efergy

Wireless Energy Monitor

Art. no 36-5041

Modell efergy e^2-IR

efergy.com

Contents

1. Introduction

Wireless Electricity Monitor

Art. no 36-5041   Model efergy e^2-IR

- The energy monitor shows how much energy is currently being consumed. The energy monitor is also able to display energy costs.
- The display unit is portable allowing you to measure power consumption directly on any device or appliance in your home.
- Measures energy consumption by reading your electricity meter's optical pulse output LED*.
- Easy installation. No invasive installation required. The optical sensor mounts directly over the optical pulse output LED found on all modern electricity meters.
- The sensor transmits electricity consumption data to the display unit.
- Display values: Cost, kWh consumption, average consumption and log of previous readings.
- PC connectivity via the USB port. Statistical reports for PC. Compatible Windows versions: Windows XP SP3, Vista x32, Windows 7 and Windows 8.
- Display unit: 3 x AAA/LR03 batteries. Transmitter: 3 x AA/LR6 batteries (sold separately).

* There are two types of pulse output LEDs: One is the pulse IR LED which emits invisible light. The other is the pulse LED which emits a visible red, yellow or green light.

2. Safety

IT IS VERY IMPORTANT THAT YOU TAKE INTO CONSIDERATION A FEW SIMPLE PRECAUTIONARY MEASURES BEFORE USING THIS PRODUCT.

Efergy electricity monitors are easy to install. Still, there are some essential safety rules that you must be conscious of:

- Read and follow the important information contained in the following pages.
- If you find something unusual in or around the distribution box such as loose cables, bare cables, burn marks, holes in the insulation material or any other damage, etc. you must immediately stop work and contact your electric company or the person responsible for electrical installations.
- The optical sensor should be mounted over the electricity meter's pulse diod. You are under no circumstances to connect the monitor to anything else in or around the electricity meter.
- No cables or other objects near the electricity meter should be cut or modified. Do not break any seals or such on the meter.
- If you are uneasy or have any questions regarding the fitting of the electricity monitor's optical sensor, contact a qualified electrician immediately.
- The optical sensor will not need to be removed at all during the normal useful operating life of the electricity monitor. However, the transmitter and display unit require batteries that will need to be changed occasionally.

3. Package contents

- Optical sensor
- Transmitter
- Display unit (receiver)

The package also contains:
- USB cable
- Energy saving tips pamphlet
- CD-ROM software disc
- Instruction manual
- Quick guide
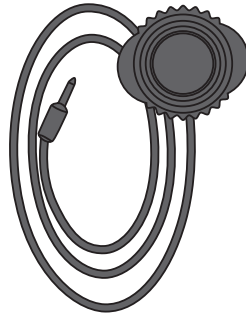
Optical sensor

Transmitter

Display unit

4. Buttons and functions

4.1 Display unit (receiver)

[TIME PERIOD] Save and finish.

[◄] Step left.

[►] Step right.

[UNIT/SET] Confirm setting and advance.

[FUNCTION] (on top) Function button for display setup.

[LINK] (on back) Link button for wireless linking to the transmitter.

[TIME SET/ALARM ON/OFF] (on back) Setting the time.

4.2 Transmitter

Button for the wireless linking of the transmitter and receiver/display unit.

5.1 Locating the pulse diode on your electricity meter

The electricity meter has a pulse diode that flashes in proportion to the amount of energy passing through the cables. There are two types of pulse LEDs: One is the pulse IR LED (A) which emits invisible light. The other is the pulse LED which emits with a visible red, yellow or green light (B).

A. Although the IR diode is invisible to the naked eye, it can still be located using certain mobile phones.
Checking your mobile phone's diode detection capability: Aim your mobile phone's camera at the front of your DVD's or TV's remote control (where the IR diode is). Then press one of the remote control's buttons. If a dot of light on the front of the remote control is visible on your phone's display, it means your phone can be used.
Preparing your mobile: Set your mobile phone to camera or video mode and then aim it at the electricity meter. Use your display to locate the white flashing IR diode.
The diode will have a marking close to it with the impulse rate listed in kWh. This marking may look something like this 1,000 imp/kWh (1,000 impulses per kilowatt hour)
Write this information down before mounting the optical sensor, since the sensor may block this information once installed.

B. This pulse diode has a visible red, yellow or green light.
The diode will have a marking close to it with the impulse rate listed in kWh, e.g. 800 imp/kWh.
Warning! Do not touch any metal connections while mounting the optical sensor.

