigated either via the '**Log On to Profile**' option on the File menu;

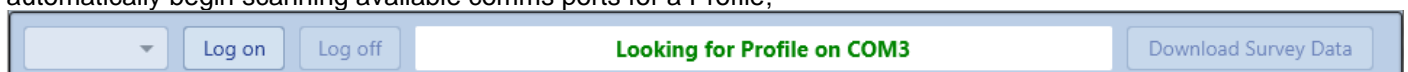


or via the '**Log On**' button on the '**Select Data File....**' box;

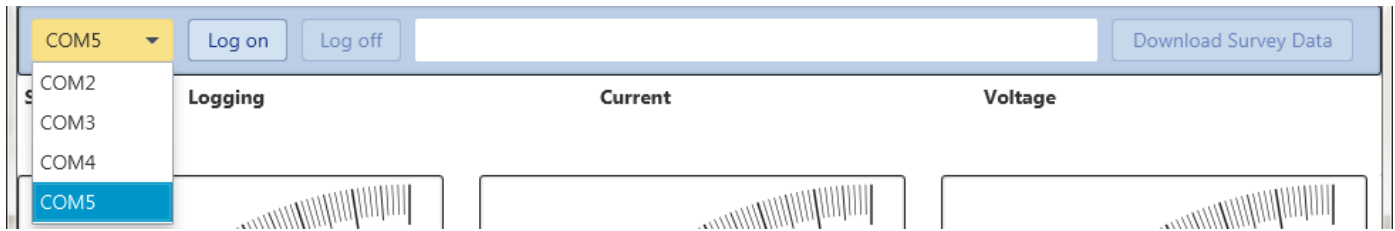
A screenshot of the 'Select Data File, Title & Multiplier...' dialog box. It has two main sections. The top section is for selecting a data file: 'Set Data File Path' with a text box containing 'C:\ProfileData\ProfileSurvey1.pp3' and a 'Browse' button; 'Set Survey Title' with a text box containing 'Profile Energy Survey'; a checkbox for 'Single Phase Survey' which is unchecked; and 'Data Multiplier' with a text box containing '1' and a 'Load Data' button. The bottom section is titled '...OR Connect to Profile...' and contains a 'Log On' button. A 'Cancel' button is at the bottom right.

When either of these is clicked, the PP3 communications ('*Profile Data Download & Setup*') screen will open as a new window.

If the '**Automatically scan available ports for Profile**' option in **PP3 Settings** is ticked, the PP3 software will automatically begin scanning available comms ports for a Profile;

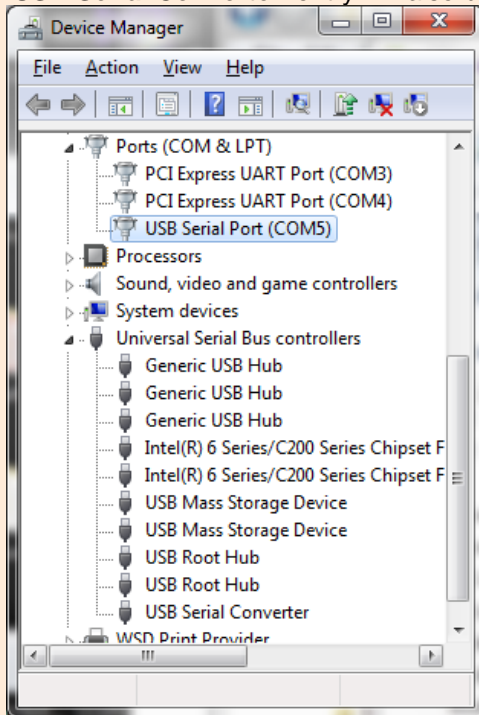


If the **'Automatically scan available ports for Profile'** option in **PP3 Settings** is not selected, then the user must manually select the comms port to which the Profile is connected before clicking the **'Log on'** button;



N.B.

Even though you are connecting the Profile to a USB port, Windows assigns a comms port number to it. The comms port number in use can be seen in Windows Device Manager. The Profile will appear as **'USB Serial Port'** in the **'Ports'** section, with the comms port number shown after the description. When a Profile is connected, a **'USB Serial Converter'** entry will also be present in the **'Universal Serial Bus controllers'** section.



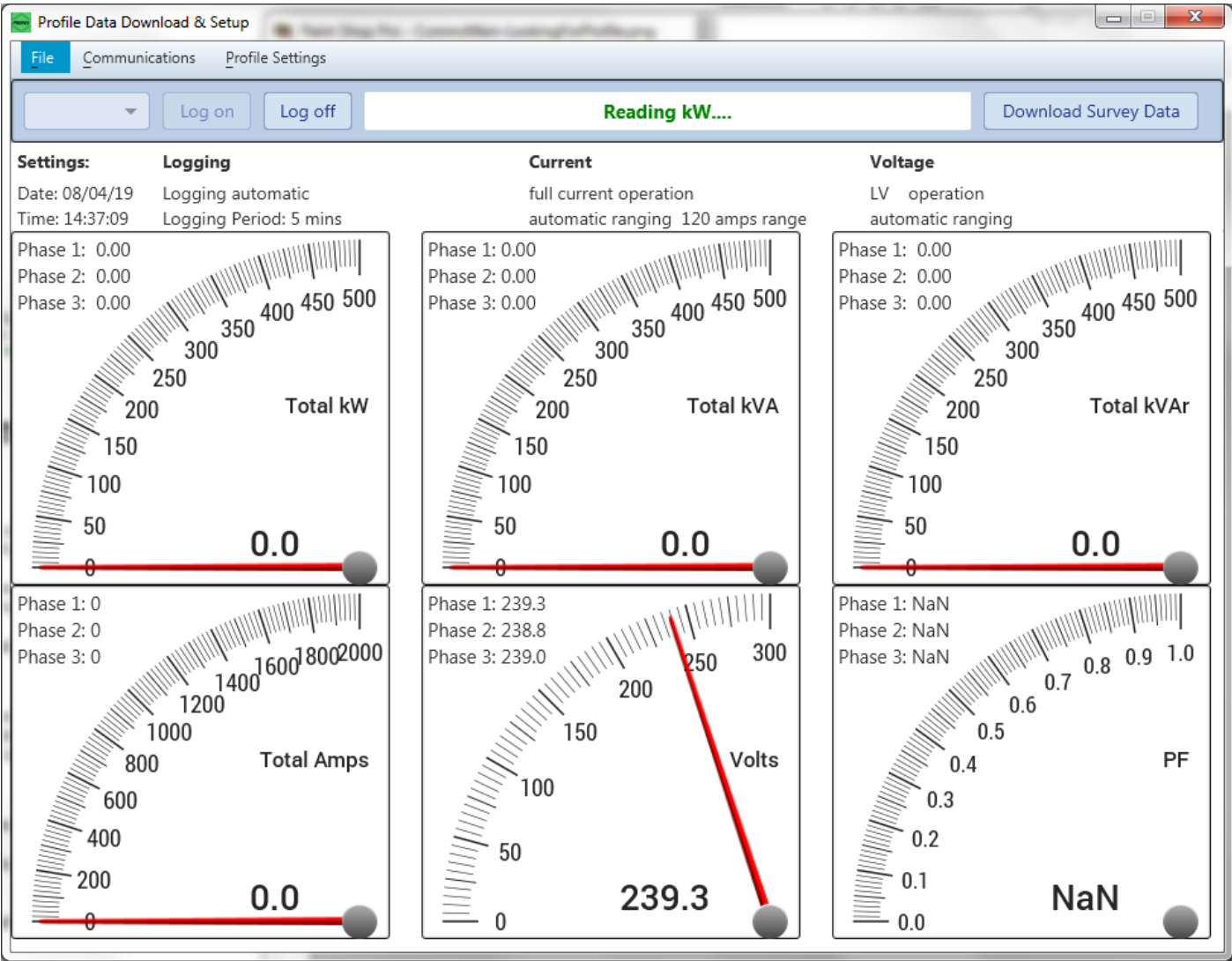
Tip

In general it is easier to allow the PP3 software to scan for the connected profile automatically (tick the **'Automatically scan available ports for Profile'** option in **PP3 Settings**). Over time however, if you frequently connect & disconnect different hardware to your computer's USB ports, you may find that some comms ports become permanently assigned by Windows and unavailable*. When this occurs it may take some time for the PP3 software to scan all available ports and find a connected Profile.

