

enistic

Energy Audit Kit – User Guide



For further support:

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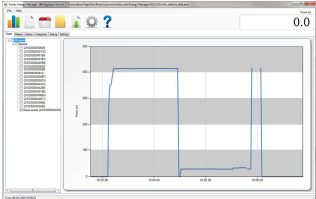
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1. What's in the pack?

Energy Audit Kit (EN-EAK)

1 x Smart Energy Controller (SEC)	
5 x 5-way Smart Sockets	
1 x 16-Channel Smart Meter	
16 x 30A Current Sensors	
1 x Energy Manager Pro software	

2. Quick start guide

(See below for more detailed installation instructions)

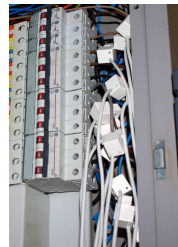
1. Connect the Smart Energy Controller (SEC) to your network using the Ethernet cable, and then turn it on simply by plugging in its power cable.



2. Plug in any devices whose energy usage you wish to monitor (e.g. PC, photocopier, printer) to the 5-way Smart Sockets.



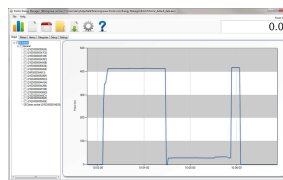
3. Connect the current sensors (clamps) to the 16-Channel Smart Meter, and then clip the current sensors around the outside of the electrical cables on your distribution board (fuse box) for the circuits you wish to monitor. This should be done by a qualified electrician.



4. Once you have plugged in a Smart Socket or connected the 16-Channel Smart Meter, the SEC will automatically detect this equipment and begin to display energy readings.



5. Install the Energy Manager Pro software on your PC, and begin using it to monitor your electricity consumption.



3. What is energy management?

The first target in an energy management programme is to raise awareness of energy consumption and work out exactly where you might be able to make improvements. By measuring and analysing your baseline usage, you can identify areas of wastage and come up with measures to make energy savings.

The Enistic Energy Audit Kit is suitable for use on all office-based IT equipment, such as desk-based PC systems, printers, audio or visual equipment, photocopiers, vending machines, televisions, plasma screens and servers. With this level of flexibility, you are able to start measuring how much individual pieces of equipment cost to run and begin the process of identifying the energy hogs within your organisation.

they turn off automatically overnight and/or at weekends. Further savings can be made through longer-term projects, and

The kit also enables you to monitor circuits from your distribution board, to measure for example the power usage of your air conditioning, servers or particular rooms / departments.

This information can be used to encourage behavioural change and, over time, to replace certain devices with more energy-efficient equipment.

Once targets have been set for reducing the energy bill and carbon emissions, it is important to be able to track the impact of any behavioural or infrastructure changes, through ongoing monitoring.

Quick savings are usually possible for most organisations, simply through behavioural changes. It is also easy to automate certain equipment (such as PCs or overhead projectors) so that ongoing monitoring will help ensure that an organisation continues to make progress towards its targets.



4. Installation

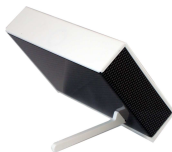
Setting up the Smart Energy Controller (SEC)



1. Open the casing of the Smart Energy Controller and ensure that its Ethernet cable and power cable are both connected.

2. Connect the Controller's Ethernet cable to your network via an Ethernet socket.

3. Turn on the Smart Energy Controller, simply by plugging in the power cable. The Controller can either be wall-mounted, or comes with a stand for use on a desk.



4. As soon as you connect a Smart Socket or the 16-Channel Smart Meter, the Smart Energy Controller will automatically detect this



equipment and begin to display energy readings.

5. To reset the Smart Energy Controller, and set the count to zero again, simply disconnect the power from the Controller and turn on again.

6. There are three LED lights on the Smart Energy Controller, which indicate:



	Red light on	Your power usage is increasing rapidly
	Red light pulsing	Your power usage is increasing slightly
	Blue light on	Your power usage is at a normal, average, level
	Green light pulsing	Your power usage is decreasing slightly
	Green light on	Your power usage is decreasing rapidly

7. The Smart Energy Controller can also be used without connecting it to the internet, if you wish to view energy usage on its display screen only, and not using the Energy Manager software package.