Two examples of typical IR LED and impulse rate markings.
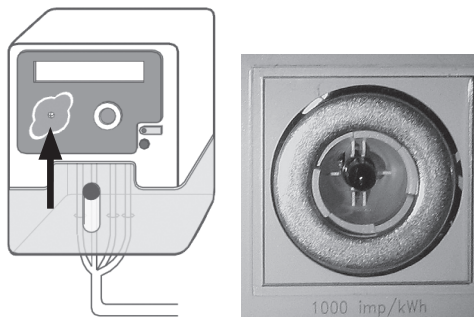
5.2 Mounting the optical sensor

1. Make sure of the exact location of the pulse diode before mounting the base plate.
2. Unscrew the sensor body from the base plate. Remove the protective strip from the base plate exposing its self-adhesive surface, then centre the hole directly over the pulse diode and press it firmly to the surface to fix it into place.
3. Screw the sensor back onto the base. Plug the sensor's wire into the socket on the bottom of the transmitter. Consumption data is sent wirelessly to the display unit via the transmitter.
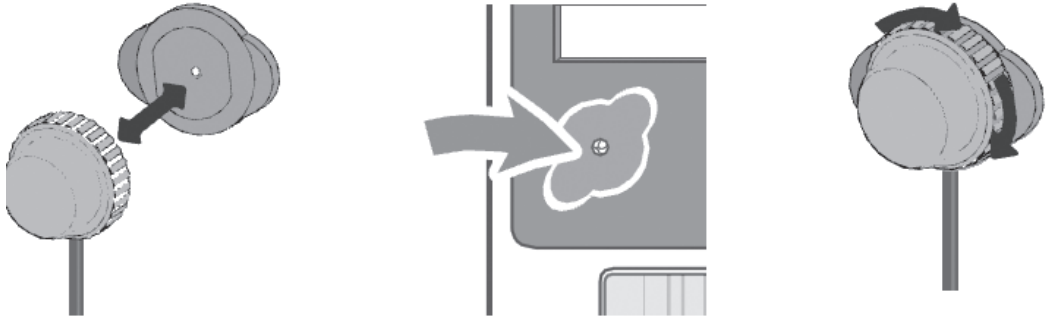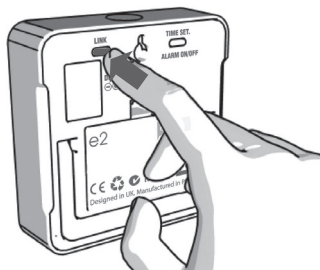

5.3 Connecting the optical sensor to the transmitter

Insert the sensor's plug wire into the socket on the underside of the sensor.
Consumption data is sent wirelessly to the display unit via the transmitter.
The energy consumption will then show directly on the display.

6. Linking the transmitter and display unit

1. Start by inserting three AA/LR6 batteries into the transmitter's battery compartment, and three AAA/LR03 batteries in the display unit's battery compartment.
   Tip: If the transmitter is located outdoors, it is extra important to use good quality batteries. Use alkaline batteries which withstand cold better.


Symbol for transmission

Tip: If synchronisation is successful, the transmission symbol will appear on the display.

2. Hold in the [LINK] button on the back of the display unit for about two seconds. The transmission symbol should flash for one minute.

3. During this time, while the transmission symbol is still flashing, press the button on the transmitter. Wait until the transmission symbol becomes solid.
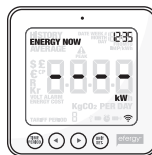
Unsuccessful synchronisation

If unsuccessful, $- - -$ will appear on the display.

N.B. Update interval is set at 30 seconds. This means that the transmitter relays information every 30 seconds.

7. Setting the time and date

The electricity monitor must be programmed with the correct time and date in order to give accurate information.

N.B. Make sure that the time and date of the electricity monitor match the time and date on your computer, otherwise you may experience difficulty when transferring data. Remember that you will have to change from summer to winter time manually.

Setting the time and date:

1. On the back of the display there is a settings button [TIME SET/ALARM ON/OFF]. Press and hold in this button for two seconds. The hours display will begin to flash. Set the correct hour using the [◄] and [►] buttons. Press [UNIT/SET] to confirm and to advance to the minutes setting.
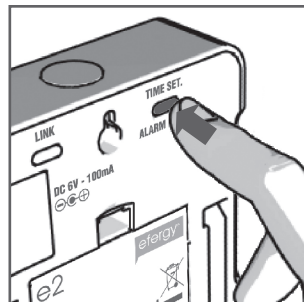
2. Set the correct minutes using the [◄] and [►] buttons. Press [UNIT/SET] to confirm and to advance to the year, month and day setting. Press [TIME PERIOD] to finish and exit the settings mode.

8. Single tariff setup

The electricity monitor must be programmed with the correct unit cost per kWh if it is to provide you with accurate cost readings. Set the tariff as follows (valid only if you DO NOT have a dual tariff meter):

**First enter the settings mode:** Press and hold in [UNIT/SET] for two seconds.
N.B. If no button is pushed for 20 seconds the display will go back to normal display mode without saving any changes.

8.1 The number of impulses per kilowatt hour

All newer model electricity meters are marked with how many impulses the IR LED delivers per kilowatt hour. This marking may look something like this 1000 imp/kWh (1000 impulses per kilowatt hour).

Setting the number of impulses:
1. Hold in [UNIT/SET] for about two seconds to enter the settings mode for impulse rate settings per kWh. The following symbols will appear on the display: "imp/kWh" and "1000" will flash (1000 impulses is the default setting).
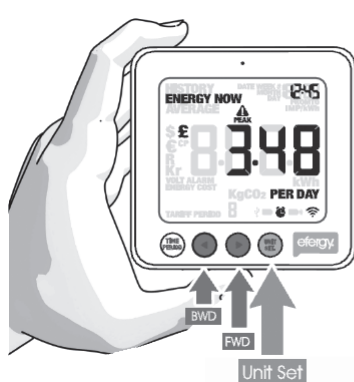
8.1 The number of impulses per kilowatt hour

8.2 Currency

8.3 Costs

8.4 Kilo carbon dioxide per kWh

8.5 Alarm

2. Enter the information marked (XXXX imp/kWh) found next to the IR LED. Set the correct values using [◄] and [►]. Each press changes the impulse value by 100 impulses.
3. Press [TIME PERIOD] to confirm and continue.