As an alternative, the **'Automatically scan available ports for Profile'** option in **PP3 Settings** can be unticked, the comms port number in use by the Profile can be checked in Device Manager and that port selected before manually logging on.

[*Doing so is beyond the scope of this document and is not necessarily advisable, but instructions can be found on the internet detailing how to remove (uninstall) these 'hidden comms ports'. If you decide to do this please be careful, and do not to uninstall anything that relates to connected equipment]

Once successfully connected to a Profile, the software will display live readings on 6 dials, and above the dials a selection of the current Profile setting;

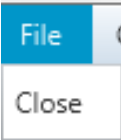


Data Download & Setup Menu



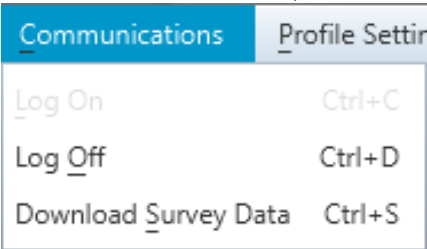
The **Data Download & Setup** windows has its own menu bar with '**File**', '**Communications**' & '**Profile Settings**' menus.

File menu;



Close - log off any connected Profile and close the Profile **Data Download & Setup** window.

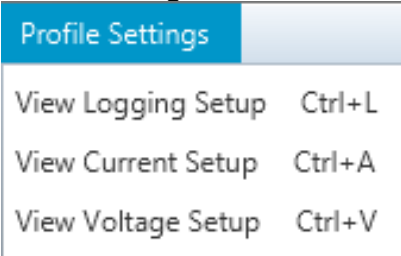
Communications menu;



- Log On**
Log Off
Download Survey Data

- attempt connection to a Profile connected to the selected comms port.
 - close the connection with the connected Profile.
 - opens the '**Set Survey Download Parameters**' window to allow downloading of survey data.

Profile Settings menu;



- View Logging Setup**
View Current Setup
View Voltage Setup

- view and adjust the Logging & Clock settings
 - view and adjust the Current settings
 - view and adjust the Voltage settings

Downloading Survey Data (Firmware >5.16)

Once logged on to a Profile, the **Download Survey Data** option becomes available on the **Communications menu**. The '**Download Survey Data**' button is also enabled. Either of these can be used to open the '**Set Survey Download Parameters**' window;

The screenshot shows the 'Set Survey Download Parameters' window. It has two date pickers at the top: 'Survey Start Date' and 'Survey End Date', both set to '02/09/2019'. Below them is a text field for the file path 'C:\ProfileData\ProfileSurvey1.pp3' and a 'Browse' button. At the bottom are 'Cancel' and 'Download Data' buttons. A note at the bottom states: 'N.B. Data will be downloaded for whole days inclusive of start/end dates'. The status bar at the very bottom says 'Reading kVA....'. Four numbered callout boxes are present: 1. 'Set the start date of the data you wish to download.' (pointing to the start date field), 2. 'Set the end date for the data you wish to download.' (pointing to the end date field), 3. 'Set the file (location & filename) to which the data should be saved.' (pointing to the file path field), and 4. 'Click 'Download Data' to start the data download.' (pointing to the 'Download Data' button).

N.B.

- a) Data will be downloaded for whole days inclusive of the start & end dates selected. When **analysing the survey** data, options exist to set alternate start and end dates & times.
- b) The data is downloaded as raw text. If the file selected for the data already exists, it will be overwritten.
- c) Long surveys, particularly those using short integration periods can take a little time to download. Please do not disconnect the Profile during the downloading of data.
- d) No attempt should be made to download data from prior to the memory capacity of the Profile. Doing so may corrupt the data file or provide misleading figures.

Profile memory Capacities;

30 minute periods	- 12 weeks
15 minute periods	- 6 weeks
10 minute periods	- 4 weeks
5 minute periods	- 2 weeks
1 minute periods	- ~2days

Once all selections have been made, and the 'Download Data' button clicked, data download will begin and an indication of the download in progress will be shown;

This screenshot shows the same 'Set Survey Download Parameters' window, but now it is in a state where data is being downloaded. The 'Download Data' button is now disabled (greyed out). The status bar at the bottom now reads 'Downloading survey data... 02/09/2019...'. The note 'N.B. Data will be downloaded for whole days inclusive of start/end dates' remains visible.

On completion of the download, the download parameters window will close, and the software will return to the main **Data Download & Setup** window.

The data file created can now be **loaded into the PP3 software** for analysis.

Downloading Survey Data (Firmware 5.16 or earlier)

Once logged on to a Profile, the **Download Survey Data** option becomes available on the **Communications menu**. The '**Download Survey Data**' button is also enabled. Either of these can be used to open the '**Set Survey Download Parameters**' window;

When this area is first opened, the software will begin searching for available surveys to download. This may take up to a minute. During this time '**Searching for survey data, please wait...**' will flash at the bottom of the window.

The screenshot shows the 'Set Survey Download Parameters' window. At the top, it says 'Please wait, loading survey dates...'. Below this is a large empty rectangular box. At the bottom, there is a text input field with the placeholder 'Set path & filename for survey data', a 'Browse' button to its right, a 'Cancel' button on the left, and a 'Download Data' button on the right. At the very bottom, it says 'N.B. Data will be downloaded for whole days inclusive of start/end dates' and 'Searching for survey data, please wait...'.

Once survey data has been found, the survey dates will be listed and may be selected for download.

The screenshot shows the 'Set Survey Download Parameters' window. At the top, it says 'Select survey to download'. Below this is a list of four survey date ranges: '04/12/24 10:00:00 to 04/12/24 10:30:00', '12/09/24 00:00:00 to 12/09/24 00:00:00', '12/09/24 00:00:00 to 12/09/24 00:00:00', and '12/09/24 00:00:00 to 12/09/24 00:00:00'. Below the list is a text input field with the placeholder 'C:\Users\Hardware\Profile\example.pp3', a 'Browse' button to its right, a 'Cancel' button on the left, and a 'Download Data' button on the right. At the very bottom, it says 'N.B. Data will be downloaded for whole days inclusive of start/end dates'.

1. Select (click on) the survey that you wish to download.

2. Set the file (location & filename) to which the data should be saved.

N.B.

- a) Data will be downloaded for whole days inclusive of the start & end dates selected. When **analysing the survey** data, options exist to set alternate start and end dates & times.
- b) The data is downloaded as raw text. If the file selected for the data already exists, it will be overwritten.
- c) Long surveys, particularly those using short integration periods can take a little time to download. Please do not disconnect the Profile during the downloading of data.
- d) No attempt should be made to download data from prior to the memory capacity of the Profile. Doing so may corrupt the data file or provide misleading figures.

