

# Eniscope 8 Channel User Manual

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# Eniscope 8 Channel

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# Important Safety Notice

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## SAFETY AT WORK



The owner, installer and user of this Eniscope measurement device are responsible for its correct installation and use, and must ensure that;

- a) Only qualified persons install the unit.
- b) Isolate AC equipment before installation.
- c) The installation complies with the information contained in this publication.
- d) All units must be installed in accordance with the current National Electrical Code**

Best Energy Saving Technology Ltd, or their agents do not assume any liability, expressed or implied, for any consequences resulting from inappropriate, negligent or incorrect installation, application, use or adjustment of this device.

# Manufacturers Declaration of Conformity

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This is to certify that the products described in this manual conform to the requirements of the following standards in respect of the low voltage directive, 2006/95/EC.

IEC/UL/EN61010-1, 3<sup>rd</sup> Edition

Safety requirements for electrical equipment for measurement, control, and laboratory use.

The products described in this manual conform to the requirements in respect of the European EMC directive, EN61326-1:2013.

Electrical equipment for measurement, control, and laboratory use.

SIGNED

A handwritten signature in black ink, appearing to read 'Ian Wrigley', written over a horizontal dashed line.

IAN WRIGLEY

APRIL 2014

TECHNOLOGY DIRECTOR

BEST ENERGY SAVING TECHNOLOGY LTD  
PORTLAND HOUSE  
BRESSENDEN PLACE  
LONDON  
SW1E 5RS

# Considerations When Installing Eniscope 8

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Installation of the Eniscope must be performed by qualified personnel only, who follow standard safety precautions through the installation procedures. Those personnel should have appropriate training and experience of high voltage devices. Appropriate safety gloves, safety glasses and protective clothing are highly recommended.

During normal operation, dangerous voltage may appear on many parts of the Eniscope, including terminals, and any connected CT's (Current Transformers) and PT's (Potential Transformers), all I/O (Inputs and Outputs) modules and their circuits. All primary and secondary circuits can, at times, produce lethal voltages and currents. AVOID contact with any current-carrying surfaces.

The Eniscope and its I/O output channels are NOT designed as primary protection devices and shall NOT be used as primary circuit protection or in an energy-limiting capacity. The Eniscope and its I/O output channels can only be used as secondary protection. AVOID using under situations where failure of the Eniscope may cause injury or death. AVOID using the Eniscope for any application where risk of fire may occur.

All terminals should be inaccessible after installation. All wiring to auxiliary supply, voltage sensing inputs and CT inputs and any conduction paths must be inaccessible after installation. This should be achieved by enclosing the wiring in conduit, or by installing the entire unit in an inaccessible enclosure.

Do NOT perform Dielectric (HIPOT) test to any inputs, outputs or communication terminals. High voltage testing may damage electronic components of the Eniscope.

Applying more than the maximum voltage to the Eniscope and/or its modules will permanently damage the Eniscope and/or its modules. Please refer to the specifications for all devices before applying voltages.

- Best Energy Saving Technology Ltd recommends using a dry cloth to wipe the meter.

DISCONNECT DEVICE: The following part is considered the equipment disconnect device.

A SUITABLE RATED TWO POLE SWITCH SHALL BE INCLUDED IN THE INSTALLATION. THE SWITCH SHALL BE IN CLOSE PROXIMITY TO THE EQUIPMENT AND WITHIN EASY REACH OF THE OPERATOR. THE SWITCH SHALL BE MARKED AS THE DISCONNECTING DEVICE FOR THE EQUIPMENT.

The installation method is introduced in this chapter. Please read this chapter carefully before beginning installation.

## Important

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**Note:** if the equipment is used in a manner not specified by the Manufacturer, the protection provided by the equipment may be impaired.

**Note:** There are no serviceable parts within the equipment. The equipment must be returned to the manufacturer for servicing.

# Eniscope Description

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Eniscope 8 is a multi-channel, three phase energy meter and sensing system combined with a processing facility designed to gather, summaries, store and transmit energy related information to Web based servers for presentation and analysis.

The Eniscope 8 offers the world's first truly integrated ecosystem for energy monitoring and efficiency, identifying waste and eliminating costs.

The best in class energy metering system combines 8 three-phase metering points and 8 pulse inputs, which can be arranged to monitor total gas and water consumption.

