

# **OWL+USB** SOFTWARE USER GUIDE





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# **1.0 INTRODUCTION**

Welcome to the OWL+USB Wireless Electricity Monitor that enables data recorded by the monitor to be downloaded and displayed numerically / graphically using the OWL USB Connect2 Software. Export the data from the database as a .csv file for use in applications such as Excel to manipulate the data or display in other chart formats. Alternatively access the data in the SQLite database using suitable SQLite tools.

#### How much data can be stored on my OWL+USB?

Data is stored for last 720 days as a daily value of electricity used, cost of electricity used based on Tariff rates entered for that day, and amount of CO2 emissions based on conversion factor for that day. This data is accessible through the History function of the Monitor

Data is also stored every minute for the last 30 days and this is accessed using the automatic download function of the software application supplied with the Monitor.

#### How much data can I download to my PC from my OWL+USB?

The last 30 days worth of minute by minute data can be downloaded from your OWL+USB.

#### How do I download the data to my PC?

After installing the software application, having followed the guidelines in the user manual, simply connect the mini-USB port of the monitor to the PC, and the last 30 days data (or number days data stored if less than 30 days) will automatically download to the database on the pc.

#### How often do I need to download the data to my PC?

Data should be downloaded every 30days since last data download or sooner.

If 30days is exceeded since last download, then the data for the days between the last 30days and last download of data will be overwritten in the monitor, hence there will be no data saved for those days in the database.

Where can the database be found on my PC?

The database file and all exported data files can be found in

Windows 7 → "C:\ProgramData\2SE"



# 2.0 GETTING STARTED

Run the installation program file "theowl\_usb\_02FE05BE10" from the CD



Proceed to the License Agreement Acceptance by pressing the [Next>] key.

### 2.2.1 License Agreement



Select "I Agree" and press [Next>] to move to next stage of installation A copy of the License Agreement is available on the CD



### 2.2.2 Software Installation

The installation of the OWL Home Energy Monitor program will default to "C:\Program Files\2SE\The OWL USB Connect 2\".

🖞 The OWL USB Connect 2
Select Installation Folder
The installer will install The OWL USB Connect 2 to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
<u>F</u> older:
C:\Program Files\2SE\The OWL USB Connect 2\ Browse
Disk Cost
Install The DWL USB Connect 2 for yourself, or for anyone who uses this computer:
O Just me
Cancel Cancel Next >

A different folder location can be used to install The OWL Home Energy Monitor application by selecting the [Browse...] button.

Check to see which disk has enough room to load the program using the [Disk Cost...] button

🖥 The OWL USB Connect 2	×	🛃 Th	e OWL USB Connect 2			
Select Installation Folder	)	Sel	ect Installation F	<sup>=</sup> older		
The installe 🔀 Browse for Folder						<u> </u>
To install in Browse: 📄 The OWL USB Connect 2 😪 🕥	н	The	🛃 The OWL USB Con	mect 2 Disk Space		
Eolder: [C:VProg		E	The list below includes the drive's available and requi	e drives you can install The O'w ired disk space.	/L USB Connect 2 to,	along with each
	н	ι	Volume	Disk Size OKB	Available	Hequire OK
	н			222GB	68GB	18M
Install Th	н			1925MB	1383MB	OK
	н	In				
© Eve	н					
Eolder: C:\Program Files\2SE\The DWL USB Connect 2\	н		<			>
OK Cancel						ОК

Confirm that you are ready to proceed with the installation by selecting [Next>] button.



ið The OWL USB Connect 2	🔁 The OWL USB Connect 2
Confirm Installation	Installing The OWL USB Connect 2
The installer is ready to install The OWL USB Connect 2 on your computer.	The OWL USB Connect 2 is being installed.
Llick "Next" to start the installation.	Please wait
Cancel < Back Next>	Cancel < Back Next>

The Owl Home Energy Monitor software is being installed.



If the Windows Logo Testing window appears you will need to select "Continue Anyway".

🛃 The OWL USB Connect 2	
Installation Complete	
The OWL USB Connect 2 has been successfully installed. Click "Close" to exit.	
Cancel	Close

The OWL Home Energy Monitor has been successfully installed. To exit from the installation select the [Close] button.



# 3.0 USING YOUR OWL+USB

Go to START Menu \ Programs, and select "The OWL USB Connect2".

### **3.1 PRODUCT REGISTRATION**

Product registration is required to validate your product guarantee and to inform you via e-mail of any software updates that will be accessible as a download from the website. You can choose to skip registration but will be requested each time you open the program to register the product.

