



eco-eye

real-time electricity monitors

Eco-Eye Smart Commercial

Smart 3pA

3 phase monitoring and recording

Set-up and Operating Instructions



Efficient technology for today's world

Contents

1. Introduction
 - 1.1 Package contents
 - 1.2 Important notes
2. Installing Eco-eye Smart Commercial
 - 2.1 Overview
 - 2.2 Find your Electricity supply
 - 2.3 Attaching the sensors
 - 2.4 Connecting to the transmitter
 - 2.5 Powering the display
 - 2.6 Is it working
3. Using the Display
 - 3.1 Real-time or Predicted Mode
 - 3.2 Accumulator
 - 3.3 History – How many Kilowatts used
4. Change Settings
 - 4.1 Calibrating the temperature
 - 4.2 Changing the radio channel
 - 4.3 Checking the signal strength
5. Guide to the screen
6. IMPORTANT – Safety and Care
7. Guarantee

See the document “Smart3p operating guide” for details of how to use the memory card and optional USB cable

Introduction

The Smart 3pA monitors are sophisticated devices designed especially for commercial 3 phase monitoring .

This monitor combines the simplicity of the Eco-eye brand but has some clever features which are useful to anyone with commercial premises which they would like to monitor in detail and get a better idea of their electricity usage and cost, it also has the benefit a large uncluttered screen

The unit itself allows the user to look at each phase individually (for checking phase balance) or combined phases for training staff to be aware of their energy usage.

Also allows the user to look at how many Amps each phase is drawing and also look at the total that is being drawn.

The Smart 3pA is a complete monitoring system for commercial premises and has the ability to log all the information you're seeing on the display to an MMC card and using our free computer program can be converted into cost and analysed in more detail over different time periods

Package contents:

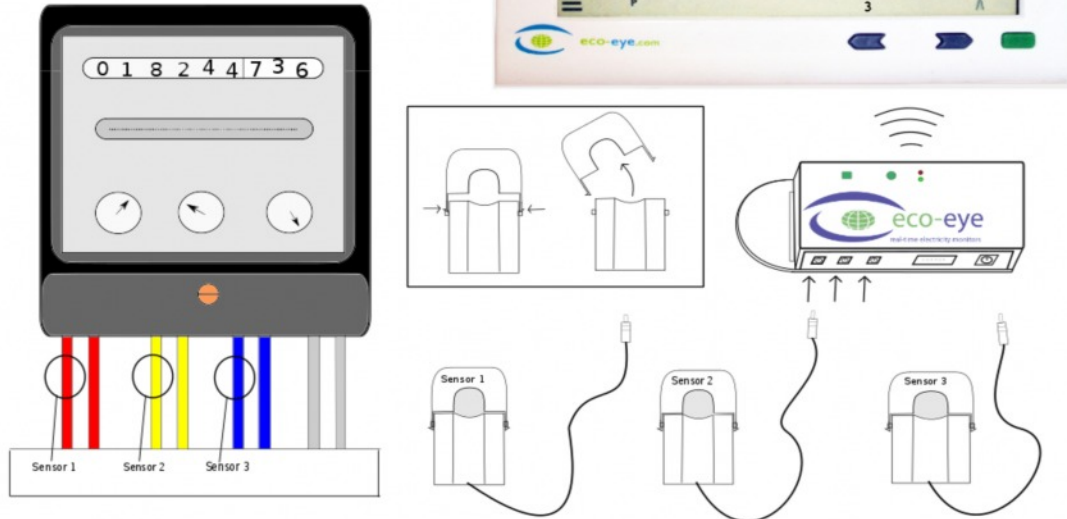
	3pA-13	3pA-17	3pA-24	3pA-36
Smart Monitor	1	1	1	1
Smart Transmitter	1	1	1	1
13 mm diameter sensors	3			
17.5 x 22.4 mm sensors		3		
24mm sensors			3	
36mm sensors				3
C batteries for monitor	2	2	2	2
AA batteries for transmitter	2	2	2	2
Eco-eye memory card	1	1	1	1
USB cable	Option	Option	Option	Option
Instructions	1	1		

Important Notes

- Do not insert the memory card until you have successfully got the monitor working and displaying the correct values
- Do not insert the memory card unless the correct date and time have been set on the monitor.
- Press and hold the square button on the transmitter when powering up to get 3 phase mode.
- Always get the latest version of the computer software from eco-eye.com.