The compact, plug and play system can be easily installed by an electrician, instantly providing real-time data on energy consumption patterns by individual piece of equipment, circuit, building or property portfolio.

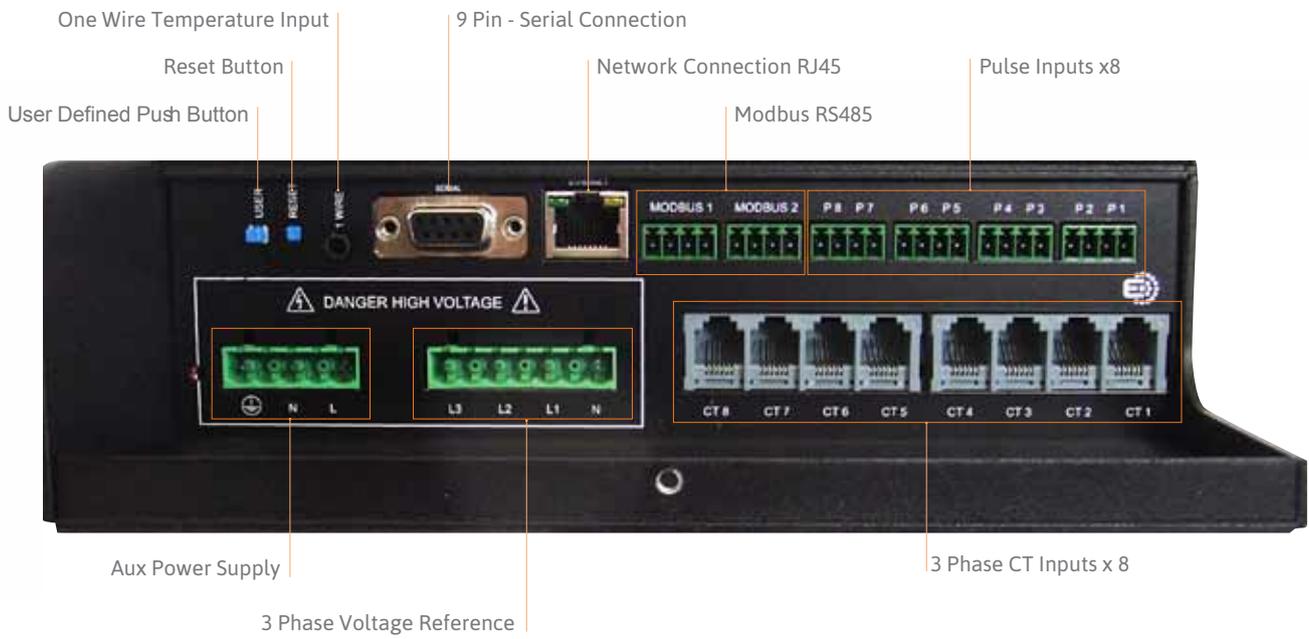
For those generating their own power, Eniscope 8 records minute-by-minute data. Information can be displayed to building occupants, or included on websites, via an attractive range of public displays.

Data can be viewed in real-time on any computer, or across a range of portable devices, from anywhere in the world. Historical data can be accessed and analysed, at one-minute resolution via the BEST Analytics system.

Eniscope 8 has been engineered to allow continuous, remote improvements and upgrades via the cloud, making this the world's most durable and future proof solution to energy monitoring and efficiency.

Contact your Best Energy Saving Technology Distributor today to learn how your organisation can benefit from advanced real-time energy management.

# Eniscope Identification



# SECTION 1 INSTALLATION

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# A Mounting the Eniscope

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## Environmental

There are no specific ventilation requirements however, please check the environment, temperature and humidity to ensure the Eniscope is within the correct operating conditions. Also before you begin to mount the Eniscope ensure that there is nothing that will hinder or restrict the multiple ports on the bottom and left hand side.

The Eniscope 8 is designed to be mounted Vertically on a wall or or other suitable surface.