🚥 USB Connect Energy Usage Monitor		- 7 ×
USB Connect Energy U N: 62.00.020N / be: 62.00.020N	sage Monitor	
Add chart windows to query the data collected from consumption from different devices, date ranges ar displayed on screen at one time.	n the power transmitters in your home. Adding several charts at the same time allows you to compare nd tariffs. The maximum number of charts that can be opened is ten, with four of these charts being	New chart Settings
Device Toptions	Register Your Product	
Please add at least one device on the 'Settings' p	Please register your product by filling In your details below and clicking OK. * We never share contact details with third parties. If you would prefer not to be contacted with details of free upgrades and other products we think may be of Interest to you please untick this box. First name Last name Email address * Join mailing list Skip OK	Date range

\* Un-check the box if you do not wish to be added to our Newsletter mailing list where you will receive information about new product releases and promotions.



### **3.2 SETTINGS**

Before connecting your OWL+USB to your PC for the first time you will need to setup your currency, voltage & GHG settings as per the settings in your OWL+USB, so that when the OWL+USB is connected to the PC downloading data or getting live data, it will use these settings for any calculations and update the database with these values.

If using for the first time, follow the instructions in section "3.2.1 General", save your settings minimise the OWL Connect window and move to step 3.2.3

Select the settings button and the settings screen is split into 3 tabs:-

- General
  - For setting up the voltage, greenhouse conversion factor, and currency.
  - Links to related websites that could help you finding out the conversion factor relating to your utility company.
- Tariffs
  - o Tariff values are determined from the downloaded data from the OWL+USB
  - Set up other cost of electricity plans that can be used when using Tariff Comparison
- Connected to
  - For adding and naming OWL+USB to devices table.

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			Settings Ant chart				
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	General Tariffs Connected To		Device	General Tariffs Connected To			
	Supply voltage rating 230 (v)		ange	Add your current energy tariff and any other tariffs	you are interested in below. Each devic	te has a default tariff that is used	to store the cost of past energy
	Green house gas (GHG) multiplication factor 0.43 kg/hr) che	eck at decc.gov.uk i check at electricityinfo.org	Please	Contractions and an outer per care and			
	Currency £ -			Standard	Cost/kWh Start Time	Mon-Sun Mon-Fri	Sat-Sun
				Tariff 1	10.50 00:00 *	• •	0
				L Tariff 2	00:00 *		0
				Tariff 3			0
				Add Delete Tariff 6		0 0	
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	100	(where the display is connected directly). In either case, if yo	ou expect more results than are	visible below please press the 'Check' button on the tran	remitter.		
		Drag the devices you want to monitor to the grid on the right charts.	t and give each one a name and	a tariff. The name specified is used to identify the device	tes in the		
			Laure -	Investment Invest			
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		Clear list					
				Delete device Restore	device		
Genet							
Gen. Com							
See. Cent							
				Save	Cancel		



### 3.2.1 General

To change the Supply Voltage rating place cursor over the current value and select. The box will be highlighted by a blue line around the edge of the Supply Voltage rating box. Change the value and press the [Enter] key.

🕶 USB Conn	nect Energy Usage Monitor	
	USB Connect Energy Usage Monitor	
Add chart w consumption displayed of	windows to query the data collected from the power transmitters in your home. Adding several charts at the same time allows you to compare on from different devices, data ranges and tariffs. The maximum number of charts that can be opened is ten, with four of these charts being on screen at one time.	Settings
	Settings	
Device	Gen Tariffs Connected To	
Please a	Supply voltage rating 234 (v) Green house gas (GHG) multiplication factor 0.43 kg/hr) check at decc.gov.uk   check at electricityinfo.org Currency a Save Cancel	ange

To change the Greenhouse gas multiplication factor place cursor over the current value and select. The box will be highlighted by a blue line around the edge of the Greenhouse gas multiplication factor box. Change the value and press the [Enter] key.

USB Connect Energy Usage Monitor	
dows to query the data collected from the power transmitters in your home. Adding several charts at the same time allows you to compare from different devices, data ranges and tariffs. The maximum number of charts that can be opened is ten, with four of these charts being screen at one time.	
Settings	-×
Gen Tariffs Connected To	
Supply voltage rating 230 (v) Green house gas (GHG) multiplication factor 0.43 kg/hr) check at decc.gov.uk   check at electricityinfo.org Currency £ v	nge
Save Cancel	
Save Cancel	
	te data data to be latered device, data ranges and barff. The maximum number of charts that can be opened is ten, with four of these charts been at the terms of the term of the data collected from different device, data ranges and barff. The maximum number of charts that can be opened is ten, with four of these charts been at the terms of the data collected for the

For greenhouse multiplication or conversion factors use the links to take you to related websites that could help you with finding out the multiplication or conversion factor relating to your utility company.