2.1. Overview

3 Phase Meter



Eco Eye Smart has three basic components – The sensors, the transmitter and the Wireless display.

The sensors clip round the three live cables under your meter or fuse box (as illustrated above 1,2,3) and monitors the total current passing through them.

This is a simple job and involves no cutting or disturbing of any wiring or the need for a qualified electrician unless you feel uncomfortable removing electrical trunking to get access to cables. **If you're not happy installing this product please consult a qualified electrician!**

Once the sensors are fitted to the cables they simply plug into the transmitter and the data is then sent wirelessly to the display.

2.2 Locating your meter



Once you have located your electricity meter it should look something like the one listed below.

You will need to connect the 3 sensors round the 3 live cables coming into that meter. The sensors simply clip round each of the coloured cables – Red, Yellow and blue. (The black is the neutral)

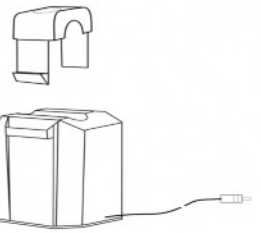
In the picture below there are 2 cables for each phase, generally the left hand one is from the grid and the right one is the supply to the property. It is best to use the right cable as the left one is the property of the supply company



2.3 Attaching the sensors

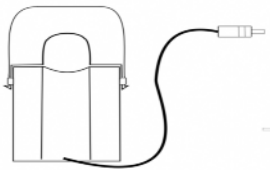
The Sensor is in two parts and one is clipped around each of the three live cables.

Press the side clips of the sensor to separate the two parts.
Place it around the cable.



Click shut- do not force the sensor shut around a cable that is too big as this could damage the sensors inner core.

If the sensor will not easily fit round the cables you're trying to monitor then you may be trying to attach it to an armoured or multi core cable.



The faces of the sensor must make a flat contact.
The sensors are designed to be a loose fit around the cables.

Use the live cable tester if you're in doubt as to the whether you're connected to the live cables.

Fit the tester to the end of the sensor – the LED will illuminate if the cable being monitored is live.

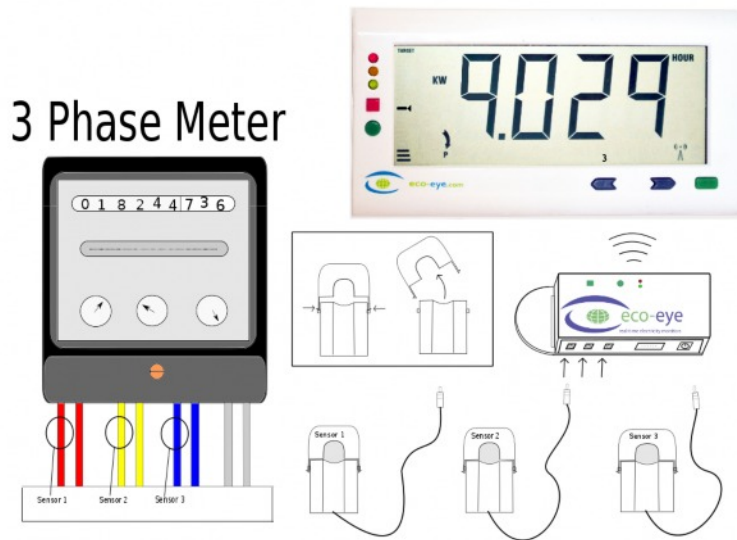


Remember to remove this tester before continuing set up.

The sensor may buzz, if not connected to the transmitter.

