EN

efergy

Wireless Electricity Monitor

Art. no 36-4500
Modell efergy e^2

efergy.com

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2. Introduction

Wireless Electricity Monitor

Art. no 36-4500 Model efergy e^2

The metering and monitoring of energy is the basis for saving energy. You need this information in order to know where and how you can save money.

Efergy is an electricity monitor which shows how much electrical energy is being consumed in your home at the actual moment you read the display. The display can also inform the consumer how much the consumed energy costs. You can walk around your home with the display unit and turn electrical devices on and off to see the difference in power consumption directly on the display.

Please read the entire instruction manual before using the product and save it for future reference. We reserve the right for any errors in text or images and any necessary changes made to technical data. If you have any questions regarding technical problems please contact Customer Services.

3. 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:
In the UK or Ireland the installation of the electricity monitor is easy, since the only thing that is required is to connect a sensor to the incoming mains power cable. If you still feel unsure as to how to fit the sensor, we recommend that you contact a qualified electrician.

In the Nordic countries a 3-phase system is used, which means that one must install all three included sensors. The sensor clamps should be clamped over the incoming electrical cables in or outside the distribution box. Contact a qualified electrician if you are in any doubt as to how to fit the sensors.

Read and follow the important information contained in the following pages. Remember that the electricity monitor's sensors do not need to have direct electrical contact at the measuring point. The sensors should sit around the cable.

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.

Do not force or bend the cables in any way whilst fitting the sensors.

If you are uneasy or have any questions regarding the fitting of the electricity monitor's sensors, contact a qualified electrician immediately.

The sensors 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.

4. Package contents

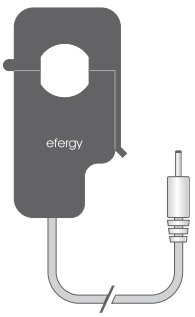
3 x sensors (current transformers)
1 x transmitter
1 x display unit (receiver)

The package also contains:
1 x USB cable.
1 x booklet with advice on how to save energy.
1 x CD-ROM software disc.
1 x instruction manual.

The sensors should be clamped onto the incoming mains power cables leading into the distribution box. All electricity consumed in the household enters through these cables.

The sensors measure the current which passes through these cables. A reading of the amount of current is then wirelessly sent to the display unit via the transmitter. The energy consumption is shown directly on the display.

Sensor



Transmitter

Receiver

5. Buttons and functions

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.

Transmitter

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

5.1 Locating the power feed cable of your electricity meter/distribution box (UK/Irland)

The Efergy electricity monitor is installed by clamping the sensor around the mains power feeder cable entering into your electricity meter.

Locating your electricity meter

Find your electricity meter and check which type you have. It is normally found on an outer wall, in the garage, in the cellar or in a utility room. If you live in a flat, it may be located near the entry door, in the stairway, or in the cellar. Make sure the cables exiting the bottom of the electricity meter are accessible.

Modern offices and flats can have safety panels which protect the cables entering the electricity meter. If this is your situation, we recommend that you contact a qualified electrician.

Finding the power supply feed cable

There are four cables at the bottom of the electricity meter. The cable on the right (cable 4) is always the live feed cable (Active phase) from the meter to the fuse box (see diagram 1).

Certain installations have cables 1 and 2 entirely or partially covered in order to hinder modification or home installation of cables before the meter (see diagram 2). Connect the sensor to cable 4 (on the far right).

Meters with dual tariffs (see diagram 3) often have an extra cable between cable 3 and 4. The extra cable has a smaller diameter than the other cables and leads to another electricity meter close by.