M USB Conne	ect Energy Usage Monitor					╴┍┏
	USB Connect Energy Usage No: 62.00.028N / box: 62.00.028N	Monitor				
Add chart w consumption displayed or	indows to query the data collected from the pow n from different devices, date ranges and tariffs. n screen at one time.	er transmitters in your hor The maximum number of	ne. Adding several charts at charts that can be opened is	the same time allows you to comp ten, with four of these charts bein	New chart Se	
	Settings					_×
Device	General Tariffs Connected To					
Please a	Supply voltage rating	230	) (V)		ar	ige
	Currency	E         *           E         *           E         *           E         *           E         *           F         P           P         R           Kr         *				
Ļ					Save Cancel	
_						_

Use the pull down menu to select currency setting.



### 3.2.2 Tariffs

A nominal tariff has been preset within the software but this can be changed or removed as required. Cost per kWh are in sub-units ie pence / cents, so for a Cost per kWh of  $\pounds$ 2-845 the value to be entered would be 284-50

For Tariff plans that only have a single band then start time should be left set at 0:00. To introduce tariff plans for comparison purposes select the [Add] key.

	ect Energy	Usage Mon	itor					
ndows to query t	he data collected	from the power tra		ome. Adding severa	I charts at the sa	me time allows y	ou to compare	New chart
				of charts that can be	e opened is ten, w	rith four of these	charts being	
a								
Settings								
General Tariff	s Connected To							
Add your curren consumption. U	nt energy tariff an sing the charts yo	d any other tariffs u can make tariff o	ou are interested on parisons.	in below. Each devic	ce has a default t	ariff that is used I	to store the cost of pas	t energy
Name			Cost/kWh	Start Time	Mon-Sun	Mon-Fri	Sat-Sun	
Standard		Tariff 1	10.50	00:00	۲	0	0	
[Enter name h	erej	Tariff 2		00:00 -	0	0	0	
		Tariff 3		00:00				
		Tariff 4		00:00	0	0	0	
		Tariff 5		00:00	0	0	0	
Add	Delete	Tariff 6			0	0	0	
				00.00	0	0	0	
							Save	Cance

To edit the tariff name, rates, and start times applied to weekly, weekday only, or weekend only rate, select the tariff name [Enter name here].

050 00111	ect thergy Usage i	Nonittor							
	USB Conne fe: 02.00.02011 / te: 02.0	ect Energy	Usage Mon	itor					
dd chart w onsumptio isplayed or	vindows to query th n from different de n screen at one tin	ne data collected rvices, date range ne.	from the power traits and tariffs. The n	nsmitters in your h naximum number o	ome. Adding severa I charts that can be	I charts at the sa opened is ten, w	me time allows yo ith four of these of	ou to compare	New chart Setting
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	Name			Cost/kWh	Start Time	Mon-Sun	Mon-Fri	Sat-Sun	
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			🗹 Tariff 3	0.00	00:00 -	۲	0	$\bigcirc$	
			Tariff 4	0.00	00:00 🔻	۲	0	0	
			Tariff 5	0.00	00:00	۲	0	0	
	Add	Delete	Tariff 6	0.00	00:00 -	۲	0	0	
								Save	Cancel
_									

Enter a name for the new tariff. All six possible tariff rates/start times will be checked. Uncheck those not required



onnect Energy Usage Monitor							
USB Connect Ene	rgy Usage Mor	nitor					
rt windows to query the data colle ption from different devices, date of on screen at one time.	ected from the power tra ranges and tariffs. The r	insmitters in your h maximum number o	ome. Adding severa I charts that can be	I charts at the sa opened is ten, w	me time allows ye ith four of these	ou to compare Ne charts being	w chart Se
Settings							
General Tariffs Connect	ed To						
Add your current energy ta consumption. Using the cha	riff and any other tariffs irts you can make tariff o	you are interested i comparisons.	n below. Each devid	ce has a default t	arlff that is used t	o store the cost of past	energy
Name		Cost/kWh	Start Time	Mon-Sun	Mon-Fri	Sat-Sun	
Standard	☑ Tariff 1	12.19	06:00 -	0	۲	0	
Home	Tariff 2	8.73	23:30 -	0	۲	0	
	☑ Tariff 3	9.42	06:00 -	0	0	۲	
	☑ Tariff 4	5.71	23:30 -	0	0	۲	
	Tariff 5		00:00 -	۲	0	0	
Add Delete	Tariff 6		00:00	۲	0	0	
						Save	Cancel

Repeat as required for other Tariff plans.



# 3.2.3 Connected To

Plug in your OWL+USB to a USB Port on your computer, using the USB lead provided. As the PC detects the OWL+USB it will add the associated drivers to the PC the first time used.

Select "Install the software automatically" and press the <Next> button. Wizard will search for the appropriate driver for the install.



Select the <Continue Anyway> button for the drivers to download





#### Add the unit to the Sensors window.

Up to five OWL+USBs can be connected to the PC at the same time. There is no limit set on the number of OWL+USBs the software will add to the database.