Profile memory Capacities;

30 minute periods	- 12 weeks
15 minute periods	- 6 weeks
10 minute periods	- 4 weeks
5 minute periods	- 2 weeks
1 minute periods	- ~2days

Once all selections have been made, and the 'Download Data' button clicked, data download will begin and an indication of the download in progress will be shown;

Set Survey Download Parameters

Select survey to download

04/12/24 10:00:00 to 04/12/24 10:30:00
12/09/24 00:00:00 to 12/09/24 00:00:00
12/09/24 00:00:00 to 12/09/24 00:00:00
12/09/24 00:00:00 to 12/09/24 00:00:00

C:\Users\Hardware\Profile\example.pp3 Browse

Cancel Download Data

N.B. Data will be downloaded for whole days inclusive of start/end dates

Downloading survey data... 04/12/24...

On completion of the download, the download parameters window will close, and the software will return to the main **Data Download & Setup** window.

The data file created can now be **loaded into the PP3 software** for analysis.

Profile Hardware Settings

The default settings configured when your Profile was supplied are suitable in most circumstances. It is however possible to change these if required via the **Data Download & Setup** area of the PP3 software.

N.B.

Please be careful when changing the settings of your Profile. Some settings can lead to incorrect or misleading data being recorded during surveys.

Changing some settings will also lead to the Profile's memory being cleared.

In order to change the settings in your Profile it must be connected to your computer and the PP3 software must be **logged on** to it.

Three areas exist that allow changes to be made to the Profile settings. All three are accessed via the **Profile Settings** menu.

Logging & Clock Setup;

Current Date & Time

- displays the date & time as read from the Profile internal clock

Set Date & Time

- set the Profile's date & time.

Logging Period

- click the **Change Period** button to toggle between available logging periods

Automatic or Manual Logging Start

- click the **Toggle Autolog** button to switch between auto & manual logging

Logging Start Time

- when in manual logging mode, set the date & time at which logging should start (this option is available only when **Logging Start** is set to 'Manual').

Clear memory

- clear the logger memory of previously recorded survey data.

N.B.

For most surveys 30 or 15 minute logging periods are suggested and **Auto Logging** should be set.

Logging Period:

Although setting the logging period to a smaller duration will store data with more definition (more data records will be stored), **recorded figures are no less accurate at the longer logging period settings.**

E.g. Over a 30 minute survey the kWh usage recorded on 15 min periods might be 10 kWh & 20 kWh.

On 5 min intervals, they might be 3 kWh, 4 kWh, 3 kWh, 4 kWh, 6 kWh & 10 kWh - the totals over the 30 minutes are the same, the 5 minute period data just gives more data points.

The default of 30 or 15 minute recording intervals is sufficient for most surveys. Lower recording intervals are only advised where the user needs to know what fluctuations occurred *within* those default periods.

Logging periods available for the user to set are 60, 30, 15, 10, 5 or 1 minute.

Intervals of less than 1 minute are available for selection but the PP3 software can not be used to analyse data recorded using them. The recording capacity is also greatly reduced so using them is not recommended.

....

....

Automatic or Manual Logging Start:

In automatic logging mode the Profile will log whenever it is powered (please note that the **installation 'auto phasing' routine should be completed whenever the Profile is installed for a survey** - see the Profile Installation Guide).

In manual logging mode the Profile will start logging only at the date & time set. This can be useful when using the shorter logging periods.

However, when analysing the survey data in PP3 it is easy to select any start/end date & time for reports & charts, so it is usually not necessary to set the Profile to manual logging mode.

Clear Memory

It is not usually necessary to manually clear the Profile's memory after each survey. When the memory capacity is reached the memory will wrap around overwriting the earliest data stored.

Tip

Profile memory Capacities;

30 minute periods	- 12 weeks
15 minute periods	- 6 weeks
10 minute periods	- 4 weeks
5 minute periods	- 2 weeks
1 minute periods	- ~2days

Current Setup;

Current Ranging Setup

Full Current Range:	120 amps range	Toggle Range
Auto/Manual Ranging:	automatic ranging	Auto/Manual
Full/Part Current Mode:	Full current operation	Part/Full
Existing CT Ratio:	Full current mode in use	
Set CT Primary:	Enter CT primary	Set CT Primary
		Close

Full Current Range

- the current range presently in use by the Profile. Click the **Toggle Range** button to switch between available current ranges (available only in Manual Ranging mode).

Auto/Manual Ranging

- click the **Auto/Manual** button to toggle between automatic and manual current ranging.

Full/Part Current Mode

- click the **Part/Full** button to toggle between current modes.

Existing CT Ratio

- displays the CT ratio in use (only when *Part Current Mode* is in use)

Set CT Primary

- enter the required CT primary in the box and click the **Set CT Primary** button to change the CT ratio (only available when *Part Current Mode* is in use).

N.B.

For most surveys the Profile should be left in **Automatic Current Ranging & Full Current modes**.

Full Current Range & Auto/Manual Ranging

The Profile can be set to one of four current ranges, 0-6A, 0-120A, 0-500A, & 0-2000A.

In **Auto Ranging** mode, the Profile will automatically switch to the most suitable range as the current being measured fluctuates.

This can be manually overridden by setting the Profile into **Manual Ranging**, and manually fixing the Current Range. Please bear in mind that when **Manual Ranging** is selected, if the current moves out of the selected range recorded data will not be accurate.

....

....

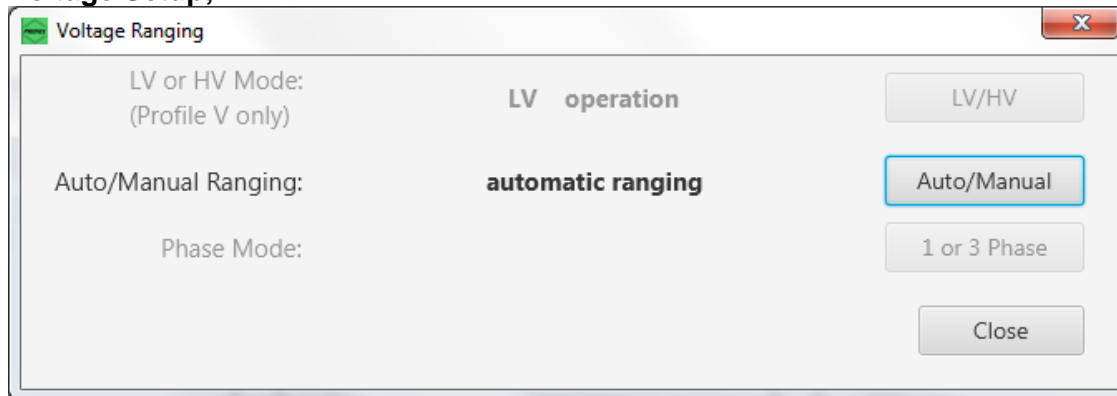
Full/Part Current Mode & CT Ratio/Primary

In some circumstances the Profile coils can be installed around 5A CT output tails rather than the actual supply cables.

In this scenario the Profile should be set to **Manual Ranging** and **Part Current** mode, and the **CT Primary** set to match the primary current rating of the CTs.

The Profile will then set itself into the 0-6A measurement range and will automatically multiply up the measured current using the set CT ratio.

Voltage Setup;



LV or HV Mode: (Profile V only)	LV operation	LV/HV
Auto/Manual Ranging:	automatic ranging	Auto/Manual
Phase Mode:		1 or 3 Phase
Close		

LV/HV Mode

- select low or high voltage operation (Profile V only. Please see hardware guides for more information on monitoring of HV circuits)

Auto/Manual Voltage Ranging

- click the **Auto/Manual** button to toggle between automatic and manual voltage ranging

Phase Mode

- click the **1 or 3 Phase** button to toggle between single and three phase operation (available for selection only in manual ranging mode although setting is retained in automatic mode)

N.B.

For most surveys the Profile should be left in **Automatic Voltage Ranging** mode.