2.4 Connecting the sensors to the transmitter

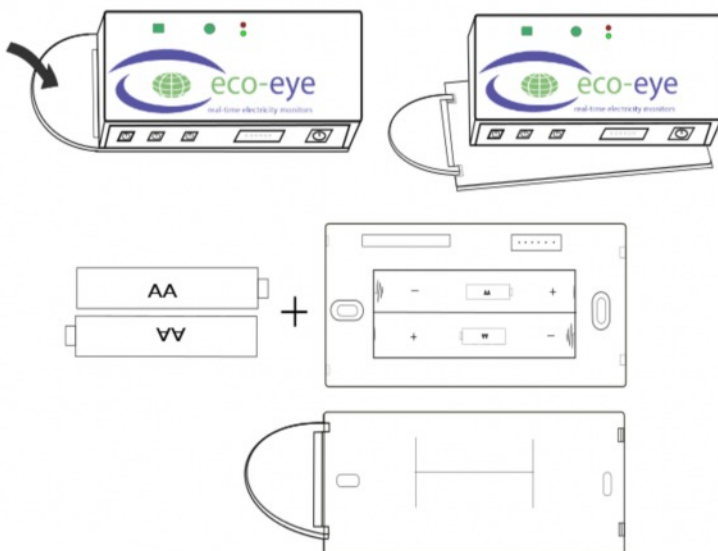
Plug the three sensor cables into the transmitter on the underside of the transmitter. Remembering which cable is plugged into each socket.
(I.e. sensor 1 = Red etc.)



Press the release catch to remove the wall plate and use a double sided self-adhesive sticky pad or screw (not supplied) to affix in a convenient position close to the cables being monitored.
Make sure the release catch is on the left hand side.

Fit 2 x AA Batteries into the transmitter making sure they are the right way round (see below)

Press and hold the square button on the transmitter while installing the batteries to set it to 3 phase transmit mode



Once you have inserted the batteries you should see the red light start to flash on the Eco eye transmitter.
Clip the back onto the transmitter and plug the sensors into the bottom of the transmitter.

2.5 Power up the display unit

Remove the battery cover from the display unit (and the memory card if installed) and insert 2 x C Cell batteries, ensuring they are in the right way round. Then replace the battery cover



After a short power up routine you will need to input some basic information.

Set the currency using the < and > Arrows select £,\$,€ or 

Then press the right hand green button to store

Set the Date (Year, Month, Day) using the < and > arrows.

Press the green button bottom right to save and move on.

Set the time in hours and minutes using the <and > arrows.

Press the green button bottom right to store.

Note:

Selecting the currency also inputs the most appropriate country specific value for voltage

2.6 Is it working?

If the sensor and transmitter are connected correctly, the display will automatically show the current KW reading for the total of all 3 phases (if all 3 are plugged in) and one of the LEDs on the display will be flashing at the same time as the LED on the transmitter every 4 seconds.

Try switching your Kettle on or a high energy piece of machinery and you should see the big number increase and at this point you will notice the red light begin to flash on the monitor.

Remember the transmitter talks to the display by radio so check that you have the antenna icon visible in the bottom right hand corner of the display,

3. Using the display

The main use of the buttons is as follows:

Round Green button changes the units

- Kilowatts
- Amps
- Clock, calendar and temperature

Rectangular green button

- In Kilowatts and amps:
 - Real-time display
 - Accumulator
- In Clock:
 - Day
 - Month
 - Year
 - Temperature

Square red button (in Kilowatts and Amps)

- Total
- Phase 1
- Phase 2
- Phase 3

3.1 Real-time or Predicted Mode



Eco-eye Smart normally shows how much electricity you are using right now. This is real-time or predicted mode. You will see the arrow and P (see left) when you are in predicted mode.

7 days history is stored on the monitor and can be accessed in Amps and Kilowatts by pressing the left arrow key. The icon will change to H
Press the green rectangular button to return to real-time display.

3.2 Accumulator.

Smart has an accumulator feature built in so you can see the totals of each phase separately and see if one phase is using more than another over a given time period of 1 day.

To activate this function you just press the rectangular green button on KW or Amps and “hour” in the top right will change to a calculator symbol on the bottom of the display. This tells you it is accumulative consumption so far today.

4.1 Changing the Voltage on the display

The Kilowatt value is calculated from the amps being monitored by reference to a voltage stored on the monitor.

To change the stored voltage value:

Use the round green button to the KW display

press and hold the rectangular green button 3 seconds and Volts "SET" will appear.

This voltage is the phase to neutral value so will normally be about 240 for the U.K.

Using the < and > arrows alter this to the desired setting

Press the rectangular green button to confirm this and return to normal operation

4.2 Changing the Transmitter channel

There are 30 channels available and the transmitter and monitor can be set to any of these when multiple units are near each other or there are problems with interference from other equipment.