Note it may take a little time for the USB display to appear in the window.

USB Connect Energy Usage M	nitor					_ 6						
	ct Energy Usage Monitor											
Add chart windows to query the and tariffs. The maximum numl	data collected from the power transmitters in your home. Adding several c er of charts that can be opened is ten, with four of these charts being displ	harts at the same time allo ayed on screen at one time			ption from different devices, date ranges	New chart Settings						
Device	Settings											
	General Tariffs Connected To					Date range						
Please add at least one devic	Two types of receiver device are supported, both via USB; a black-block design that can receive signals from multiple transmitters, and a direct one-to-one link where this display itself a connected to the FC. The box below might display several transmitters (where using a black-block receiver) puts one receiver (where the display is connected directly), in their case, if you expect more results there are value blevels with the preserve the transmitters. (When using a black-block receiver) puts one receiver (where the display is connected directly), in their case, if you expect more results there are value blevels with the preserve the transmitters. (When one has a start is the diverse in the chains). Drag the devices you want to monitor to the grid on the right and give each one a name and a tariff. The name specified is used to identify the devices in the dustrs.											
		Name	Device ID	Model	Tariff							
	₩ 9 0000 Usa											
					Delete device Restore device							
	Clear list											
					Save Cancel							
				_								

Drag and drop the USB from the Sensors window into the device table.

Ma USB Connect Energy Usage Mo	onitor				
USB Conne fe: 62.00.04EN / be: 62.0	ct Energy Usage Monitor				
Add chart windows to query the and tariffs. The maximum numb	e data collected from the power transmitters in your home. Adding severa ber of charts that can be opened is ten, with four of these charts being dis	i charts at the same time allows y splayed on screen at one time.		ption from different devices, date ranges	
Device	Settings				
	General Tariffs Connected To				Date range
Please add at least one devic	Two types of receiver device are supported, both via USB; a black-blo where the display itself is connected to the PC. The box below might di- the display is connected directly). In either case, if you expect more re Drag the devices you want to monitor to the grid on the right and give charts.	ck design that can receive signals lisplay several transmitters (when sults than are visible below pleas e each one a name and a tariff. Th	from multiple transmit a using a black-block re- se press the 'Check' but he name specified is use	ters, and a direct one-to-one link teiver) or just one receiver (where ton on the transmitter. In to identify the devices in the	
		Name	Device ID Model	Tariff	
	USB				
				Delete device Restore device	
	Clear list				
				Save Cancel	
				uniter autori	



Insert a name to identify the USB. The tariff values will be determined from the OWL+USB data.

	Cattinge					
	Connect Tautte Connected To					
e add at least one devic	Two types of receiver device are supported, both via USB; a blac where the display itself is connected to the PC. The box below m the display is connected directly). In either case, if you expect m Drag the devices you want to monitor to the grid on the right an charts.	k-block design that can receive si ight display several transmitters ( ore results than are visible below d give each one a name and a tari	gnais from multiple when using a black please press the 'd iff. The name spec	e transmit k-block rei Check' but ified is use	ters, and a direct one-to-one link beiver) or just one receiver (where ton on the transmitter.	Dane i ange
		Name	Device ID	Model	Tariff	
	USB	HOME #1	USB	CM160	Tariff rate comes from device	
	Clear list				Delete device Restore device	
					Save Cancel	

Save settings by selecting <Save> button or select <Cancel> button to leave settings window without saving any of these changes.

🝽 USB Connect Energy Usage Mc	nitor					- 6 🛛
Device	Settings					
	General Tariffs Connected To					
Please add at least one devic	Two types of receiver device are supported, both via USB; a black where the display itself is connected to the PC. The box below mig the display is connected directly). In either case, if you expect mo Drag the devices you want to monitor to the grid on the right and charts.	x-block design that can receive signals ght display several transmitters (when ore results than are visible below please I give each one a name and a tariff. The	from multiple using a black press the 'C a name spec	e transmit c-block rec Check' but ified is use	ers, and a direct one-to-one link eiver) or just one receiver (where ton on the transmitter. d to identify the devices in the	
		Name	Device ID	Model	Tariff	
	NSSS Mar Nears V @ Cocc	Confirmation Save your changes? Yes No	USB	CM160	Tariff rate comes from device	
	Over Int.				Delete device Restore device	
l					Save Cancel	



# 4.0 VIEWING THE DATA

After leaving the settings page for the first time, there may be a slight delay in a history chart appearing for the first transmitter in your list until sufficient data has been added to the database.

Navigate through the chart options using the different option through the <Options> button.