Auto/Manual Voltage Ranging & 1 or 3 Phase modes

In normal use the Profile should be left in Automatic Voltage Ranging mode. Manual voltage ranging is used for monitoring of HV circuits (when VTs are in use).

However, in order to set the Profile into single phase mode, it must first be set to manual voltage ranging.

Once single phase mode has been enabled, the Profile should be set back to automatic voltage ranging.

Tip

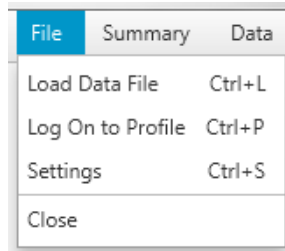
For most single phase surveys it is not necessary to set the Profile into single phase mode.

Instead, simply use the phase 1 (red/brown) coil, ensure that the voltage in use is from the same single phase supply, and follow the usual 'auto phasing' routine (see the Profile Installation Guide: Single Phase Energy Monitoring Surveys).

Analysing Survey Data

Loading a Data File

Once the raw survey data file has been downloaded from a Profile, it can be loaded into the PP3 software for analysis. The 'Select Data File....' box is available when PP3 is first started but can also be accessed at any time by selecting 'Load Data File' from the 'File' menu.



Select Data File, Title & Multiplier...

1. Set the path to the saved Profile data file either by typing in the full path to the file (including the filename) or by clicking 'Browse' to select the file.

2. Set a survey title. This is used as a heading for report & chart

3. Tick if survey was performed on a single phase circuit.

4. Tick if data file is Recon T data exported from MedcalScope*.

5. Set the data multiplier. This can be used to multiply the recorded data if a survey was performed with the Profile coils around only one of two sets of balanced supply cables for example. In most cases it should be left as 1.

6. Click 'Load Data' to load the selected data file.

Set Data File Path
C:\ProfileData\ProfileSurvey1.pp3
Browse

Set Survey Title
Profile Energy Survey

☐ Single Phase Survey ☐ Recon T Data

Data Multiplier: 1 Load Data

...OR Connect to Profile...
Log On

Cancel

Once the survey data file is loaded, the **Summary Report** will automatically load.

***Recon T data exported from MedcalScope (4.3.51 or later) must have been exported with the following settings (see Addendum 1 – Importing data from a Recon T survey for more information):**

On Energy tab: **Untick 'Aggregate in intervals':**

Summary | Spreadsheet | Voltage and Amps | Statistics | Dips and Swells | Harmonics | Frequency/Unbalance | Power | **Energy**

☒ Active Energy ☒ Reactive Energy ☐ Aggregate in intervals 1 m. 0 s.

Data export configuration

Magnitudes to export ☐ Include standard header ☐ Auto export with Save File

Decimal separator: ☐ Auto ☒ Point ☐ Comma

Check All Reset All

☒ U: RMS voltage
☒ I: RMS current
☐ Ucom: RMS complementary voltage
☐ f: Fundamental frequency
☐ Unb: Voltage unbalance
☐ UTHD: Voltage total harmonic distortion
☐ ITHD: Current total harmonic distortion
☐ Uh: Voltage harmonics
☐ Ih: Current harmonics
☐ P: Active power
☐ Q: Reactive power
☐ S: Apparent power
☒ PF: Power factor
☐ CP: Cosinus Phi
☐ Pst: Flicker short term
☐ Pst: Flicker long term
☒ Ea: Active Energy
☒ Er: Reactive Energy

☐ min
☒ avg
☐ max

☒ L1/L1L2/L1a
☒ L2/L2L3/L1b
☒ L3/L3L1/L1c
☐ N / Total / L1d

Column	Magnitude
1	Date
2	Time
3	U avg L1
4	U avg L2
5	U avg L3
6	I avg L1
7	I avg L2
8	I avg L3
9	P.F. avg L1
10	P.F. avg L2
11	P.F. avg L3
12	Active Energy L1
13	Active Energy L2
14	Active Energy L3
15	Reactive Energy L1
16	Reactive Energy L2
17	Reactive Energy L3

Cancel OK

In Data export configuration: **Untick 'Include standard header'.**

Decimal separator: **Set to 'Point'.**

Selected values:

U: RMS Voltage

I: RMS current

PF: Power Factor

Ea: Active Energy

Er: reactive energy

avg

L1

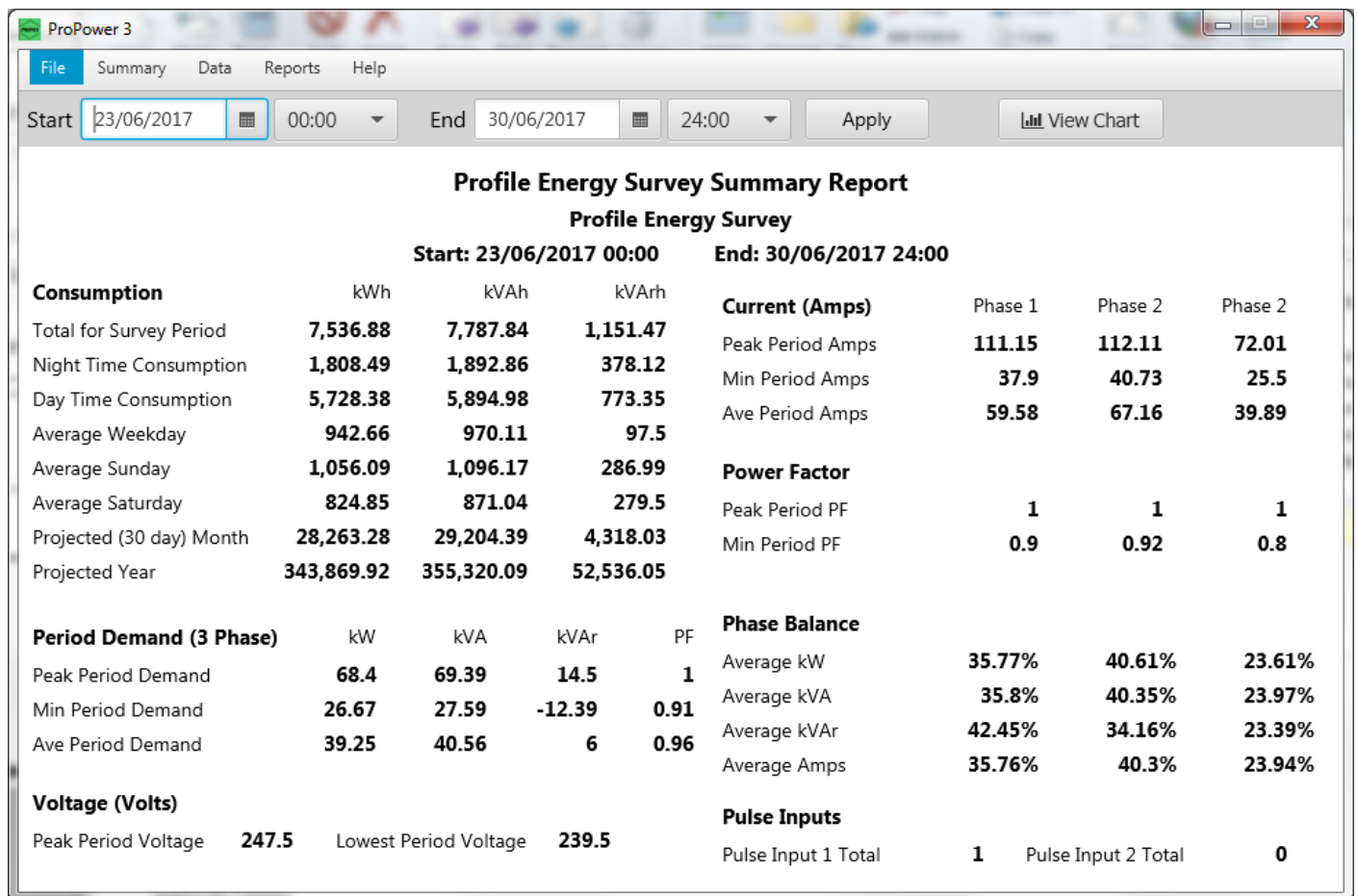
L2

L3

Export with 'Save as type:' set to **'Text File, comma separated values'.**

Summary Report

The Summary Report details various parameters from the loaded data file including consumption figures, period demands, phase balance & more.