Using the 5-way Smart Sockets

1. A 5-way Smart Socket will measure the total electricity used by any equipment that is connected to it, and relay this data wirelessly to the Smart Energy Controller (SEC).



2. The Smart Sockets work like a standard power strip – simply plug them in to an electrical socket. When first plugged in, the red light marked 'Activity' will flash rapidly – this means the Smart Socket is searching for other Enistic devices. It may take up to five minutes for the Smart Socket to connect wirelessly to your Enistic network – once done, the red light will pulse occasionally.

3. Select the electronic device(s) you wish to monitor and plug them in to the sockets on the 5-way Smart Socket.



4. The red button marked 'Program' on the Smart Socket is an on/off button that will turn power on or off to all five sockets. When pressed, the red light will come on for a moment. This button can be switched remotely / automatically using Energy Manager Pro (e.g. if you wish to shut down certain equipment automatically overnight).

5. 5-way Smart Sockets communicate wirelessly with each other and the Smart Energy Controller. The controller is pre-configured to automatically detect the Smart Sockets.

6. At least one of the 5-way Smart Sockets must be located within 30 metres of the Smart Energy Controller. (The other Smart Sockets can be placed further away, as they will communicate with each other wirelessly, passing on data to each other and ultimately on to the controller. Each Smart Socket should be placed within 30 metres of another Smart Socket.)

Connecting the 16-Channel Smart Meter and Current Sensors

1. Although installation is simple and should involve no disruption to your power supply, **this work should only be carried out by a qualified electrician.**

2. **IMPORTANT – ensure that you plug the Current Sensors in to the sockets on the 16-Channel Smart Meter (numbered from 1 to 16) before fitting them around your circuit cables.**

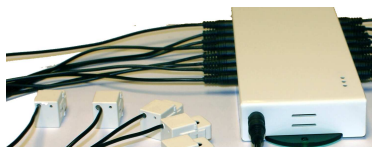
3. To fit a Current Sensor, pull it apart to open, and then clip it around the outside of your chosen circuit on your distribution board. (N.B. Current Sensors can only be used around live wires and not ordinary power cables.)



4. The Current Sensors in this kit are 30A – and are ideal for use measuring between 360W and 6,840W¹. Enistic Current Sensors

are also available in other sizes – 15, 60, 100, 200, 400, or 600A.

5. It is a good idea to make a note of the number of the channel to which each circuit is linked, so that you can easily identify what you are measuring when analysing your energy data using the Energy Manager software.



6. Turn on the 16-Channel Smart Meter by plugging it in to a standard electrical socket. The green power light should come on.

7. The red light will flash rapidly when the unit is first plugged in. It will do this until it finds the network and automatically connects to the rest of the Enistic system. The SEC will automatically detect the Channel Meter and display energy readings from it.

If you have any concerns about fitting this product, please consult a qualified electrician.

¹ These values apply to the UK only. For USA, Australia, New Zealand and continental Europe, please check the calibration rating with your dealer.

Using Energy Manager Pro

1. Install Energy Manager Pro on any Windows XP, Windows Vista or Windows 7 PC.
2. Your kit has been configured so that Energy Manager will automatically detect the Enistic equipment you are using. You can begin using the software immediately to monitor and analyse your electricity consumption.

Click on the Reports tab to export your energy data into Excel for further analysis.

Click on the Meters tab or icon to see a list of all the devices / circuits you are measuring.

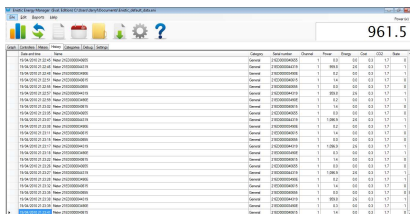


All your smart meters are listed here. Click the checkboxes to view the energy usage of one or more of your sockets / circuits.