Diagram 1

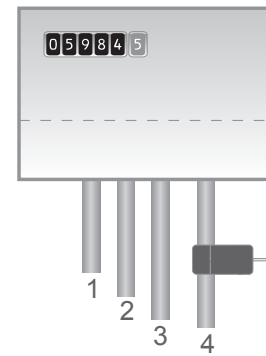


Diagram 2

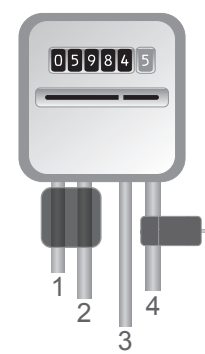
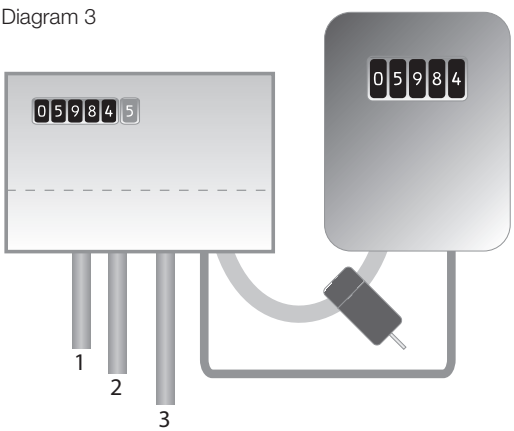


Diagram 3



Newer installations normally have two cables on the underside of the meter. One of the cables is the earth cable and the other is the feed cable. The sensor should be clamped around the feed cable (normally coloured brown).

If you have a 3-phase supply or if you have an Economy 7 meter you will need several sensors. The extra sensors easily connect to the socket at the base of the transmitter. N.B. The electricity monitor comes with 3 sensors.

Safety

You should under no circumstances connect a sensor to a cable if any of the cables leading to the meter is damaged in any way. No cables need to be cut. Do not clip any cables. Do not break any seals or such on the meter.

Contact your local electricity supplier if you are at all uncertain about connecting the sensor to the correct cable. All work inside distribution boxes/consumer units must be carried out by competent electricians.

5. 2 Locating the power feed cable of your electricity meter (SE) (NO) (FI)

The Efergy electricity monitor is installed by clamping the sensor clips around the incoming mains power cables leading to your electricity meter.

Locating your electricity meter/distribution box

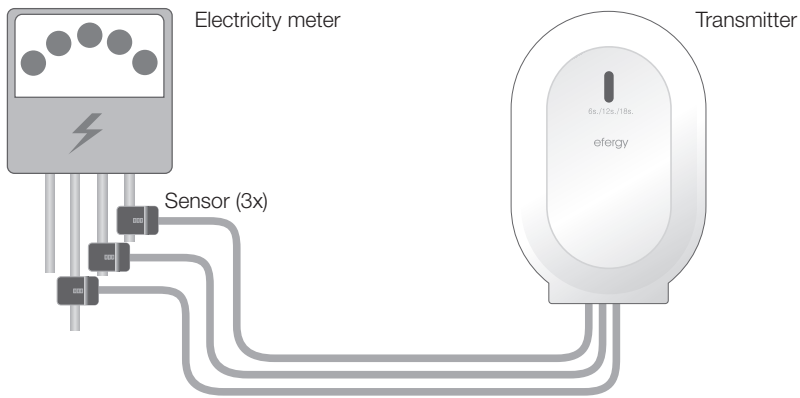
Find out where your meter is located. It is normally found on an outer wall, in the garage, in the cellar or in a utility room. If you live in a flat, it may be located near the entry door, in the stairway, or in the cellar. Make sure the cables exiting the bottom of the electricity meter are accessible.

Modern homes and flats can have safety panels which protect the cables entering the meter. These are often sealed. **Under no circumstances should the seals be broken other than by a competent electrician.** Instead, we recommend that the sensors be fitted after the main switch in your distribution box.

If you still feel unsure as to how to mount the sensor, we recommend that you contact a qualified electrician.

Finding the power supply feed cable

In Sweden, Norway and Finland there are four feed cables entering the electricity meter: 3 live phases (L1, L2, L3) and 1 neutral (N). The neutral cable is usually blue and the live cables are black or brown. Cables L1 – L2 – L3 are live and it is these that the sensors should be attached to.



Safety

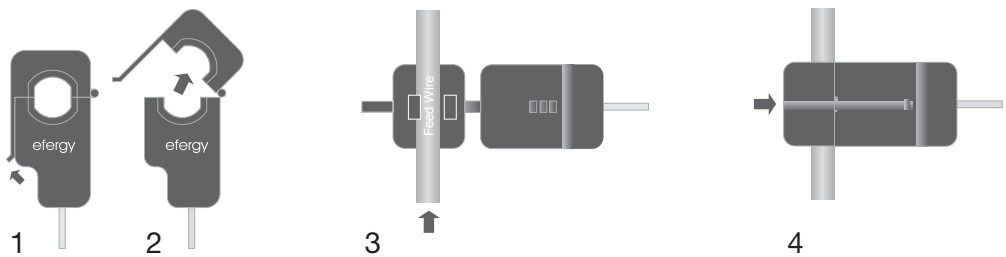
You should under no circumstances connect a sensor to a cable if any of the cables leading to the meter is damaged in any way. No cables need to be cut. Do not clip any cables. Do not break any seals or such on the meter.