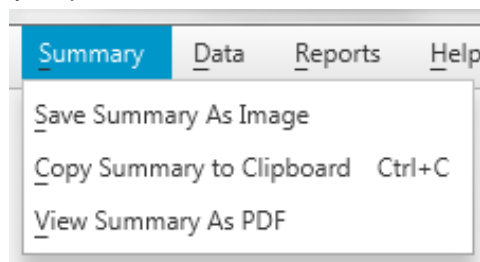
When first opened the report will include data from the whole of the loaded data file.

Alternate start and end dates & times for the report can be selected via the toolbar. After clicking 'Apply' the new start & end times will be used to recalculate the Summary Report figures.

N.B.

- The 'Min' figures in the Summary Report exclude zeros.
- Night time is defined here as 00:00 to 07:00 by default. Custom night hours can be set in [Settings](#).
- The 'Projected Month' & 'Projected Year' figures are intended as a guide only. They simply divide the total figures by the number of days included in the summary report before multiplying by 30 or 365 respectively.

The 'Summary' menu on the [main menu bar](#), and the context (right-click) menu provide options for saving or exporting the Summary Report.



XLS Report

The XLS report can be created at any time after a data file had been loaded. By default it uses a template .xls file that is included within the PP3 program.

To create an XLS Report select the '**Build XLS Report**' option from the **Reports menu**

To make production of the XLS report possible, the computer in use must have software installed capable of opening Microsoft Excel® (.xls) file. The XLS report will open directly in this program.

The raw, period by period demand and consumption data is loaded into the first two spreadsheet tabs/worksheets. On subsequent worksheets various functions can be used, linking to the first two worksheets to produce the report data.

Using the XLS Report functionality, it is possible to create a custom report to suit your exact needs.

To do this, a custom template .xls file can be created using Microsoft Excel® or another spreadsheet program.

The first two worksheets of any xls template should be left as they are in the default template to allow the PP3 software to populate them with the period by period demand & consumption data from the loaded survey file.

Once created the custom xls file should be saved to a suitable location and the path to it set in the *XLS Report* area of the **PP3 Settings**.

N.B.

a) The XLS report produced will include data for the latest date & time range applied to either the Summary Report or a PP3 Chart.

b) To make production of the XLS report possible, the computer in use must have a program capable of opening Microsoft Excel® (.xls) files installed.

Tip

When creating your own template .xls file, use the supplied default template as a basis for it.

The first two tabs/worksheets (named *Survey_Demand_Data* & *Survey_Consumption_Data*) are populated by the PP3 software, all other worksheets link to the data in the first two tabs/worksheets using various functions.

There is also some formatting in these first two worksheets that ensures the XLS Report can be produced successfully, and that the functions used operate correctly.

It is therefore essential that the first two worksheets (named *Survey_Demand_Data* & *Survey_Consumption_Data*) above are present and unchanged in any custom xls template file used.

To ensure compatibility, all templates for the XLS Report should be saved as an .xls file (rather than the later .xlsx format).

PDF Report

The PDF report can be created at any time after a survey data file has been loaded. To create an PDF Report select the '**Build PDF Report**' option from the **Reports menu**

The pages to be included in the report can be set within the **PP3 Settings** area.

N.B.

a) The PDF report produced will include data for the latest date & time range applied to either the Summary Report or a PP3 Chart.

b) To make production of the PDF report possible, the computer in use must have a program capable of opening Adobe Acrobat® (.pdf) files.

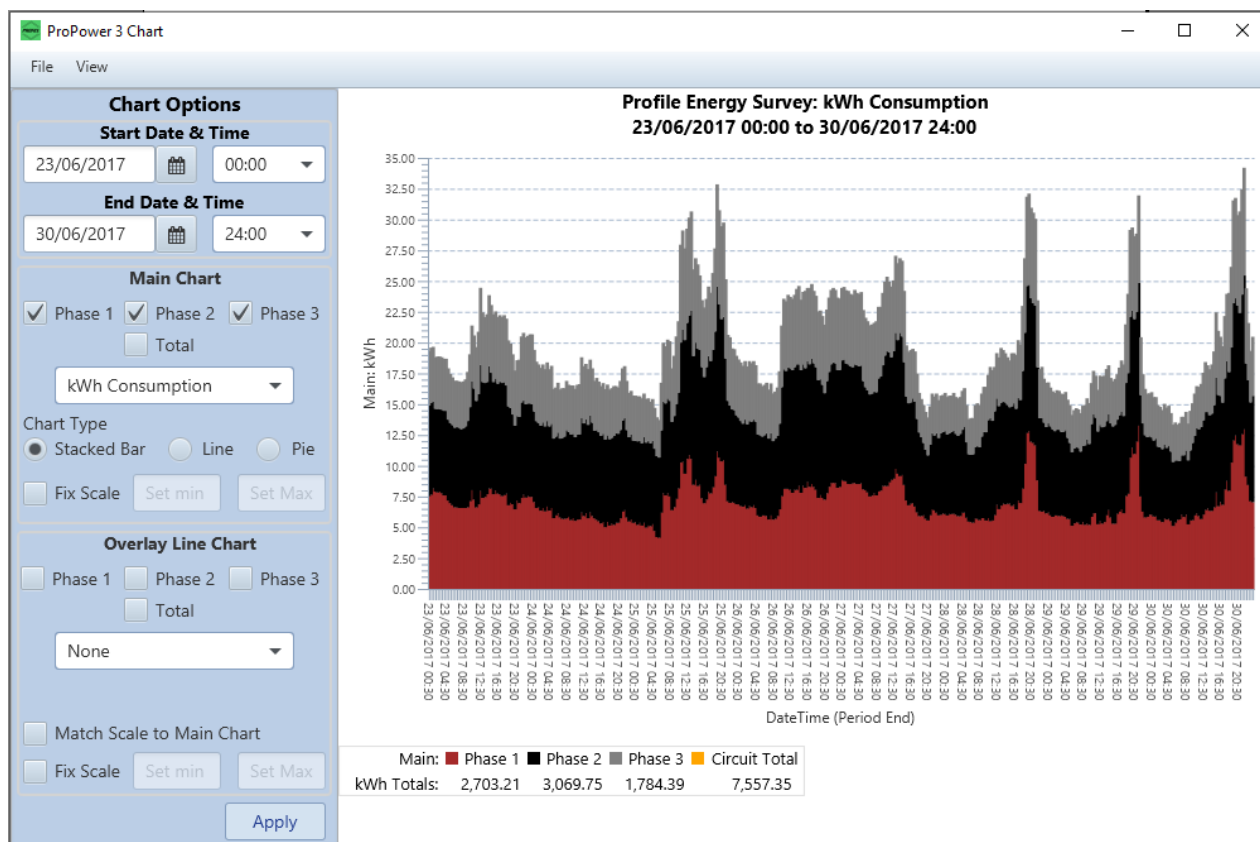
Tip

The PDF report can take some time to build, so it is advisable to select only the options required in the PP3 Settings.

PP3 Charts

The PP3 Charts allow graphs to be displayed for any of the electrical units available in or calculated from the Profile survey data file. Graphs can include individual phases or phase totals, over any date/time period within the range of the loaded survey file.