8.2 Currency

Set the correct currency (kr, €, $, R or ₤) using the using the [◄] and [►] buttons.
Press [UNIT/SET] to confirm and to advance to the tariff setting.

Single tariff:
"TARIFF" appears and "1" flashes. Press [UNIT/SET] to confirm if you have just one single tariff. Refer to section 9 if you have an electricity meter for dual tariffs.
Tip: During the entire installation process you may press [TIME PERIOD] to save your settings and return to normal display mode.

8.3 Costs

Set the correct tariff rate using the [◄] and [►] buttons. Press [UNIT/SET] to confirm and continue.

8.4 kg CO_2 (kg carbon dioxide per kWh reference value)

The kg CO_2/kWh can be adjusted with the [◄] and [►] buttons. Press [UNIT/SET] to confirm and continue on to setting the alarm.

8.5 Alarm (High-energy consumption alarm)

The default alarm value is set to 5 kW. If the alarm function is activated and you consume more than 5 kW a buzzer will sound.
1. The alarm activation value can be set using the [◄] and [►] buttons. Press [UNIT/SET] to confirm and then [TIME PERIOD] to exit the settings mode.
2. Press [TIME SET/ALARM ON/OFF] on the back of the display unit to activate or deactivate the alarm.
3. The ⏰ symbol is displayed when the alarm is activated.

9. Multiple tariff setup

N.B. This section only applies if you have multiple tariffs.

If you have an electricity meter with dual tariff rates, you need to programme the electricity monitor for this function.

9.1 Activation of multiple tariffs

Press and hold in [UNIT/SET] for two seconds. The value for number of impulses per kilowatt hour will begin to flash. Press [UNIT/SET] two times to confirm and open the dual tariff settings mode. "TARIFF" appears and "1" flashes. Select the number of tariffs using the [◄] and [►] buttons. Press [UNIT/SET] to confirm.

9.2 Set the start and end time for tariff 1

This applies **only** if additional tariffs are activated besides tariff 1. "TARIFF START TIME" appears. "12.00" (start time) flashes. Set the start time (hours and minutes) using [◄] and [►] and press [UNIT/SET] to save and continue to the next setting. TARIFF START TIME will be replaced on the display by "TO". Set the end time for TARIFF 1 in the same way as you did for the start time. Repeat the procedure if you have more tariffs.

Example: You are on an Economy-7 tariff from 01.00 to 08.00. Set the TARIFF START TIME 01.00 and TO 08.00. Press [UNIT/SET] to confirm. Then set the tariff per kWh for both tariffs for both day and night.
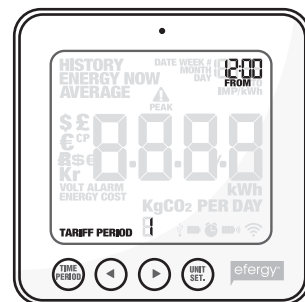
9.3 Set tariff 1 rates

The default tariff will begin flashing. Set the correct tariff rate per kWh using [◄] and [►]. Push [UNIT/SET] to confirm. The next activated tariff will appear on the display (2, 3 or 4 depending on the number of activated tariffs).
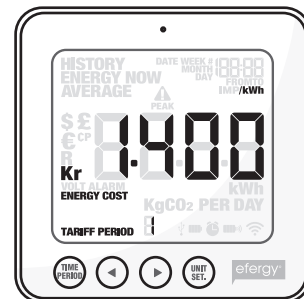
9.4 Set tariff rates for 2, 3 and/or 4

The default tariff will begin flashing. Set the correct tariff rate per kWh using [◄] and [►]. Push [UNIT/SET] to confirm.

Note: The time period for final tariff, whether it is 2, 3 or 4, does not need to be set manually. It will automatically occupy the open time period not occupied by the other tariff/s.

15
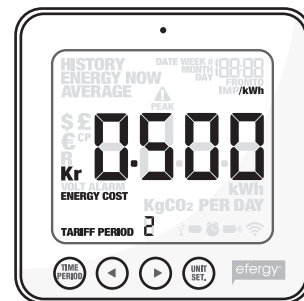
10. Display information

Press [FUNCTION] to select a display of the **present energy consumption**, **previous consumption** or **average consumption**.
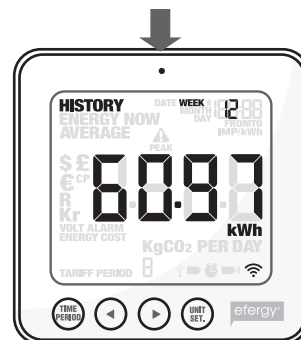

Energy now
Displays current values.