Contact your local electricity supplier if you are at all uncertain about fitting the sensors to the correct cables. All work inside distribution boxes/consumer units must be carried out by competent electricians.

6. Installation - fitting

6.1 Fitting the sensors

The sensors should be clamped onto one (UK) or three (SE) (NO) (FIN) live feed cables. The sensors can be used on cables up to 12 mm in diameter. The sensor must not be fitted to the cable using force.



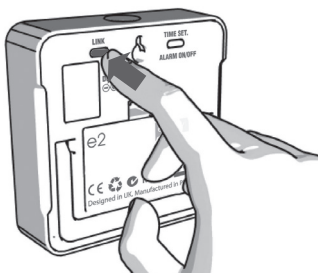
1. Find your live feed cable (UK), cables (SE) (NO) (FI).
2. Press the release cap outwards to open the sensor.
3. Make sure that you have the correct cable and place the sensor around the cable.
4. Press the sensor together and a click will be heard when the release cap locks.
5. Fit a sensor onto each live feed cable L1, L2, L3 (SE) (NO) (FI).

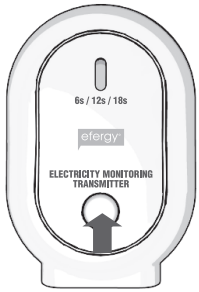
6.2 Connect the sensor to the transmitter

Plug the sensors into the sockets on the bottom of the transmitter.
The sensors/plugs do not have to be in any particular order.
The sensor meters the current which passes through these cables. A reading of the amount of drawn current is then wirelessly sent to the display unit via the transmitter. The energy consumption is shown directly on the display.

7. Linking the transmitter and display unit

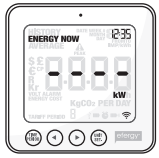
1. Start by inserting three AA/LR6 batteries into the transmitter's battery compartment, and three AAA/LR03 batteries in the display unit's battery compartment.
   Tip: If the transmitter is located outdoors, it is extra important to use good quality batteries. Use alkaline batteries which withstand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





Symbol for transmition

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



Unsuccessful synchronisation

If unsuccessful, — — — will appear on the display.

2. Hold in the [link] button on the back of the display unit for 2 seconds. The signal symbol should flash for one minute.

3. Press the button on the front of the transmitter once whilst the signal symbol is flashing and then wait until the symbol stops flashing.

N.B. The default update time is 6 seconds (LED flashes red). This means that the transmitter relays information every 6 seconds. You can change the update time from 6 s to 12 s or 18 s by pressing and holding in the button on the transmitter for two seconds (the LED changes colour).

Red = 6 s.
Orange = 12 s.
Green = 18 s.

8. Setting the time and date

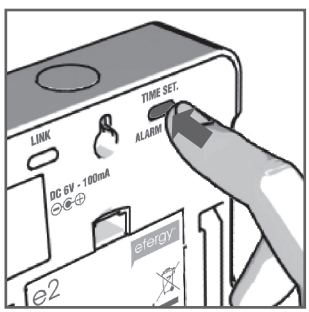
The electricity monitor must be programmed with the correct time and date in order to give accurate information.

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:

Step 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.



Step 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.

9. 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):

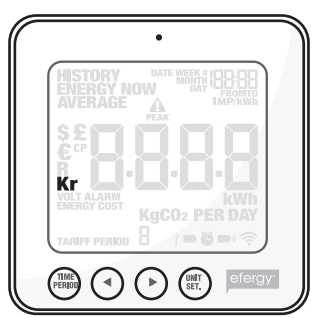
First enter the settings mode: Press and hold in [unit/set] for two seconds.
N.B. If no button is pushed for 20 seconds the display will go back to normal display mode without saving any changes.