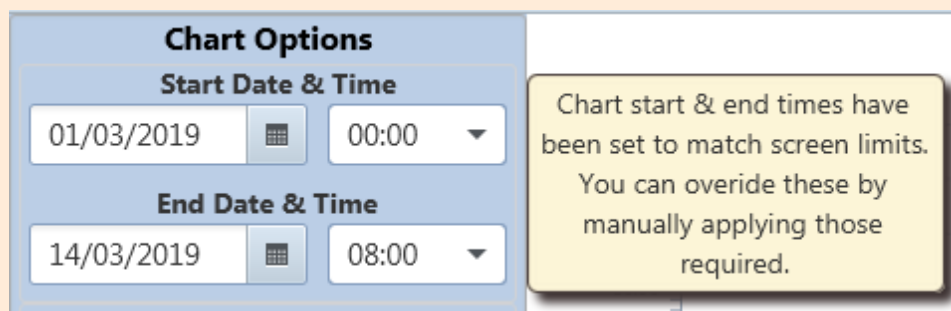
Any number of chart pages can be opened (within the capabilities of the computer in use!) via the **'View Chart'** button on the main PP3 (Summary Report) screen, or via the **'View Charts'** option on the **'Data' menu**. Each chart opens in an individual window.



N.B.

a) Subject to the caveat in b), when first opened the chart produced will include data for the latest date & time range applied to either the Summary Report or a PP3 Chart.

b) On first opening a chart window you may be presented with the following warning;



This warning is displayed when the number of data points in the date/time range selected exceeds the number that the monitor in use can display (no. of data points > screen width pixels).

In order to prevent the chart taking too long to load, the end date/time has been adjusted so that the number of data points does not exceed the screen width.

If desired, the settings applied can be overridden manually but please bear in mind that the chart displayed will be as accurate a representation of the data as your monitor can display, but it will not be exact.

c) If the survey was set as a Single Phase Survey when the data file was loaded, some options will not appear. For example the Phase 2 & 3 selection boxes, and Pie Chart option will not be available.

Charts can be displayed as stacked bars, lines, pie charts. When the stacked bar or line chart option is selected for the main chart, an overlay line chart can be added with its scale on the right-hand side of the chart window.

At the bottom of each chart window is displayed the chart key and associated totals or average values relating to the unit being displayed.

Main: ■ Phase 1 ■ Phase 2 ■ Phase 3 ■ Circuit Total					Overlay: ● Phase 1 ● Phase 2 ● Phase 3 ● Circuit Total				
kWh Totals:	2696.18	3061.10	1779.59	7536.88	Ave PF:	0.96	0.97	0.94	0.96

When the mouse cursor is placed over the chart area a period value

Period Ending: 26/06/2017 17:30, Phase 1 (Brown)Value: 8.52

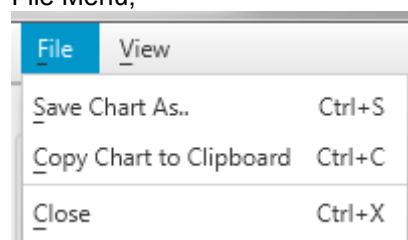
or point value will be displayed at the very bottom of the chart window;

Period Ending: 25/06/2017 23:30, Point Value: 0.11 PF

Chart Menus

Each chart window has its own menu bar with options as follows;

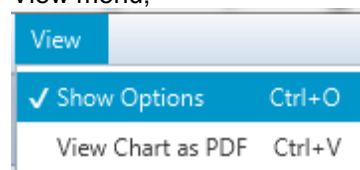
File Menu;



Save Chart As..
Copy Chart to Clipboard
Close

- save the chart displayed as an image (.png) file with a specified location & filename.
- copy the displayed chart to the clipboard for pasting into other programs/documents.
- close this chart window.

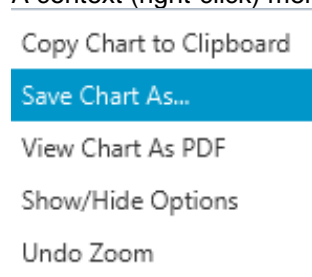
View menu;



Show Options
View Chart as PDF

- toggle the Chart Options panel between shown & hidden
- open the displayed chart as a PDF document (Adobe Acrobat® or other suitable software must be installed)

A context (right-click) menu is also available;



Copy Chart to Clipboard
Save Chart As..
View Chart as PDF

- copy the displayed chart to the clipboard for pasting into other programs/documents.
- save the chart displayed as an image (.png) file with a specified location & filename.
- open the displayed chart as a PDF document (Adobe Acrobat® or other suitable software must be installed)

Show/Hide Options
Undo Zoom

- toggle the Chart Options panel between shown & hidden
- return the start and end dates & times to their original settings.

Tip

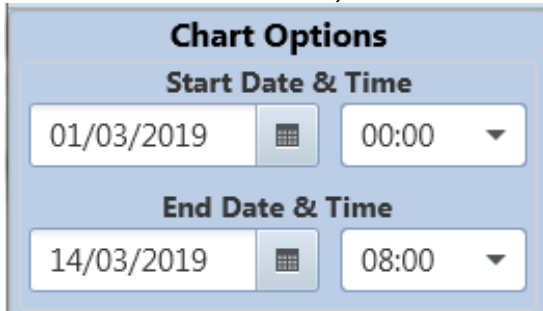
When selecting **View Chart as PDF**, **Save Chart As..**, or **Copy Chart to Clipboard**, the size of the saved image is determined by the on-screen size of the chart. To make the image fit a particular page/paper size you should therefore adjust the on-screen chart to suit before selecting one of the menu options.

PP3 Chart Options

The Chart Options panel allows each PP3 Chart to be set to unique display options.

In order to allow a 'full screen' view of the chart, the options panel can be hidden via the *View* or context (right-click) menu option.

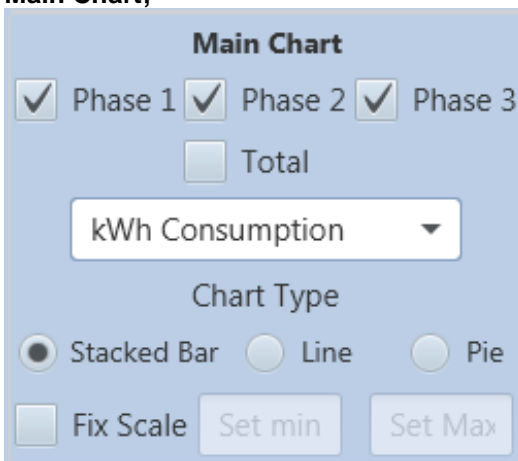
Start & End Dates & times;



The screenshot shows the 'Chart Options' panel. Under the 'Start Date & Time' section, there is a date input field containing '01/03/2019' and a time dropdown menu set to '00:00'. Below this, the 'End Date & Time' section has a date input field containing '14/03/2019' and a time dropdown menu set to '08:00'. Each date field has a small calendar icon to its right.

Set the start & end dates & times for the chart. Start times are period start, end times are period end. These apply to both the *Main* & *Overlay* charts.

Main Chart;



The screenshot shows the 'Main Chart' options panel. It features four checkboxes for 'Phase 1', 'Phase 2', 'Phase 3', and 'Total', all of which are checked. Below these is a dropdown menu currently set to 'kWh Consumption'. Under the 'Chart Type' section, there are three radio buttons: 'Stacked Bar' (which is selected), 'Line', and 'Pie'. At the bottom, there is a 'Fix Scale' checkbox and two buttons labeled 'Set min' and 'Set Max'.