Choose from kW, £ per day and kg CO_2 per day.
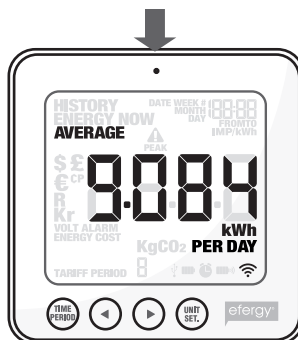
Average
Shows average value.

Choose between day/week/month and period's average consumption in kWh, costs or carbon dioxide emissions*.

History
Displays previous values.

Choose between day/week/month, period's average consumption in kWh, cost or carbon dioxide emissions* and period to be displayed.

* Amount of CO_2 (in kilograms) produced for the electricity you have consumed. The amount of CO_2 produced depends on how your electrical energy is produced e.g. hydro-electric-, wind-, coal-power, etc. The kg CO_2 per kWh value must be set manually (see section 8.4).

10.1 Energy now

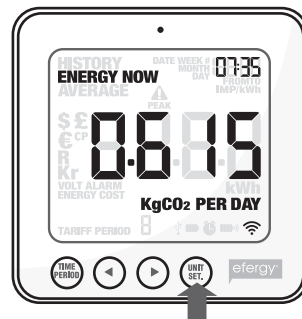Press [UNIT/SET] to switch the display information between different readings:
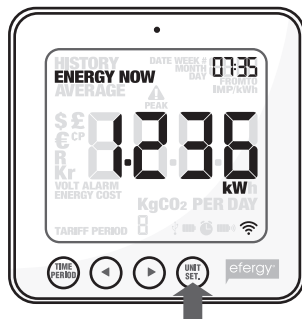
kW
Total current energy consumption.
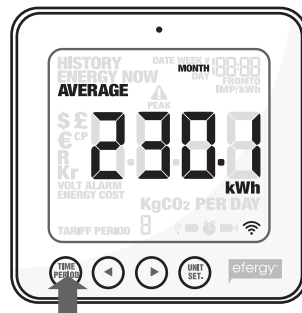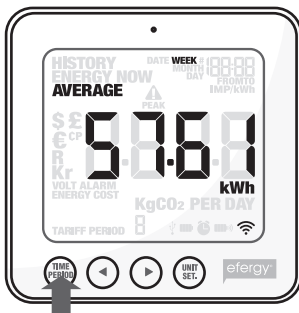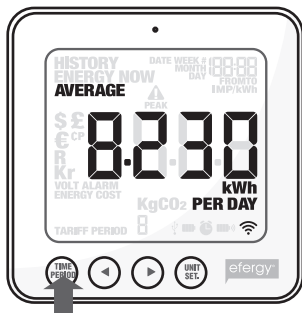
£ per day
Today's energy costs so far.

kg CO_2 per day
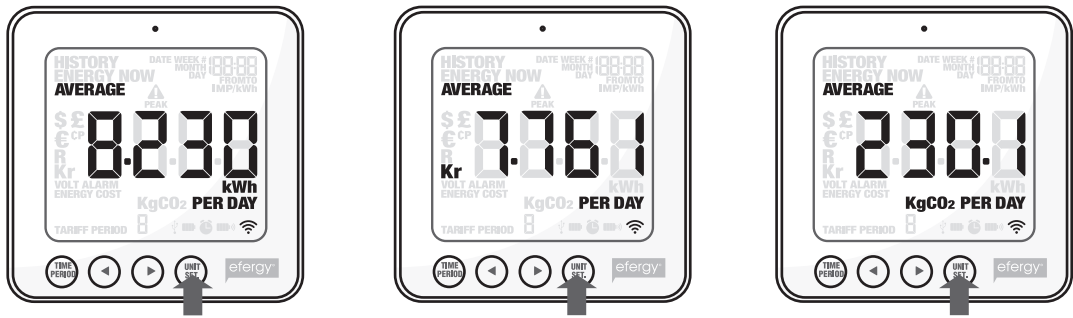Carbon dioxide produced so far today.

10.2 Average

Press [TIME PERIOD] several times to select display of energy consumption. **Day** (today's consumption) – **Week** (this week's consumption) – **Month** (this month's consumption)*.
* **Day** (from 00.00 to 23.59) – **Week** (Saturday to Sunday) – **Month** (first to last day of the month).

Press [UNIT/SET] to switch the display information between **kWh** (energy consumption) – **£** (cost) – **kg CO$_2$** (amount of CO$_2$).

10.3 History

Press [TIME PERIOD] several times to select display of energy consumption. **Day** (today's consumption) – **Week** (this week's consumption) – **Month** (this month's consumption)*.
* **Day** (from 00.00 to 23.59) – **Week** (Saturday to Sunday) – **Month** (first to last day of the month).

Switch between days/weeks/months using the [◄] and [►] buttons to compare energy consumption over different periods.

Press [UNIT/SET] to switch the display information between **kWh** (energy consumption) – **£** (cost) – **kg CO$_2$** (amount of CO$_2$).

11. Symbols on display

The following symbols appear on the display:

▮▮▮▸	Flashes when display batteries are low.
▮▮▮▸�ᵖ⁾	Flashes when transmitter batteries are low.
⏰	Alarm activated.
⏰	Alarm deactivated.
⟙	USB cable connected.

12. Toubleshooting/FAQ

If I remove the battery, will I lose all my saved data?
No, the information is saved in the internal memory and is not lost when the battery is changed.