- View "Live" Data as a cost, as kW & CO2 emissions using line charts / bar charts / numeric display.
- View "Historical" Data as an accumulated cost, as accumulated kWh & accumulated CO2 emissions using line charts / bar charts / numeric display.
  - Review data down to a per minute usage by clicking on the data point/bar
- View data point values by passing cursor over the data point/bar
- Maximum / Minimum markers
- Compare tariffs
- Open multiple charts (10) with a maximum of 4 being displayed at any one time
- Export raw data from database into a .csv file for use with spreadsheet packages such as Excel.
  - Live display → Exports Data Displayed (Last 2 Minutes)
  - Historic Display → Exports Data Displayed (Years, Months, Days, Hours, Minutes)
  - Historic Display → Exports Data between 2 dates based on chart time base (ie Day will export Daily Data between 2 dates)
  - Historic Display → Exports All Data
- Simple printout of the chart displayed

# 4.1 ADDING CHARTS

Up to 10 charts can be open at one time and are added using the <Add Chart> button.





If 4 charts are already being display on the screen, one of these will need to be minimised to allow the next chart to be added.

USB Connect Energy Usage Monitor				
USB Connect Energy Usage N	lonitor			
Add chart windows to query the data collected from the powe consumption from different devices, date ranges and tariffs. T	r transmitters in your home. Ac The maximum number of charts	Iding several charts at that can be opened it	t the same time allows you to compa s ten, with four of these charts being	ne New chart Settings
displayed on screen at one time.				
History usage [2010 - 2010]		History usage	[2010 - 2010]	
Device OWL CM113  Options		Device OWL CM	113 V Options	
	Date range All			Date range All
0.600 -		0.600		
0.500		0.500 -		
§ 0.300 -	Information			
0.200 - 0.100 -	The maximum numbe	r of charts that can be	2	
0.000 -	opened is ten, with for displayed on screen al	ur of these charts beir t one time.	ng	
2010 Years	Please either minimize try again.	e or close a chart and	2010 Years	
History usage [2010 - 2010]		Ж	010 - 2010]	-
Device OWL CM113  Options		Device OWL CM	113 V Options	
	Date range All			Date range Al
0.700		0.700		
0.600		0.600		
§ 0.400 -		0.400 -		
0.200 -		0.200 -		
0.100 -		0.100 -		
2010			2010	
			Manage	

#### Applying charts to devices is done using the device pull down menu





# 4.2 LIVE DATA CHARTS

See the electricity as it is being consumed displayed in chart form showing it as cost, power and CO2 emissions.



 Energy Chart → Shows the electricity in use in kW, calculated from the voltage setting you have used within the settings page and the electrical current reported by the sensor.





 Cost Chart→ Shows the cost of electricity as it is being used, calculated from the tariff setting you have set up for the sensor within the settings page and the calculated electricity in use (kW).



 GHG Chart→ Shows the calculated CO2 emissions for generating the electricity you are currently using based upon the GHG Conversion Factor you have used within the settings page.



 Numeric → Shows the live data of the electricity in use in kW, as a cost, and shows CO2 emissions.



# 4.3 HISTORICAL DATA CHARTS

This will take you into the top level of the data shown as data used on a yearly timeline.



Drill down into the data by placing the cursor over the data bar you want to look at in more detail, select that the data bar by clicking your mouse key to then see the data on a monthly basis. To view on a daily, hourly and per minute repeat steps above.



# 4.4 TARIFF COMPARISON

Comparing tariff plans using Live data or Historical data against other entered tariff plans.





# 5.0 EXPORTING DATA

Exported data is saved to a default folder "C:\Documents and Settings\All

<u>Users.WINDOWS\Application Data\2SE</u> and the filename is generated from device name and date/time saved.

A shortcut to this folder can be found Start>Programs>OWL USB Connect 2.

After exporting a file the OWL USB Connect 2 user interface will be minimised and the OWL Data folder opened on the screen.

The exported data is downloaded in columns under the following headings:-

Sensor	Sensor identification associated with exported data.
Time	Timestamp of when data was recorded.
GHG Factor	GHG Factor applied to recorded data
Tariff Cost	Tariff Rate applied to recorded data.
Amps_Raw_Data	Raw data value relating to Amps measured by the sensor during that time period.
Amps_Raw_Data_Min	Minimum raw data value relating to Amps measured by the sensor during that time period (ie Minimum value during that Day, Hour, Minute)
Amps_Raw_Data_Max	Maximum raw data value of Amps measured by the sensor during that time base (ie Minimum value during that Day, Hour, Minute)
kW_Raw_Data	Raw data value of kW calculated using Amps_Raw_Data and the voltage applied in the settings window when data was recorded.
kW_Raw_Data_Min	Minimum raw data value of kW calculated using Amps_Raw_Data_Min and the voltage applied in the settings window when data was recorded.
kW_Raw_Data_Max	Maximum raw data value of kW calculated using Amps_Raw_Data_Max and the voltage applied in the settings window when data was recorded.
Cost_Raw_Data	Raw data value of cost of electricity using applied tariff during the period between this and previous time stamp.
Cost _Raw_Data_Min	Minimum raw data value of cost of electricity using applied tariff during the period between this and previous time stamp.
Cost_Raw_Data_Max	Maximum raw data value of cost of electricity using applied tariff during the period between this and previous time stamp.
GHG_Raw_Data	Raw data value of calculated weight of Carbon Dioxide emissions using applied conversion factor during the period between this and previous time stamp.
GHG_Raw_Data_Min	Raw data value of calculated weight of Carbon Dioxide emissions using applied conversion factor during the period between this and previous time stamp.
GHG_Raw_Data_Max	Raw data value of calculated weight of Carbon Dioxide emissions using applied conversion factor during the period between this and previous time stamp.