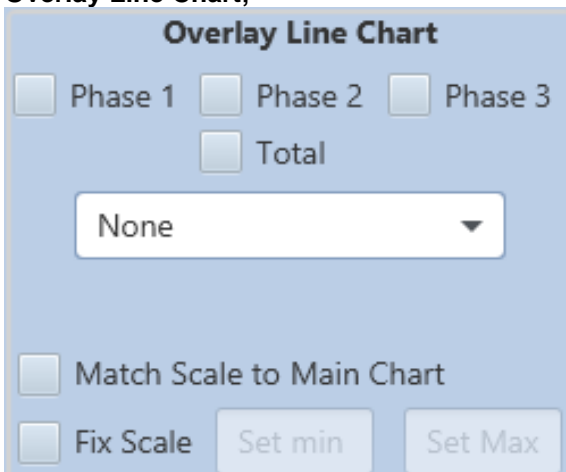
Display phases: *Phase 1, Phase 2, Phase 3, Total* tick boxes allow the individual phases or circuit total to be displayed.

Units: Select the unit to be displayed. All the electrical consumption (kWh, kVAh, kVArh) and demand (kW, kVA, kVAR) units can be selected along with the period average amps, period average volts, period average power factor, and pulse inputs 1 & 2.

Chart Type: Select to display stacked bar chart, line chart, or pie chart.

Fix Scale: The chart will auto-scale to suit the displayed values by default but chart scaling can be overridden to a specific range using this option.

Overlay Line Chart;



The screenshot shows the 'Overlay Line Chart' options panel. It features four checkboxes for 'Phase 1', 'Phase 2', 'Phase 3', and 'Total', all of which are unchecked. Below these is a dropdown menu currently set to 'None'. At the bottom, there is a 'Match Scale to Main Chart' checkbox, a 'Fix Scale' checkbox, and two buttons labeled 'Set min' and 'Set Max'.

Display phases: *Phase 1, Phase 2, Phase 3, Total* tick boxes allow the individual phases or circuit total to be displayed.

Units: Select the unit to be displayed. All the electrical consumption (kWh, kVAh, kVArh) and demand (kW, kVA, kVAR) units can be selected along with the period average amps, period average volts, period average power factor, and pulse inputs 1 & 2. Selecting 'None' removes the overlay chart from display.

An extra option exists within the Overlay Chart units menu;

Target Line ▼

Target: 500

When set, this option will draw a horizontal line across the chart at the specified value.

Match Scale to Main Chart: As with the Main Chart, the Overlay Chart will auto-scale to suit the displayed data by default. The main (left-hand) and overlay (right-hand) scales can be forced to match using this option to allow more accurate comparisons between units to be made.

Fix Scale: By default the chart will auto-scale to suit the displayed values. Using the Fix Scale option overrides this to set scaling to a specific range.

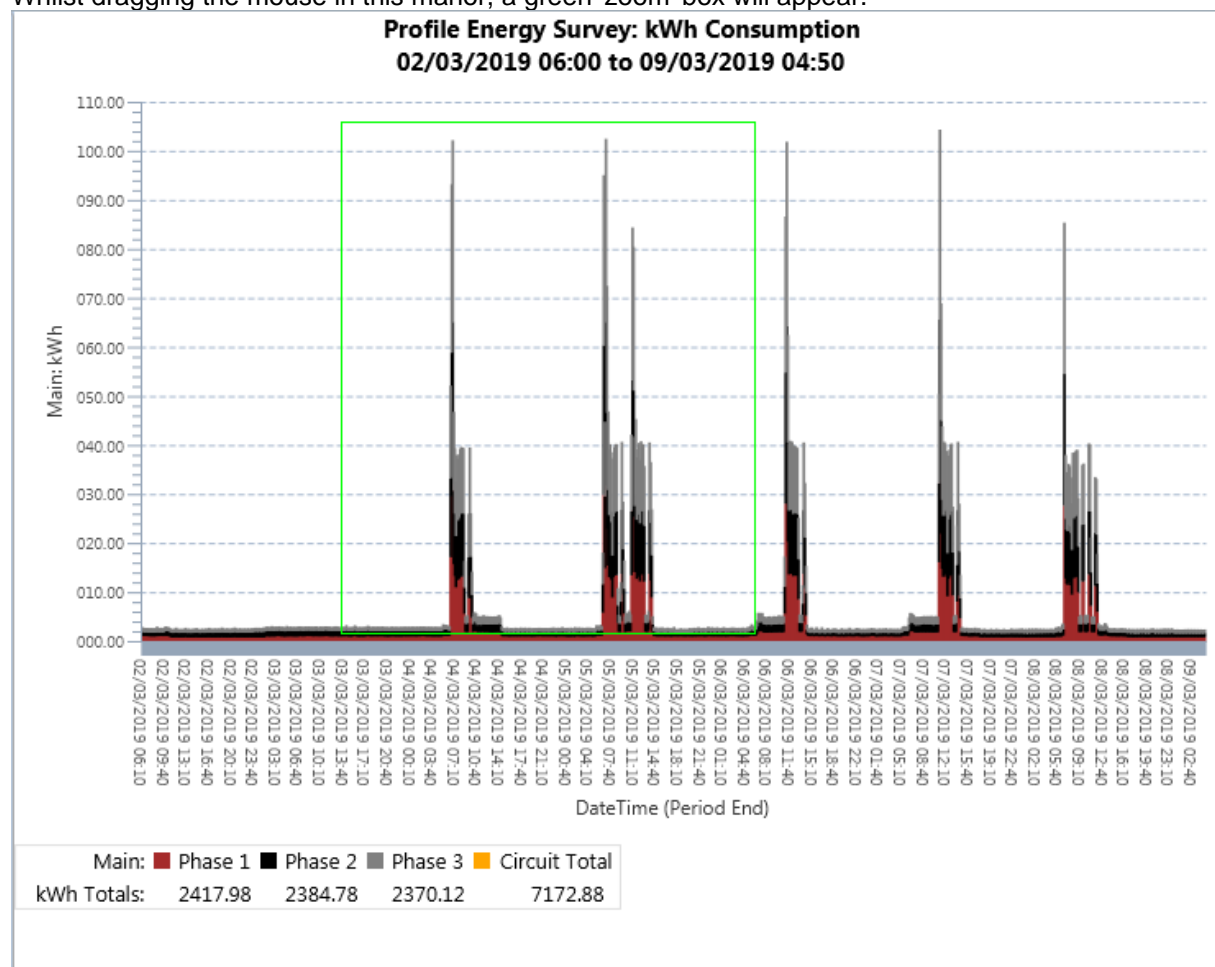
When all options have been set as required, click the '**Apply**' button to redraw the chart.

Chart Zooming;

it is also possible to zoom in to a particular date/time range on a chart by dragging a 'zoom-box' with the mouse. To do this, click and hold the left mouse button within the chart area in line with the point on the date/time axis that you want the chart to start.

The drag the mouse to the right, releasing the mouse button at a point in line with desired end date/time.

Whilst dragging the mouse in this manor, a green 'zoom' box will appear.



Tip

At any time the chart can be returned to the original start & end dates & times via the '**Undo Zoom**' context (right-click) menu option.

Addendum 1 – Importing data from a Recon T survey

From ProPower 3 version 3.7.1.1 onwards it is possible to use the ProPower 3 software to analyse data from a survey performed using the Cesinel Recon T Energy Monitor.