How do I reset the display (erase all data and start over)?
The display should be in display mode so that "ENERGY NOW" is displayed, if not press [FUNCTION] and advance to ENERGY NOW.
Press and hold in both the [TIME PERIOD] and [UNIT SET] buttons simultaneously for three seconds until "CLr" appears on the display.
Note: If you reset the energy monitor all information on previous consumption is erased. However, the time and date will be saved in the memory.

What is the transmitter's range?
The range is up to 40 metres in a normal home. The 433 MHz frequency is very suitable for this purpose. With good conditions the signals are able to span up to three floors.

The display shows – – – . What does it mean?
Move the display unit closer to the transmitter and press [LINK]. If the problem persists, contact our Customer Services.

Why does the backlight come on sometimes, but not all the time?
The backlight is timer-controlled in order to save the battery. It is only active between 6 pm and 6 am.

The transmitter and the display unit (receiver) don't seem to have contact with each other. What do I do?
Move the display unit closer to the transmitter and press [LINK]. If this does not help, try changing the batteries in the transmitter.

How much electricity can the electricity monitor measure?
It can measure up to 999 kWh in a week.

My computer loses contact with the electricity monitor when I connect it to the USB port, what should I do?
Unplug the USB cable and then plug it in again.

I am having trouble transferring my data from my electricity monitor to my computer, what should I do?
Make sure that the time and date on the two devices is the same. Remember that you will have to change from summer to winter time manually.

The elink software shows "NO CONNECTION TO SERVER".
1. Install the latest version of Adobe AIR.
2. Install the latest version of Java.
3. Enable the installation of Java when the message appears as you open the Elink software. It should now be operational.

It is not possible to transfer data to computers using Windows Vista and Windows 7/8.
In order to be able to transfer data to computers using Windows Vista and Windows 7/8, the UAC (User Account Control) must be disabled/turned off by going to the Control Panel and selecting Change User Account Settings.

How do I clear the monitor display?
Press and hold in both the [TIME PERIOD] and [UNIT SET] buttons simultaneously for three seconds until CLr appears on the display.

Does the electricity monitor work with Windows 7/8?
The electricity monitor is compatible with both the 32-bit and 64-bit version of Windows 7/8.

13. Disposal

Follow local ordinances when disposing of this product. If you are unsure of how to dispose of this product, please contact your local authority.

14. Specifications

Model	efergy e^2-IR
Frequency	433 MHz
Transmission intervals	30 seconds
Range	> 40 metres
Accuracy	> 90 %
Backlight	Activated between 6 pm and 6 am
Power supply	Display unit (receiver): Batteries: 3 x AAA/LR03 (not included) Transmitter: Batteries: 3 x AA/LR6 (not included)
Impulse range per kWh	100–10,000 imp/kWh

15. Installing the provided software

15.1 Preparations before software installation

Uninstall and previous version of the elink software.
Note: If you are re-installing efergy elink software, you must uninstall any previous versions of the elink software and any files/folders related to it before installing the new version.
Note: Follow these installation instructions carefully.

- The latest versions of Adobe AIR and Java must be installed on your computer before installing the provided software (efergy elink).
- If you want to be able to view your saved data files (in another programme besides elink) then Microsoft Excel must also be pre-installed before installing the new elink software. You can always view your files using efergy elink's own software.

1. Make sure that the latest versions of Java and AdobeAIR are installed on your computer before beginning software installation, if not download the latest versions. Search for the Java icon in your Control Panel, click on the icon to check which version you have. You can also use the icon to update to the latest version.
2. Retrieve the latest version of Adobe AIR from http: get.adobe.com/air/ or Adobe's webpage. You might need to disable your antivirus software temporarily to enable the installation.

3. Retrieve Java from: **www.java.com**
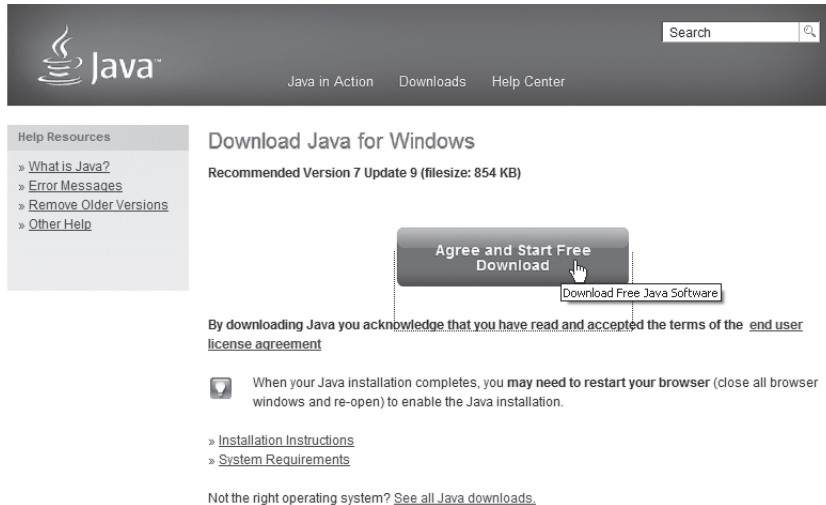
4. Check that your UAC (User Account Control) is:
    *   Turned off (applies to Windows Vista).
    *   Lowered to no higher than level 3 (applies to Windows 7).
    Procedure: Open the *Control Panel* and select **User Accounts**. Click on **Change User Account Settings** and check/change the settings. Click **OK** to return to the main menu.
5. Make sure you are logged on as the administrator (select **Run as Administrator**).