Step 1. Voltage

Press and hold in [unit/set] for two seconds. 230* flashes (230 V is the default setting). Change the voltage using the [◄] and [►] buttons if you have a different mains voltage. Press [unit/set] to confirm and to advance to the currency setting.
* Even if you have a 400 V supply, the voltage per phase is 230 V.

Step 2. Currency

Set the correct currency (kr, €, $ or £) using the using the [◄] and [►] buttons. Press [unit/set] to confirm and to advance to the tariff setting.



Step 3. Single tariff

TARIFF appears and 1 flashes. Press [unit/set] to confirm if you have just one single tariff. Refer to section 10 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.

Step 4. Costs

Set the correct tariff using the [◄] and [►] buttons. Press [unit/set] to confirm and continue.

Step 5. kg CO_2 (kg carbon dioxide per kWh)

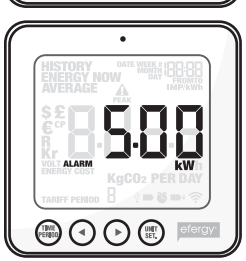
The kg CO_2/kWh can be adjusted with the [◄] and [►] buttons. Press [unit/set] to confirm and continue on to setting the alarm.

Step 6. 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 kWh a buzzer will sound. 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.

Press [alarm on/off] on the back of the display unit to activate or deactivate the alarm.

The symbol is displayed when the alarm is activated.



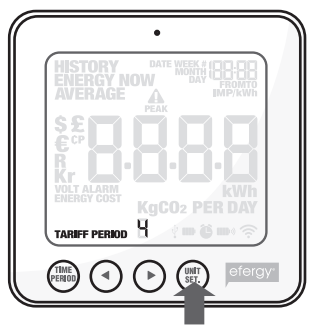
10. Multiple tariff setup

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.

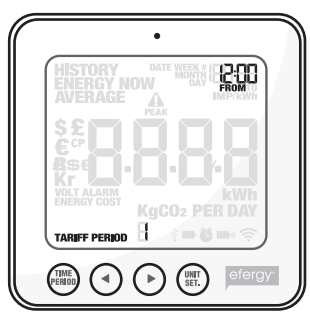
Step 1. Activation of dual tariffs

Press and hold in [unit/set] for two seconds. The value for the set voltage (230 V) 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.



Step 2. Set the start and end time for tariff 1 (this only applies if more tariffs than tariff 1 are activated)

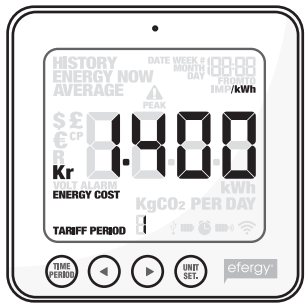
TARIFF START TIME appears. 12.00 (start time) flashes. Set the start time (hours and minutes) using [◄] and [►] and press [unit/set] to save and continue to the next setting.
TARIFF START TIME will be replaced on the display by TO. Set the end time for TARIFF 1 in the same way as you did for the start 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.

Step 3. Set TARIFF 1.

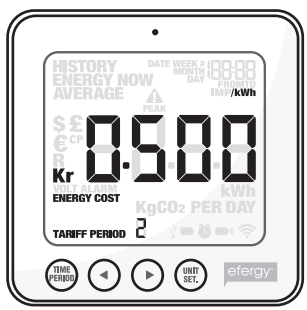
The default tariff flashes. Set the correct tariff (unit cost per kWh) using the [◄] and [►] buttons. Press [unit/set] to confirm. The next activated tariff will appear on the display (2, 3 or 4 depending on the number of activated tariffs).



Steg 4. Set TARIFF 2 (or 3, 4)

The default tariff flashes. Set the correct tariff (unit cost per kWh) using the [◄] and [►] buttons. Press [unit/set] to confirm.

N.B. The time for last tariff (2, 3 or 4) does not need to be set manually. It will automatically be the time that is not included in the previous tariff/s.

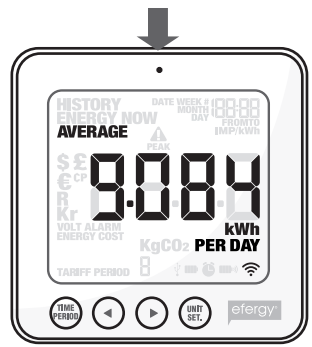


11. Display information

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

Energy now
Displays the values at the present time.