The graph shows your energy usage in real-time. The system works on a 10-second reporting interval, so the data you see is continuously updated every ten seconds.

At the bottom of your screen is a quick summary of how many controllers and meters are connected to your system, and your current energy usage, cost and CO2 levels.

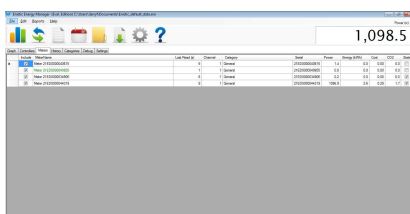
Further functions of Energy Manager Pro



The History screen displays a table of energy data. The table has columns for Date, Time, Device, Power, Energy, and Cost. The data is sorted by Date and Time, showing a list of energy readings over time.

is cleared when the software is restarted.

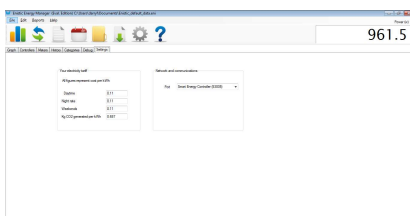
History screen – this is where you can access all the energy data that has been collected since you opened your session. You can export this historical data to Excel for further analysis. If you want to save past data, go to the File tab to access the Save option – otherwise all historical data



The Meters screen displays a table of meters. The table has columns for Name, Device, Power, and Energy. The data is sorted by Name, showing a list of meters in the system.

will not normally need to do any configuration in order to get the system reporting.

The Meters screen lists all the meters and smart sockets in your system. It is easy to rename any of these in order to highlight which is measuring the power used by a particular piece of equipment or workstation. New sockets and meters are automatically detected and added, so you



The Settings screen displays configuration options. It includes sections for 'For electricity bill' and 'General and miscellaneous'. The 'For electricity bill' section has checkboxes for 'Display responses and per kWh', 'Display', 'Max time', 'Min time', 'Max value', 'Min value', and 'Display responses only'. The 'General and miscellaneous' section has a dropdown for 'Day' set to 'Smart Energy Controller (EN-EAK)'.

tariff from your supplier.

Settings – allows you to enter details of the cost of your electricity.

The system supports three tariff bands - Day, Night and Weekend.

It also allows you to adjust your CO₂ production figures, which you can reduce by moving to a lower carbon emission

Debug screen – shows in detail the communications between the Smart Energy Controller and the sockets and meters. This is useful for troubleshooting the system.

5. Using your Enistic Kit to Save Energy

Getting Started

Once the equipment in the kit is connected and plugged in, you are ready to start monitoring your organisation's energy usage, and use this knowledge to make savings.



Identifying Power Hogs

The Smart Energy Controller will give you a real-time reading of how much electricity is being used by the equipment you are monitoring. By watching the display screen as you turn equipment on and off, it is easy to see how much electricity is being used (and how much it is costing). Connecting different pieces of equipment, via the 5-way Smart Sockets, will soon give a picture of which devices are using the greatest amounts of energy.

Standby / Overnight Savings

The Controller can also be used to see how much power is used when a device is on standby, compared to when it is turned off. This will give your organisation a better idea of where energy is being wasted overnight or when the premises are not in use, and this information can be used to make significant savings simply through behavioural change (such as turning off the photocopiers at night, rather than leaving them on standby).

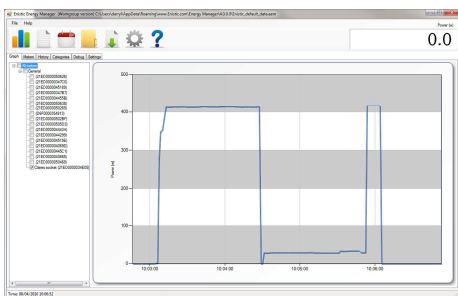
Making Energy Saving More Visible

The Smart Energy Controller is simple to read and can be positioned so that it is accessible to staff or visitors, encouraging them to take more of an interest in energy saving.