## 15.2 Installing efergy elink 2.1 software

1. Insert the provided CD-ROM into the computer's CD player, open *Explorer* and click on **elink_v21**.
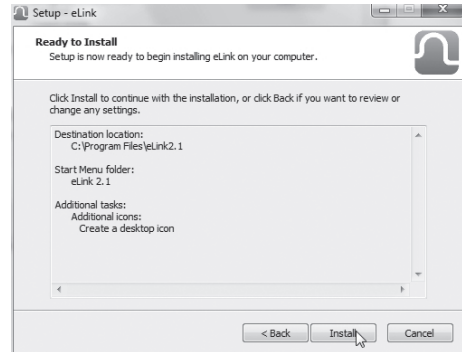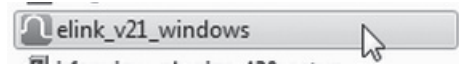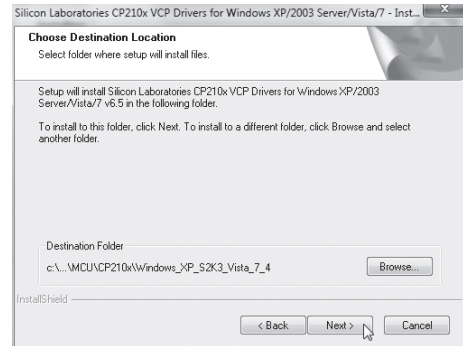

2. Click on **Next** in the following boxes.
3. Click on the **ELINK V2.1 for Windows** icon, and then click on **Next** in the subsequent boxes.

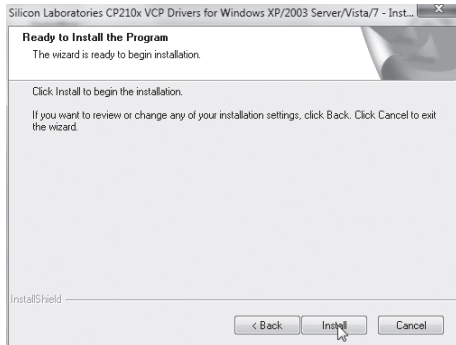4. Click on **Install** when the "Ready to install" box appears.
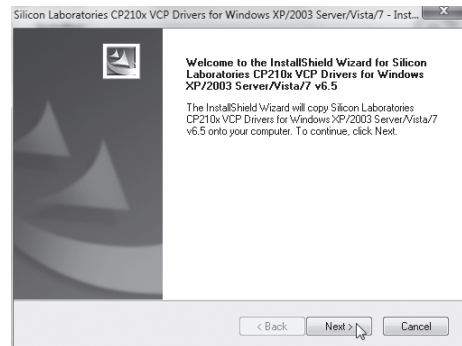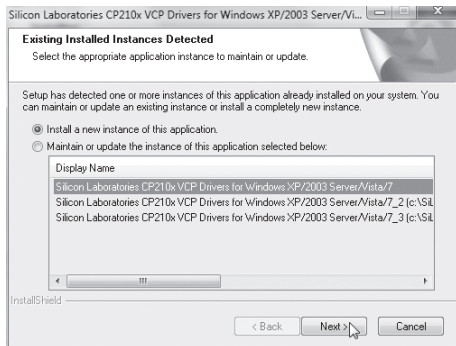
5. Click on **Next** to continue the installation. The drivers will now be installed.
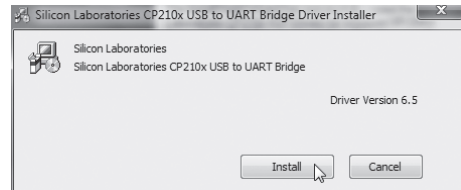
6. Click on **Next** to continue.
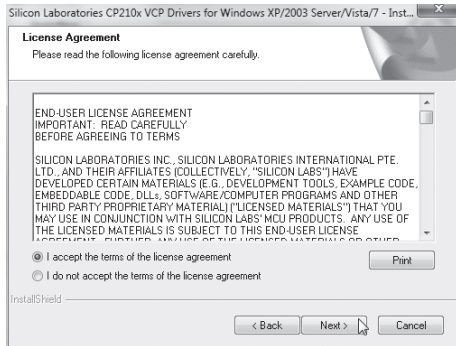
7. Accept the licence agreement by clicking on **I accept the terms …**
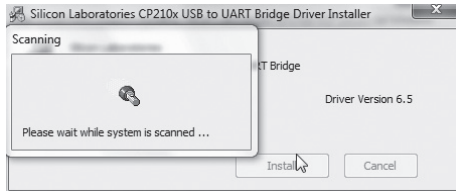Click on **Next**.