### 5.1 HOW TO CONVERT EXPORTED RAW DATA?

Take the raw data and using the calculations below, convert the Current, Energy, Cost & GHG data columns.

- Current (Amps) → Amps Value x 60
   ie: 0.05 x 60 = 3 Amps
- Energy (kW) → kW value ÷ 1,000
  - ➢ ie: 4.4 ÷ 1,000 = 0.0044kW (or 4.4W)
- Cost (pence or cents) → Cost value ÷ 100,000
   ie: 520000 ÷ 100,000, = 5.2pence
- GHG (kg) → GHG value ÷ 100,000

 $\rightarrow$  ie: 7100 ÷ 100,000 = 0.071kg (or 71g)

# 5.2 EXPORTING LIVE CHART DATA

Using the export function when viewing live data will download the current data as shown in the 2 minute live usage chart.

		GHG_Facto		Amps_Raw	Amps_Raw	Amps_Raw	kW_Raw_	D kW_Raw_I	D kW_Raw_D	Cost_Raw_	Cost_Raw_	Cost_Raw_	GHG_Raw_	GHG_Raw_
Device	Time	r	Tariff_Cost	_Data	_Data_Min	_Data_Max	ata	ata_Min	ata_Max	Data	Data_Min	Data_Max	Data	Data_Min
OWL CM113	08:48:04	0.43	12.19	3.1	2.8	28	713	644	6440	869147	785036	7850360	30659	27692
OWL CM113	08:47:58	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:52	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:46	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:40	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:34	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:28	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:22	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:16	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:10	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:47:04	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:46:58	0.43	12.19	3.2	2.8	28	736	644	6440	897184	785036	7850360	31648	27692
OWL CM113	08:46:52	0.43	12.19	3.2	2.8	28	736	644	6440	897184	785036	7850360	31648	27692
OWL CM113	08:46:46	0.43	12.19	3.2	2.8	28	736	644	6440	897184	785036	7850360	31648	27692
OWL CM113	08:46:40	0.43	12.19	3.2	2.8	28	736	644	6440	897184	785036	7850360	31648	27692
OWL CM113	08:46:34	0.43	12.19	3.2	2.8	28	736	644	6440	897184	785036	7850360	31648	27692
OWL CM113	08:46:28	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:46:22	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:46:16	0.43	12.19	2.9	2.8	28	667	644	6440	813073	785036	7850360	28681	27692
OWL CM113	08:46:10	0.43	12.19	3.2	2.8	28	736	644	6440	897184	785036	7850360	31648	27692

#### Converted data shown below:-

					Amps_Con	Amps_Con		kW_Conv_	kW_Conv_		Cost_Conv	Cost_Conv		GHG_Conv
		GHG_Facto		Amps_Con	v_Data_Min	v_Data_Ma	kW_Conv_	Data_Min	Data_Max	Cost_Conv	_Data_Min	_Data_Max	GHG_Conv	_Data_Min
Device	Time	r	Tariff_Cost	v_Data (A)	(A)	x (A)	Data (kW)	(kW)	(kW)	_Data (p/c)	(p/c)	(p/c)	_Data (kg)	(kg)
OWL CM113	08:48:04	0.43	12.19	3.1	2.8	28	0.00713	0.00644	0.0644	8.69147	7.85036	78.5036	0.30659	0.27692
OWL CM113	08:47:58	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:52	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:46	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:40	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:34	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:28	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:22	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:16	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:10	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:47:04	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:46:58	0.43	12.19	3.2	2.8	28	0.00736	0.00644	0.0644	8.97184	7.85036	78.5036	0.31648	0.27692
OWL CM113	08:46:52	0.43	12.19	3.2	2.8	28	0.00736	0.00644	0.0644	8.97184	7.85036	78.5036	0.31648	0.27692
OWL CM113	08:46:46	0.43	12.19	3.2	2.8	28	0.00736	0.00644	0.0644	8.97184	7.85036	78.5036	0.31648	0.27692
OWL CM113	08:46:40	0.43	12.19	3.2	2.8	28	0.00736	0.00644	0.0644	8.97184	7.85036	78.5036	0.31648	0.27692
OWL CM113	08:46:34	0.43	12.19	3.2	2.8	28	0.00736	0.00644	0.0644	8.97184	7.85036	78.5036	0.31648	0.27692
OWL CM113	08:46:28	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:46:22	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:46:16	0.43	12.19	2.9	2.8	28	0.00667	0.00644	0.0644	8.13073	7.85036	78.5036	0.28681	0.27692
OWL CM113	08:46:10	0.43	12.19	3.2	2.8	28	0.00736	0.00644	0.0644	8.97184	7.85036	78.5036	0.31648	0.27692