- Start by bringing the display and the transmitter close together and remove the batteries from the transmitter
- With the batteries out, press and hold the round green button on the front of the transmitter nearest the LED's Holding the button, now put the batteries in and keep holding the button and you will see a solid green LED illuminates on the transmitter.
- Lift your finger off the button and press it 6 times for channel 6 etc. you have 30 channels on the transmitter.
- Once you have pressed the button for the amount of channels you require, wait and the green LED will start to flash and you need to count the flashes to make sure it flashes for example 6 times if you selected channel 6 and then there will be a slight pause and it will continue with its regular 4 second flashes.
- Reset to 3 phase mode by removing a battery and holding the square button on the transmitter while inserting the battery.
- Next we need to set the display to the same channel.
- On the Display go to Amps and then press and hold the rectangular green button until "SET" and CH 02 is displayed. (CH 02 is the default channel)
- Press the rectangular green button to select the channel.

- On the display you should now have what looks to be a radio mast in the bottom right hand corner. Within 10 seconds one of the monitor LEDs should start flashing at the same time as the LED on the transmitter

You can check the transmitter channel at any time by simply removing the batteries from the transmitter and re-inserting them whilst looking and counting the flashes of the LED on the front of the transmitter. (for example you will get 6 flashes very quickly then a slight pause and one flash to confirm then it will resume its four second cycle as normal.

Do not forget to hold the square button down when replacing the transmitter battery to get back to 3 phase transmit mode.