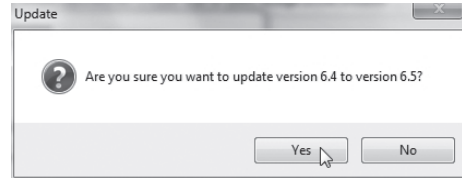8. Click on **Next** in the following boxes.

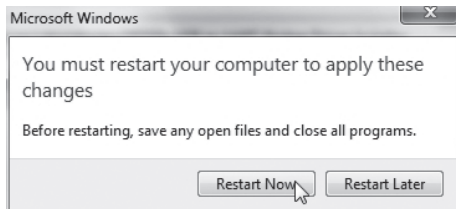9. Click on **Install** in the following two boxes.

10. The computer will now be searched for the installed drivers.

11. Confirm the update by clicking on **Yes**.

12. You will now be prompted to restart your computer. Click on **Restart Now** to confirm.

13. After the restart an application window will appear. Click on **Finish** to complete the installation and start the program.

14. Connect the electricity monitor: Make sure that the time and date on the computer and electricity monitor are the same. Connect the electricty monitor to one of your computer USB ports using the provided cable. Depending on you computer, it could take 15 to 30 seconds for the computer to recognize the electricity monitor and install the relevant drivers. Wait until the installation is completely finished and a prompt comes onto the screen asking you to specify which device you have connected. Select **e2 Wireless Energy Monitor** and click on **select device**.
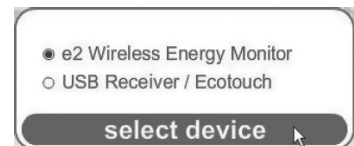
15. In the event that your computer does not find your electricity monitor: Unplug the USB cable, wait for 15 to 20 seconds and then plug the cable into another USB port on the same computer.

15.3 Running the program

1. Click on the **elink** icon on the desktop to run the program.

2. Adjusting your settings: Click on **Settings**.

User settings

Enter your **Name**, **Country**, **Postcode**, **Carbon ratio** (kg carbon dioxide per kWh) and **Voltage**. The value can be set using the [◄] and [►] buttons. Press [UNIT/SET] to confirm and continue.

Target

Set the **Time period** (time period for comparison of energy consumption). Choose from: **Day**, **Week** or **Month**.
Set the **Target** (the consumption you wish to stay below (000-999)).
Set the unit displayed, **kWh**, **£** or **kg carbon** (value of CO_2 emission corresponding to your energy consumption).

Time and Data (time synchronisation and data editing)

The **Sync Date** function, for synchronising time is not available on this product. The time must be set manually.
Reset Data (deletes your settings and any saved data).
Warning: Clicking on **Reset Data** (and confirming in the subsequent box) will delete your saved data and settings.

Energy Cost (your electricity tariffs)

Start by finding your latest electricity bill. Fill in the necessary information under **Energy Cost**.

Utility ID

Enter the name of your electricity provider, supplier or meter location.

Periods (enter tariff)

1. Click on **Add period…** to create one or more tariffs. The tariff units are named **p1**, **p2**, etc.
2. Enter a tariff and the time and the days for each period in turn.
3. Click on **Apply and save settings** to save your settings. Click on **Clear** to finish without saving your settings.

Tiers (for those with tiered rates)

1. Click on **Add tier…** to create one or more cost levels. The tiers are named **t1**, **t2**, etc.
2. Enter the threshold value in kWh per month.
3. Enter your tariff per kWh.
4. Click on **Apply and save settings** to save your settings. Click on **Clear** to finish without saving your settings.

Monthly standing charge (divide quarterly figure by 3)

1. Enter the fixed amount you pay to your supplier every month.
2. Click on **Apply and save settings** to save your settings. Click on **Clear** to finish without saving your settings.


Troubleshooting

Click on troubleshooting to open a contact box. Describe your problem for the manufacturer. Fill in your name and e-mail address and click on **Send email**.

15.4 Collect data from the electricity monitor

When all the settings have been made the elink software is ready for use.
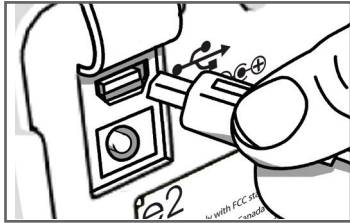
1. Connect the provided USB cable from the electricity monitor's USB port (under the rubber flap on the back of the unit) to a USB port on your computer.

2. Wait until the message "Your device is now connected" appears on the screen. Click on **OK**.

3. Click on **Collect Data** to retrieve data.
4. When the message "Data has been collected…" appears on the screen, the retrieval is complete. Click on **OK** to restart the program.
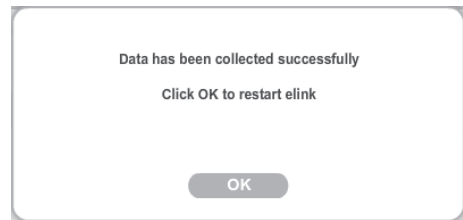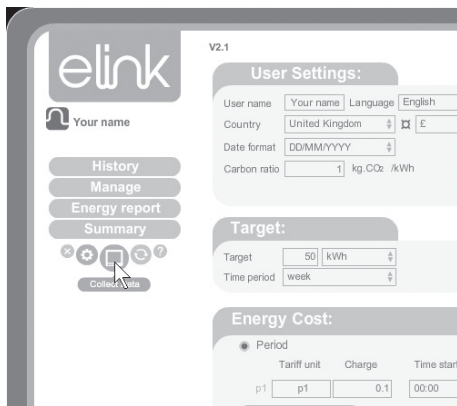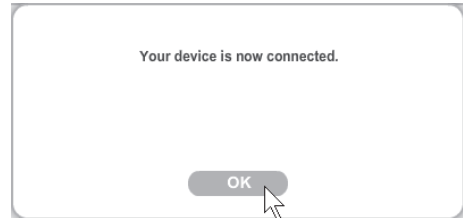
15.5 Viewing saved readings

A. History

This feature is for reviewing your usage over the past **Days**, **Months** and **Years**.