### 5.3 EXPORTING HISTORICAL CHART DATA

Using the export function when viewing collected data will download the data depending upon option selected:-

- Data from current chart being displayed.
  - Viewing one hours data when exported will give that hours data on a per minute basis
  - Viewing one days data when exported will give that days data on a per minute basis
  - $\circ$   $\,$  Viewing one month's data when exported will give that months data on a per minute basis
  - $\circ$   $\,$  Viewing one year's data when exported will give that years data on a per minute basis
  - $\circ$   $\;$  Viewing all data when exported will give all data on a per minute basis
- Data collected between 2 dates for sensor in current chart.
  - When exporting between 2 dates when one hours chart is being viewed only that hours data for the between those dates are exported on a per minute basis
  - When exporting between 2 dates when viewing all other charts all data between those dates is exported on a per minute basis.
- All data collected for sensor.
  - Exports all data for that sensor on a per minute basis.



# 5.4 HOW DO I USE THE CONVERTED DATA?

		CHC East	<u>_</u>	Amon Con	Amps_Con	Amps_Con	KM Conv	kW_Conv_	kW_Conv_	Cost Conv	Cost_Conv	Cost_Conv	CHC Conv	GHG_Conv
Device	Time	r r	Tariff_Cost	v_Data (A)	V_Data_IVIII (A)	x (A)	Data (kW)	(kW)	(kW)	_Data (p/c)	_Data_win (p/c)	_Data_iviax (p/c)	_Data (kg)	_Data_win (kg)
OWL CM119	01/03/2010 00:00	0.43	8.73	0.0124	0.0117	0.0128	0.0028	0.0003	0.0003	0.0248	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:01	0.43	8.73	0.0117	0.0117	0.0117	0.0027	0.0003	0.0003	0.0234	0.0234	0.0254	0.0012	0.0012
OWL CM119	01/03/2010 Min/	Max Dat	a is the mi	nimum	0.0117	0.0128	0.0029	0.0003	0.0003	0.0251	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 and	movimu	m usago d	uring the	0.0117	0.0128	0.0028	0.0003	0.0003	0.0241	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010	maint	in usaye u	uning the	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 0418	ιροιπι			0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:07	0.43	8.73	0.0182	0.0128	0.0210	0.0042	0.0003	0.0005	0.0305	0.0258	0.0422	0.0018	0.0013
OWL CM119	01/03/2010 00:09	0.43	8.73	0.0233	0.0233	0.0233	0.0054	0.0005	0.0005	0.0469	0.0469	0.0469	0.0023	0.0023
OWL CM119	01/03/2010 00:10	0.43	8.73	0.0233	0.0233	0.0233	0.0054	0.0005	0.0005	0.0469	0.04 <mark>69</mark>	0.0469	0.0023	0.0023
OWL CM119	01/03/2010 00:11	0.43	8.73	0.0229	0.0222	0.0233	0.0053	0.0005	0.0005	0.0459	0.04 To	get the co	ost used ir	n one
OWL CM119	01/03/2010 00:12	0.43	8.73	0.0222	0.0222	0.0222	0.0051	0.0005	0.0005	0.0445	0.04 hou	ir the sum	of 1hour	s data
OWL CM119	01/03/2010 00:14	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.04 nee	eds to be t	taken	
OWL CM119	01/03/2010 00:15	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.04			
OWL CM119	01/03/2010 00:16	0.12	- kW data	is broker	down into	0.0210	0.0048	0.0005	0.0005	0.0422	0.04	2.147 pe	nce / cen	ts
OWL CM119	01/03/2010 00:17	0.4	b used in t	n 1 minut	o poriod	0.0210	0.0048	0.0005	0.0005	0.0422	0.04	2.1.11 po		
OWL CM119	01/03/2010 00:19	0.4			e penou,	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:20	0.50	to get the P	win's us	ed in one	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:21	0.4hou	ur the sum	of 1hours	s data	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:22	0. nee	eds to be ta	aken		0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:24	0.4				0.0210	0.0047	0.0005	0.0005	0.0408	0.0398	0.0422	0.0020	0.0020