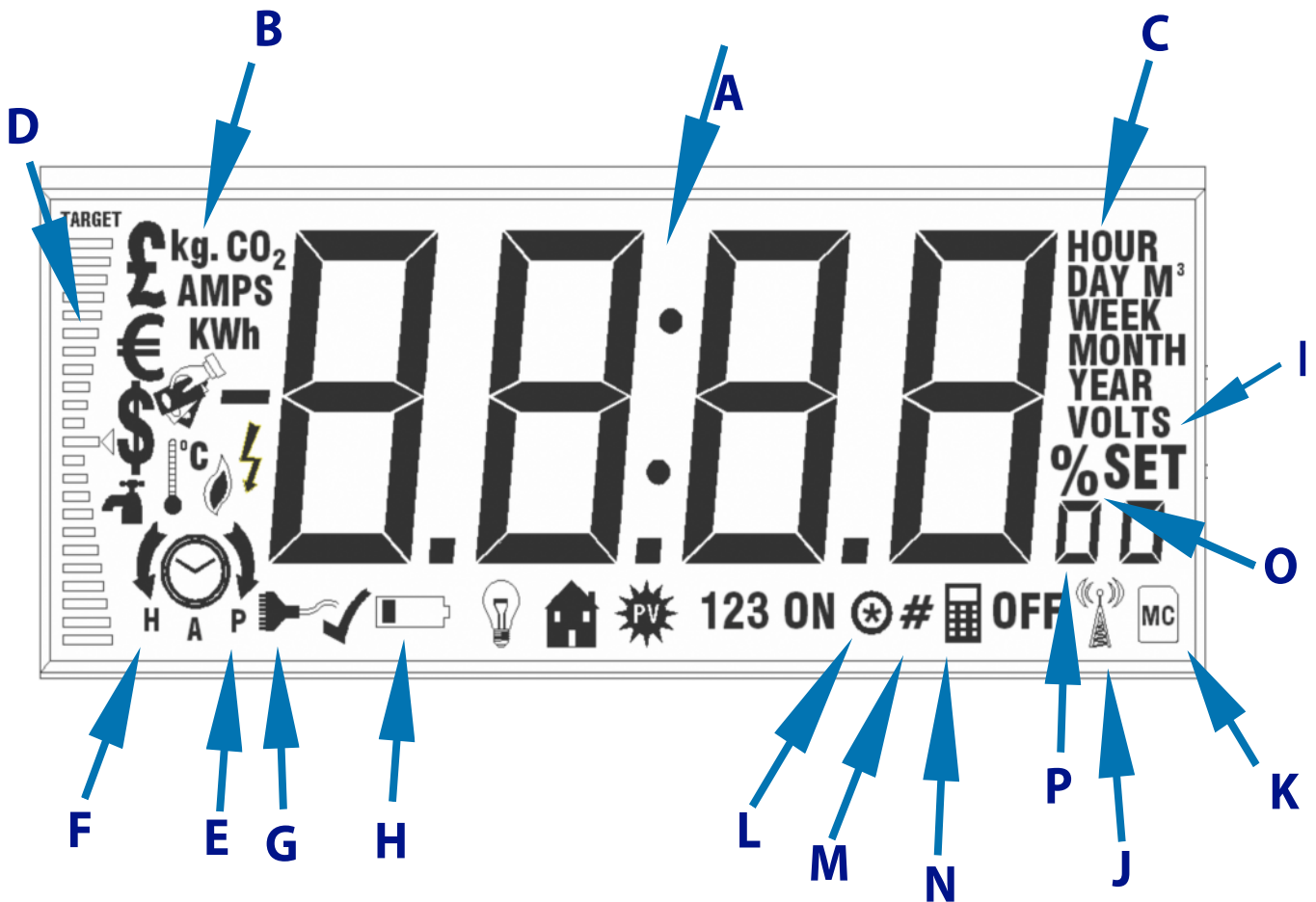
4.3 Checking the signal strength

Use the round green button to display time.

Press the red square button on the left of the display and a number will appear and begin to move between -30 and +30 (+30 being very good and -30 very bad) your monitor should be between -15 to +30 in order to be able to write to the card in full sections otherwise you may find you lose data if your signal is intermittent.

Don't forget to screw the antenna on the back of your smart display if you find the monitor is having problems with signal.

5. Guide to the screen



- | | |
|---|---|
| A. The Big Number | K. See Trax manual |
| B. Modes | L. See Trax manual |
| C. Time Periods | M. See Trax manual |
| D. Target graph | N. Big number is accumulated |
| E. Real-time (predicted) display | O. Big number is target % |
| F. History display | P. Overflow, used when big number goes over 9999 |
| G. Used during firmware upgrade | |
| H. Low battery indicator | |
| I. Used when setting Voltage | |
| J. Good radio reception | |

Some icons are not used in this version of Smart but are on the screen ready for planned upgrades.



6. IMPORTANT - Safety and Care

1. Before attempting to fit Eco-eye, ensure you have read and understood the fitting instructions fully.
2. Do not attempt to carry out any repairs to Eco-eye. Contact your retailer or Eco-eye direct if problems occur.
3. Use of Eco-eye near moisture or liquids; or in extreme temperatures can cause malfunction and damage.
4. Take care when handling and disposing of batteries. They can cause burns to skin or property if in contact with heat, conductive or corrosive materials. Remove batteries when storing Eco-eye for long periods to avoid corrosion.
5. The LCD screen is glass and should be treated carefully to avoid scratches. Should it become damaged, it may leak crystals which could be harmful to your health. Dispose of with great care.
6. Eco-eye should only be cleaned using a damp cloth. – Under no circumstance should any chemicals or cleaning agents be used.
7. Do not subject Eco-eye to any form of impact or shock.
- 8. IF IN ANY DOUBT regarding the installation of this product, consult a qualified electrician before proceeding.**

7. Guarantee

This Eco-eye product is guaranteed for the period of one year from the date of purchase against defects in respect of both material and workmanship.

HOWEVER, this warranty does not apply to normal wear and tear and does not cover any parts damaged by misuse or neglect in any way, or by modifications made by any person other than those working for Eco-eye.

This guaranteed does not cover cracks or scratches to the screen under any circumstance, nor shall Eco-eye be held liable for any direct, indirect, incidental, special or consequential loss or damages whatsoever caused by the use of Eco-eye even if advised of the possibilities of such damages.

In order to validate this guarantee, please ensure you keep your original receipt and read all instructions carefully.

Eco-eye Smart

conforms to quality standards: CE, PB, RoHS, amendment 2004/108/EC, EN55 022

Class B and EN 55 024 RTTE, 89/336/EEC.

Eco-eye

The Modern Moulds Business Centre,
Commerce Way, Lancing,
West Sussex,
BN15 8TA.

Email: info@eco-eye.com

Website: www.eco-eye.com