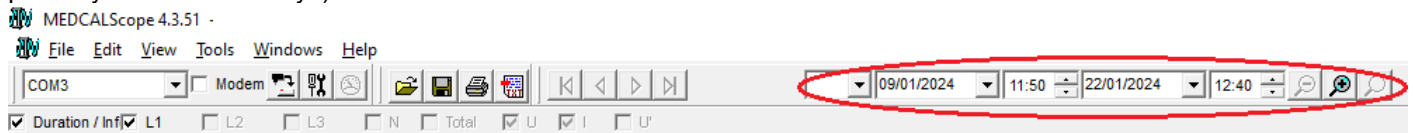
There are however specific requirements that must be followed in order to make this possible.

Step 1 - Export Data from MedcalScope

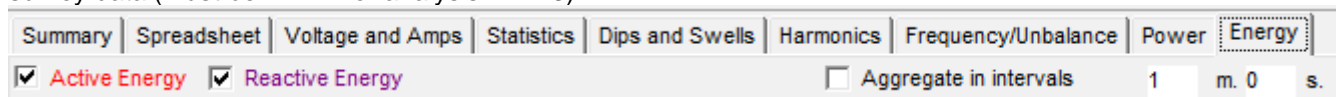
After completing a survey with the Recon T, data must be downloaded from it using the associated MedcalScope software. Please refer to Cesinel documentation for complete information on this.

a) Once the downloaded survey data is open within the MedcalScope software, the date range on view should be set to suit the data that you wish to analyse within PP3.

(N.B. when downloading data from a Recon T, the MedcalScope software retrieves all data within the hardware memory. If the Recon T memory is not cleared between surveys this will therefore include data across multiple possibly unrelated surveys):



b) Still within MedcalScope, select the *Energy* tab and ensure that the **Active Energy & Reactive Energy** tick boxes are ticked, that the **Aggregate in intervals** tick box is unticked, and that the interval is set as appropriate for the survey data (must be >1min for analysis in PP3).



c) Within MedcalScope select *Export data* from the *File* menu.

Within the Data export configuration window use the following settings:

Include standard header: **Unticked**

Decimal separator: **'Point'**.

Selected values/tick boxes:

U: RMS Voltage

I: RMS current

PF: Power Factor

Ea: Active Energy

Er: reactive energy

avg

L1

L2

L3

All other tick box options should be unticked. (see screen shot on next page)

Data export configuration

Magnitudes to export

☐ Include standard header

☐ Auto export with Save File

Decimal separator

☐ Auto ☒ Point ☐ Comma

Check All Reset All

☒ U: RMS voltage

☒ I: RMS Current

☐ Ucom: RMS complementary voltage

☐ f: Fundamental frequency

☐ Unb: Voltage unbalance

☐ UTHD: Voltage total harmonic distortion

☐ ITHD: Current total harmonic distortion

☐ Uh: Voltage harmonics

☐ Ih: Current harmonics

☐ P: Active power

☐ Q: Reactive power

☐ S: Apparent power

☒ PF: Power factor

☐ CP: Cosinus Phi

☐ Pst: Flicker short term

☐ Plt: Flicker long term

☒ Ea: Active Energy

☒ Er: Reactive Energy

☐ min

☒ avg

☐ max

☒ L1 / L1L2 / L1a

☒ L2 / L2L3 / L1b

☒ L3 / L3L1 / L1c

☐ N / Total / L1d

Column	Magnitude
1	Date
2	Time
3	U avg L1
4	U avg L2
5	U avg L3
6	I avg L1
7	I avg L2
8	I avg L3
9	P.F. avg L1
10	P.F. avg L2
11	P.F. avg L3
12	Active Energy L1
13	Active Energy L2
14	Active Energy L3
15	Reactive Energy L1
16	Reactive Energy L2
17	Reactive Energy L3

Cancel OK

d) Once the appropriate options have been selected, click the *OK* button on the *Data export configuration* window. Then browse to the place in which you wish to save the exported data file and give the file a suitable File name.

In the *Save as type*: option select *Text file, comma separated values*:

Save As

Save in: Desktop

Quick access

Desktop

Libraries

This PC

Network

Name

Size

Item type

Network

Libraries

This PC

Access the computers and devices that are on your network

File name: Example.csv

Save as type: Text file, comma separated values

Save Cancel

e) Save the file and close MedcalScope.

Step 2 – Load Exported Data into PP3

The file exported from MedcalScope can then be loaded into PP3:

a) After opening PP3, select the exported Recon T data and **tick the Recon T Data tick box** before clicking *Load Data*:

(Single Phase Survey should be ticked if appropriate)

Select Data File, Title & Multiplier...

Set Data File Path

C:\Users\Chris\Desktop\Example.csv

[Browse](#)

Set Survey Title

Recon T Energy Survey: Example.csv

☐ Single Phase Survey
 ☒ Recon T Data

Data Multiplier:

1

[Load Data](#)

...OR Connect to Profile...

[Log On](#)

[Cancel](#)

The full range of PP3 analysis tools are then available (depending upon survey specifics):

ProPower 3
— □ ×

File Summary Data Reports Help

Start 09/01/2024
11:50:00
End 22/01/2024
12:40:00
[Apply](#)
[View Chart](#)

Profile Energy Survey Summary Report

Recon T Energy Survey: Example.csv

Start: 09/01/2024 11:50:00 End: 22/01/2024 12:40:00

Consumption	kWh	kVAh	kVArh	Current (Amps)	Phase 1	Phase 2	Phase 3
Total for Survey Period	54.98	133.48	-103.54	Peak Period Amps	15.63	0.00	0.00
Night Time Consumption	8.35	32.21	-31.03	Min Period Amps	1.51	0.00	0.00
Day Time Consumption	46.62	101.27	-72.51	Ave Period Amps	2.03	0.00	0.00
Average Weekday	4.84	10.04	-7.11				
Average Sunday	1.53	8.25	-8.11	Power Factor			
Average Saturday	1.76	8.30	-8.10	Peak Period PF	1.00	0.00	0.00
Projected (30 day) Month	117.81	286.03	-221.86	Min Period PF	0.17	0.00	0.00
Projected Year	1,433.30	3,480.07	-2,699.33				

Period Demand (3 Phase)	kW	kVA	kVAr	PF	Phase Balance			
Peak Period Demand	2.62	2.68	0.26	1.00	Average kW	100.00%	0.00%	0.00%
Min Period Demand	0.05	0.31	-0.59	0.17	Average kVA	100.00%	0.00%	0.00%
Ave Period Demand	0.18	0.43	-0.33	0.28	Average kVAr	100.00%	-0.00%	-0.00%
					Average Amps	100.00%	0.00%	0.00%

Voltage (Volts)				Pulse Inputs			
Peak Period Voltage	244.4	Lowest Period Voltage	230.0	Pulse Input 1 Total	0	Pulse Input 2 Total	0

The contents of this manual and the software to which it relates are copyright protected and must not be copied or reproduced in any format without the written permission of NewFound Energy Limited.

The specification of the Profile Portable Energy Recorder and the ProPower 3 software are subject to change without prior notice. This manual reflects the software capabilities at the time of writing.

The ProPower 3 software was written in B4J - <https://www.b4x.com>.

jPDFjet/PDFjet for Java and C# Open Source Edition - © 2017 Innovatics Inc. All rights reserved.

Medusa Gauges Copyright (c) 2015 Gerrit Grunwald.

jPOI /jGauges/Medusa Gauges Licensed under the Apache License, Version 2.0 -

<http://www.apache.org/licenses/LICENSE-2.0>

jCharts - with thanks to Informatix.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

For information of further systems designed to assist you to use your resources more efficiently please contact NewFound Energy Limited on +44(0)1260 290151 or e-mail us or visit our website.

info@newfound-energy.co.uk
www.newfound-energy.co.uk/



Park View House, Worrall Street, Congleton, Cheshire CW12 1DT
Tel: (01260) 290151 Fax: (01260) 290811
Web: www.newfound-energy.co.uk e-mail info@newfound-energy.co.uk