Choose from kW, £ per day and kg CO_2 per day.



Average
Displays the mean average value.

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

History
Displays earlier values.

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

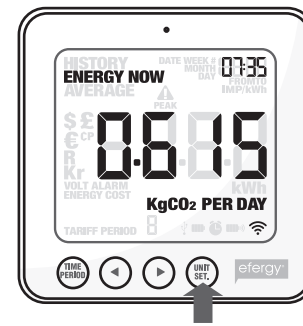
* Amount of CO_2 (in kilograms) produced for the electricity you have consumed.
The amount of CO_2 produced depends on how your electrical energy is produced e.g. hydro-electric-, wind-, coal-power, etc. It is up to you to determine and set the CO_2 per kWh value. (Refer to section 9, Step 5)

Energy now

Press [unit/set] to switch the display information between different readings:

kW
Total energy consumption just now.

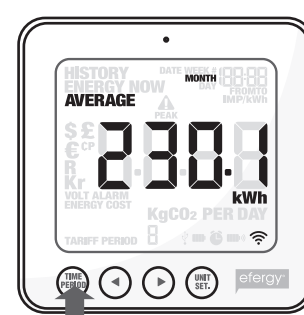
£ per day
Energy cost so far today.



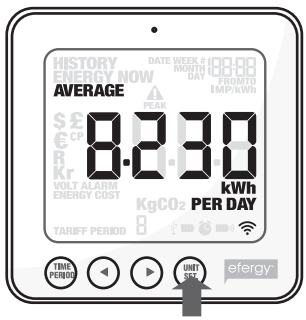
kg CO_2 per day
Carbon dioxide produced so far today.

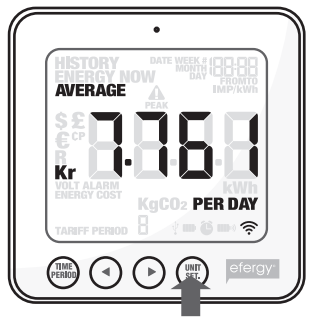
Average

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).





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).

12. Symbols on display

The following symbols appear on the display:

This symbol flashes when the display unit batteries are low.

This symbol flashes when the transmitter batteries are low.

The alarm is activated:

 The alarm is deactivated:

USB cable connected.

13. 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)?
Press and hold in [function] and [unit/set] simultaneously, Voltage (230 V) flashes when everything has been erased.
N.B. If you reset the electricity monitor all information on previous consumption is erased. However, time and date information is 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 activated from 18.00 to 06.00.

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.

How thick can the cables be that the sensors clamp onto?
The sensors can be used on cables up to 12 mm in diameter.

Setup for Norway, what do I do?
Settings specific to Norwegian electrical networks (IT-net, TN-net)
IT-net: The value should be set to 130 V, (IT net has 230 V between phases).
TN-net: The value should be set to 230 V, (TN-net has 400 V between phases).

What should the measurement voltage be set to in each respective country?
In Sweden, Norway and the UK, the voltage should be set to 230 V (even if you have a 400 V supply, each phase only has 230 V).
In Norway the measurement voltage should be set to: 130 V (IT-net) or 230 V (TN-net).

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.

14. 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.

15. Specifications

Model:	efergy e^2
Frequency:	433 MHz
Transmission intervals:	6 – 12 – 18 seconds
Range:	> 40 metres
Measuring voltage:	110 – 400 V
Measuring current:	50 mA – 95 A
Accuracy:	> 90 %
Backlight:	Activated between 18:00 and 06:00
Power supply:	Display unit (receiver): Batteries: 3 x AA/LR6 (not included) Transmitter: Batteries: 3 x AAA/LR03 (not included)

16. Installing the provided software

This wireless electricity monitor comes with “elink” software that can be installed on a computer.

N.B. The on screen display of the data can vary from the “elink” software on your computer and the on screen display on the electricity monitor. The “elink” software and the wireless electricity monitor can not replace a conventional electricity meter; they are merely intended as a guide.

N.B. The installation example shown here uses Windows XP. If you have another operating system the procedure might differ a little.