Monitoring in More Detail

Data gathered by the 16-Channel Smart Meter allows you to monitor more areas of electricity usage, such as your lighting, air conditioning or servers.

All your energy measurement data can be easily analysed using the Enistic Energy Manager software, and you can break usage right down to individual appliance level.



Data can also be exported to Excel for further analysis. You will quickly be able to build a picture of where your organisation is using the most energy. This in turn makes it easy to see where savings could potentially be made, for example by investing in more energy-efficient devices in the future.

Breaking Down Energy Usage

Energy Manager Pro is a useful

tool for comparing how much energy is used by different departments or individuals, and all the data is accessible in graph form. This can be helpful when encouraging people within an organisation to take responsibility for reducing their own personal energy usage. The software also works as a visual aid within the classroom when teaching about energy costs and how to reduce carbon emissions.

Taking Control of your Energy Consumption

Energy Manager gives the user control over their energy data – both real-time and historical – creating an easily understandable profile of an organisation's energy usage. It also allows users, very accurately and quickly, to gauge the success of any energy saving changes introduced to their organisation.



6. Troubleshooting Guide

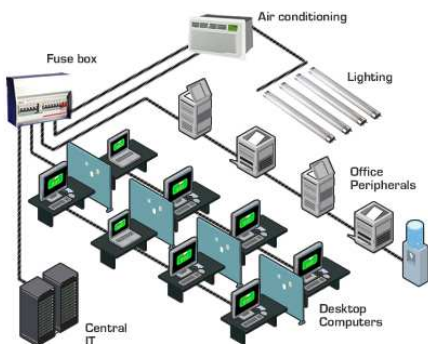
Symptom	Possible resolution
Your Smart Energy Controller (SEC) is not working.	<p>Check that the power and network cables are securely connected. To reset, simply turn the SEC off and then on again. The Controller does not need to be connected to the internet in order to work, so you can check that it is working before attempting to start the Energy Manager software.</p>
Your SEC looks like it is working but the Smart Sockets / Channel Meter are not connecting.	<p>Check that at least one Enistic device is located no more than 30 metres away from the SEC. The wireless signal should pass through walls and ceilings, but it may be blocked by some materials (e.g. foil-backed insulation). You may need to reposition the devices.</p> <p>Enistic devices use meshing technology, and will pass on data to each other, and then on to the SEC – make sure that each piece of equipment is no more than 30 metres away from the next.</p>
Your SEC is not showing up on the Energy Manager software.	<p>Try going to the Debug tab. You should see a list of information scrolling up the screen.</p> <p>If you do not see this type of information, it could be because you have a firewall running that is blocking your network communication.</p> <p>Try asking your Network Administrator to unblock UDP broadcasts on port 53004 and 53005.</p> <p>If you are running a Windows firewall, try temporarily disabling the firewall to see if that fixes the problem.</p>

7. Extending your kit

It is easy to extend your Energy Audit Kit, with any other product in the Enistic range (see www.enistic.com for the full product range).

If you want to cover a larger area, simply add more 5-way Smart Sockets and/or additional Channel Smart Meters (1, 3, 6 or 16-Channel available) and Current Sensors (available in a range of sizes to allow readings of up to 1800A).

Any new Enistic devices will be automatically detected by your system, so that you can start taking readings immediately.



Upgrading your Reporting System

If you would like a greater level of detail and even more comprehensive reporting, we offer two more advanced options: *Energy Manager Online* and *Energy Manager Enterprise*.



These are subscription services, and offer users a range of advanced features, including the ability to access data and control devices remotely, carry out more extensive monitoring, and create personalised PDF reports at the touch of a button.

Recommended Add-Ons:

- **Powerdown Strips** – turn your peripherals (e.g. printer, speakers, monitor) off automatically when your PC shuts down.
- **Powerdown Screensavers** – significantly reduce the amount of energy used when the computer is inactive, whilst automatically saving the user's work.
- **Additional Channel Meter kits** – these are available in 1, 3, 6, and 16 channel versions, to allow you to monitor the energy usage of a greater number of circuits.