Comments called stickies can be added to help you remember events which influenced the usage:
1. Left-click on the desired day.
2. "Add stickie" appears. Click on the box.
3. Write a note/comment in the box on the left.
4. Click on the "save" symbol to save the stickie note.

B. Manage

This feature enables you to compare the cost of your energy consumption from different suppliers.

Demand
Allows you to review how much energy you consumed over various time intervals.

Plan
Allows you to see if you are over or under your planned energy consumption for a 30-day or 100-day interval.

Add Utility
Click **Add** to add another electricity provider. Click on **Save Changes** to save.

Compare
Compare the cost of your energy consumption from various suppliers to find the best deal for you.

C. Energy report

This feature enables you to send energy reports to a specified e-mail address:

1.   Select the interval using the **Report Type** box. Select either **Daily Report** or **Monthly Report**.
2.   Fill in your e-mail address.
3.   Write your message.
4.   Click on **Next**.
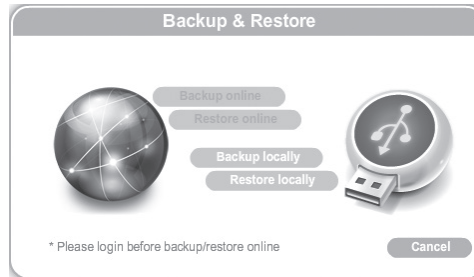5.   Click on **Send email**.

D. Summary

This feature enables you to review total **Energy**, **Cost** and **CO$_2$** output.

Step 6. Backup and Restore

Backup

1. Click on the backup symbol. Select **Backup**.

2. Click on **Make New Folder**.
3. Click on **OK** to save.
4. "Data backup successful" appears. Click on **OK** to complete this procedure.

Restore

1. Click on the backup symbol. Select **Restore**.
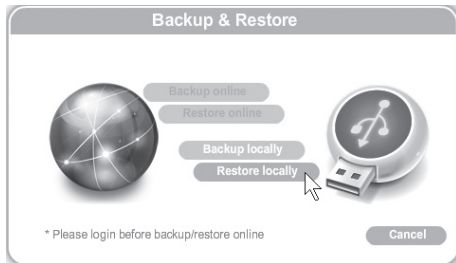
2. Select the folder containing the backup files. Click on **OK**.
3. "Data restore successful. Please quit and restart eLink" will appear when finished. Click on **OK** to complete this procedure.

Points worth bearing in mind!

- Other wireless equipment operating on the same frequency band may reduce the range of the product.
- The range of all wireless equipment is affected by obstacles between the transmitter and the receiver (a concrete wall reduces the signal far more than a plasterboard partition, for example).

If you are having problems with the operation of the system, try the following solutions

- Switch off any other wireless equipment to check whether it could be causing the problem.
- Move the wireless equipment and/or reduce the distance, and reduce the number of obstacles (walls, furniture, etc.) between the transmitter and the receiver.

Declaration of Conformity

 ϵ

Hereby, Clas Ohlson AB, declares that following product(s):

Wireless Power Meter
36-5041
e²-IR

is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

```
Article 3.1a (Safety): EN 60950-1
Article 3.1b (EMC):    EN 301489-1
                       EN 301489-3
Article 3.2 (Radio):   EN 300220-1
                       EN 300220-2
```

 ϵ

Insjön, Sweden, May 2012

Klas Balkow
President
Clas Ohlson, 793 85 Insjön, Sweden

Sverige

Kundtjänst	Tel: 0247/445 00 Fax: 0247/445 09 e-post: kundservice@clasohlson.se
Internet	www.clasohlson.se
Post	Clas Ohlson AB, 793 85 INSJÖN

Norge

Kundesenter	Tlf.: 23 21 40 00 Faks: 23 21 40 80 E-post: kundesenter@clasohlson.no
Internett	www.clasohlson.no
Post	Clas Ohlson AS, Postboks 485 Sentrum, 0105 OSLO

Suomi

Asiakaspalvelu	Puh.: 020 111 2222 Sähköposti: asiakaspalvelu@clasohlson.fi
Internet	www.clasohlson.fi
Osoite	Clas Ohlson Oy, Maistraatinportti 4 A, 00240 HELSINKI

Great Britain

Customer Service	contact number: 08545 300 9799 e-mail: customerservice@clasohlson.co.uk
Internet	www.clasohlson.com/uk
Postal	10 – 13 Market Place Kingston Upon Thames Surrey KT1 1JZ

clas ohlson