System Requirements

Hardware:
CPU: At least Pentium 4 (or equivalent)
Working memory: At least 256 MB
Storage space: At least 500 MB of available hard disk space.

Software:
Operating system: Windows XP (with SP3), VISTA 32 (with SP1).
Platform: Net framework 3.5 (with SP1).
Screen resolution: At least 800 x 600, 32-bit colour depth

Step 1: Installation

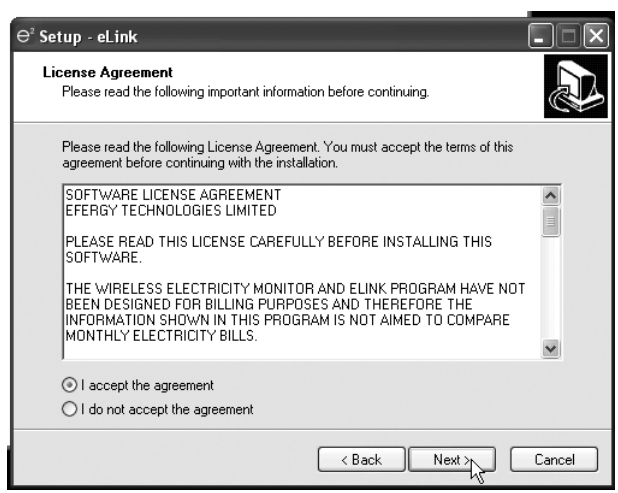
- Check this before beginning installation:
- You must have an operational Internet connection in order to install Microsoft NET. Framework.
- You must have “administrator rights”.
- The clock on the electricity monitor and the computer must be set to the same time (remember to reset after battery changes).
- If you are using Windows Vista, the “User Access Control” (UAC) must be deactivated before beginning installation.

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

2. Select a language and click **OK**.

N.B. During the installation you will be prompted twice to select a language. The first time the language is for the installation, the second time it is for the software language.

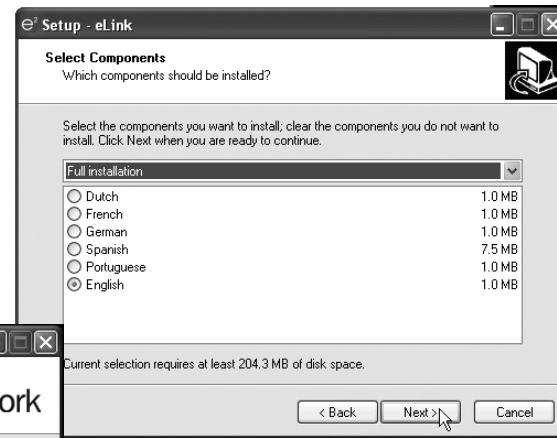
3. Select **I accept the agreement** and click **Next**.