OWL CM119	01/03/2010 00:25	0.4	0.246	<b>‹</b> Wh		0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:26	0.4				0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:27	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 00:29	0.43	8.73	0.0128	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:30	0.43	8.73	0.0128	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:31	0.43	8.73	0.0124	0.0117	0.0128	0.0028	0.0003	0.0003	0.0248	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:32	0.43	8.73	0.0117	0.0117	0.0117	0.0027	0.0003	0.0003	0.0234	0.0234	0.0234	0.0012	0.0012
OWL CM119	01/03/2010 00:33	0.43	8.73	0.0121	0.0117	0.0128	0.0028	0.0003	0.0003	0.0244	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:35	0.43	8.73	0.0135	0.0128	0.0140	0.0031	0.0003	0.0003	0.0272	0.0258	0.0281	0.0013	0.0013
OWL CM119	01/03/2010 00:36	0.43	8.73	0.0131	0.0128	0.0152	0.0030	0.0003	0.0003	0.0262	0.0258	0.0305	0.0013	0.0013
OWL CM119	01/03/2010 00:37	0.43	8.73	0.0128	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:39	0.43	8.73	0.0128	0.0128	0.0132	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:40	0.43	8.73	0.0125	0.0117	0.0128	0.0029	0.0003	0.0003	0.0251	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:41	0.43	8.73	0.0121	0.0117	0.0128	0.0028	0.0003	0.0003	0.0244	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:42	0.43	8.73	0.0124	0.0117	0.0128	0.0028	0.0003	0.0003	0.0248	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:44	0.43	8.73	0.0119	0.0117	0.0140	0.0027	0.0003	0.0003	0.0239	0.0234	0.0281	0.0012	0.0012
OWL CM119	01/03/2010 00:45	0.43	8.73	0.0121	0.0117	0.0128	0.0028	0.0003	0.0003	0.0244	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:46	0.43	8.73	0.0128	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:47	0.43	8.73	0.0128	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:49	0.43	8.73	0.0128	0.0128	0.0128	0.0030	0.0003	0.0003	0.0258	0.0258	0.0258	0.0013	0.0013
OWL CM119	01/03/2010 00:50	0.43	8.73	0.0124	0.0117	0.0128	0.0028	0.0003	0.0003	0.0248	0.0234	0.0258	0.0012	0.0012
OWL CM119	01/03/2010 00:51	0.43	8.73	0.0117	0.0117	0.0117	0.0027	0.0003	0.0003	0.0234	0.0234	0.0234	0.0012	0.0012
OWL CM119	01/03/2010 00:52	0.43	8.73	0.0196	0.0140	0.0210	0.0045	0.0003	0.0005	0.0394	0.0281	0.0422	0.0019	0.0014
OWL CM119	01/03/2010 00:53	0.43	8.73	0.0224	0.0210	0.0233	0.0052	0.0005	0.0005	0.0450	0.0422	0.0469	0.0022	0.0021
OWL CM119	01/03/2010 00:55	0.43	8.73	0.0233	0.0233	0.0233	0.0054	0.0005	0.0005	0.0469	0.0469	0.0469	0.0023	0.0023
OWL CM119	01/03/2010 00:56	0.43	8.73	0.0233	0.0233	0.0233	0.0054	0.0005	0.0005	0.0469	0.0469	0.0469	0.0023	0.0023
OWL CM119	01/03/2010 00:57	0.43	8.73	0.0233	0.0233	0.0233	0.0054	0.0005	0.0005	0.0469	0.0469	0.0469	0.0023	0.0023
OWL CM119	01/03/2010 00:58	0.43	0.73 8.73	0.0233	0.0233	0.0233	0.0054	0.0005	0.0005	0.0469	0.0469	0.0469	0.0023	0.0023
OWL CM119	01/03/2010 01:00	0.43	8.73	0.0231	0.0222	0.0257	0.0053	0.0005	0.0006	0.0464	0.0445	0.0515	0.0023	0.0022
OWL CM119	01/03/2010 01:01	0.43	8.73	0.0222	0.0222	0.0222	0.0051	0.0005	0.0005	0.0445	0.0445	0.0445	0.0022	0.0022
OWL CM119	01/03/2010 01:02	0.43	8.73	0.0217	0.0210	0.0222	0.0050	0.0005	0.0005	0.0436	0.0422	0.0445	0.0021	0.0021
OWL CM119 OWL CM119	01/03/2010 01:03	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 01:05	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 01:06	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021
OWL CM119	01/03/2010 01:07	0.43	8.73	0.0210	0.0210	0.0210	0.0048	0.0005	0.0005	0.0422	0.0422	0.0422	0.0021	0.0021



# 6.0 CHART PRINTING

A simple version of the charts can be printed by selecting the Print option in the Export/Print menu.