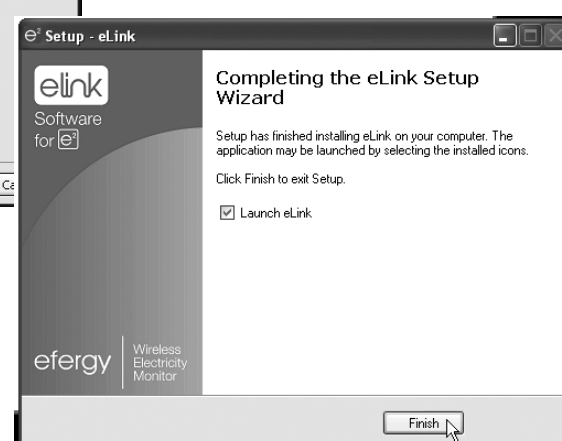


4. Select **Full installation** and then the software language. Click on **Next**.

5. Follow the on screen instructions and click on **Next** and then on **Install**.

6. Select **I have read and ACCEPT the …** and then click on **Install** again.

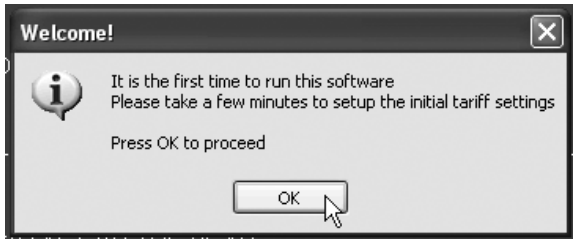




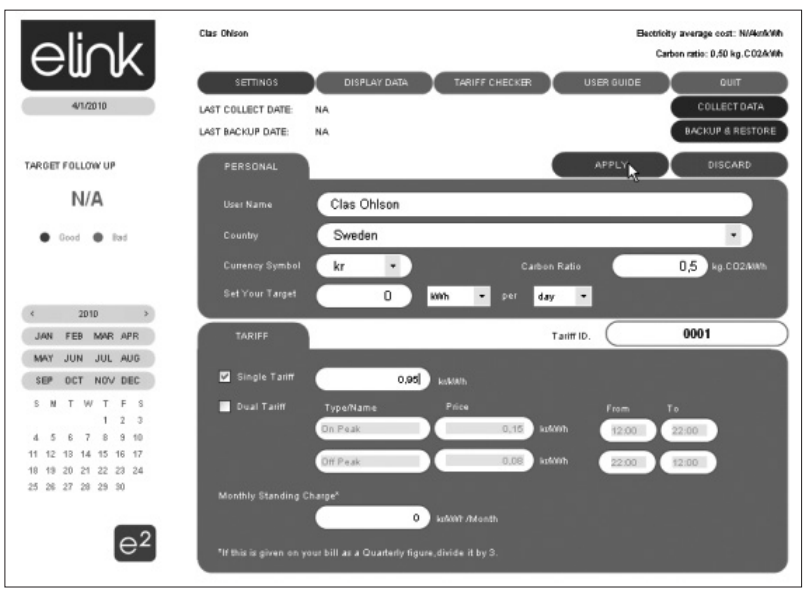
7. Click **Finish** when the installation is done.

Step 2. Set tariff

Follow these instructions before starting to download data from the electricity monitor:

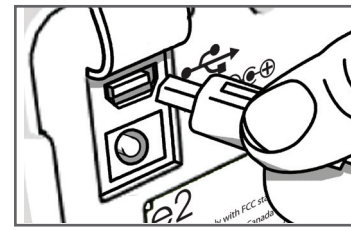


Click on **OK** when the first box appears.
Name the tariff with an ID number as a reference for when transferring data.
Enter the current electricity unit prices from your electricity supplier into the software.

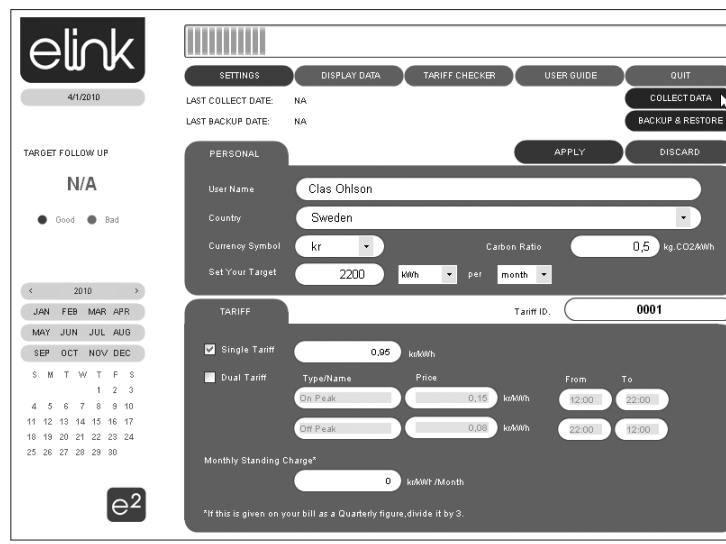


Step 3. Transfer data from the electricity monitor

When the tariff is set, the “elink” software is ready for use.
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. If it is the first time the USB cable is connected, the electricity monitor device drivers will also be installed.

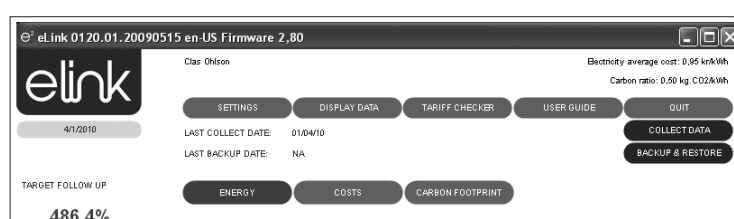


Click on **COLLECT DATA** to retrieve data. The time remaining for the data retrieval will be shown at the top.



Step 4. Start using the elink software

Click on the desired function:



Settings Display current settings, e.g. price per kWh, single/dual tariff.

Display data*, Display Energy (energy consumption in kWh), Costs (cost in pounds per day, week, month, etc.) or Carbon Footprint (amount of kg CO_2 emission for your energy consumption).

Tariff Checker (display price of different tariffs) Import Data (display tariff settings).

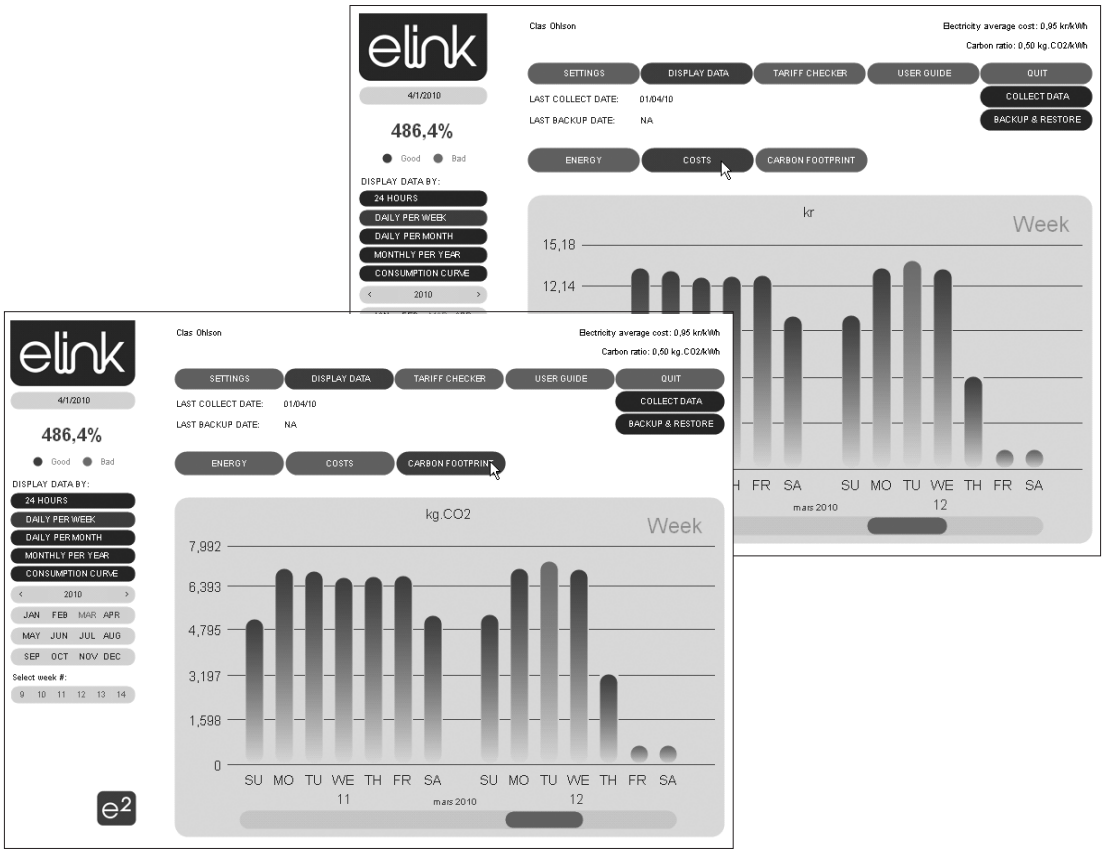
Simulate Tariffs (display tariff consumption).

User Guide (display manual) Click on **OK** in the box.

Quit (finish software) Click on **OK** in the box.

*Select in which form you want the data to be displayed:
The energy consumption in kWh is displayed for the past 24 hours, the past week the past month, etc.

Costs displays the energy costs in kWh for the past 24 hours, the past week the past month, etc.



Carbon Footprint displays the value of the kg CO_2 emission equivalent to your energy consumption over the past 24 hours, the past week, the past month, etc.

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

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

Wireless Power Meter
36-4500
e2

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

Insjön, Sweden, January 2011

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