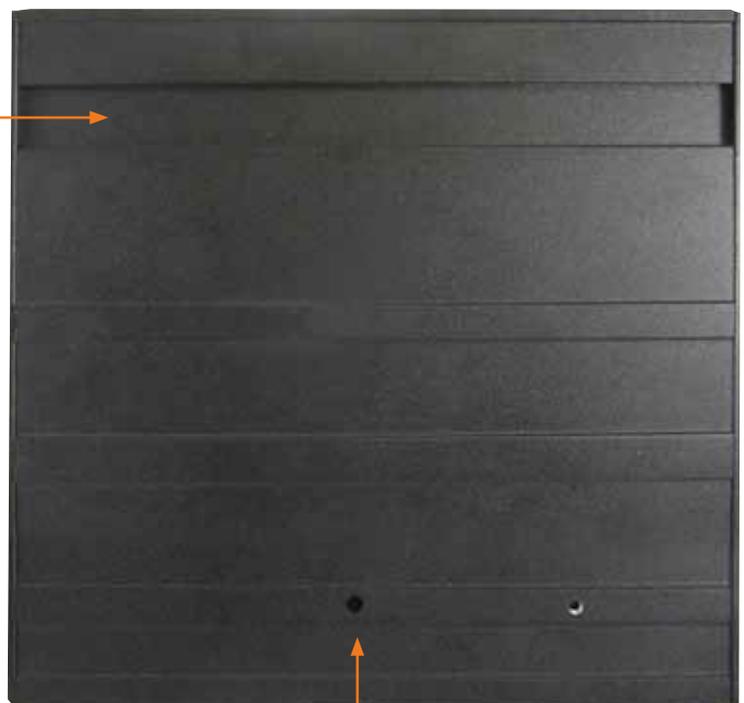
Remove the Front curved cover by removing the Hex-head bolt found on the bottom of the cover. (Please keep in a safe place for re-inserting after the installation).

Using the supplied Din rail, mount the Din Rail securely on the wall ensuring it is level using a minimum of 2 fixing screws ensuring adequate space to mount the Eniscope.

Mount the Eniscope 8 on the Din Rail by locating the mounting slot on the rear of the Eniscope and ensure that the Eniscope is firmly positioned on the Din rail.

Now locate the additional mounting hole towards the bottom of the Eniscope ensure this is in the correct position and fix firmly to the wall.

Mini Din Rail



Additional Mounting Hole

## Dimensions

<b>Height</b>	<b>200 mm</b>
<b>Width</b>	<b>207 mm</b>
<b>Depth</b>	<b>60 mm</b>
<b>Weight</b>	<b>1.4 kg</b>

## B The Auxiliary Supply

The Eniscope 8 requires an Aux power supply to energise the processor and metering elements. The typical power consumption is very low (20W) and can be supplied by an independent source (or by the measured voltage line). A regulator or an uninterruptible power supply (UPS) must be used under high voltage fluctuation conditions or frequent power failures (1 per day).

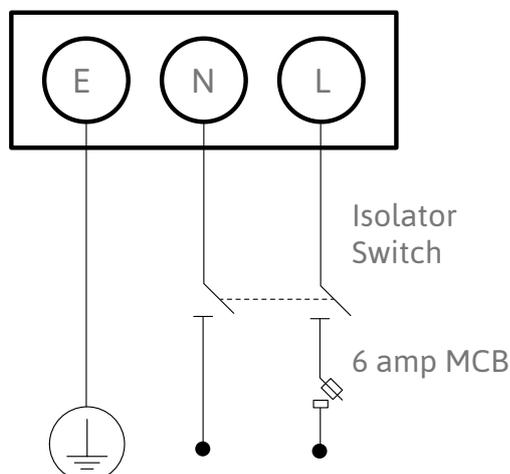
Please ensure an Isolator (disconnect) switch is installed no more than 1 meter from the Eniscope and within easy reach of the operator, and shall be clearly labelled as the disconnecting/isolating device for the equipment. A suitably rated MCB supply must be included in the installation.

### Aux supply requirements:

- 100 to 240 V~ Nominal, Over Voltage Category II
- 50/60 Hz Nominal
- 6 amp double pole MCB B' trip curve to IEC60898 should be used on the auxiliary supply. A similar specified RCD/ELCB device can also be used.
- A 16 amp double pole Isolator/Disconnect switch rated at 300V~ should be used to isolate the Eniscope from its power supply and should be marked as such.

### Cable Requirements

- Conductor AWG: 18 AWG, NFPA 70 "National Electrical Code"
- Voltage Rating: 600V~
- Conductor Area CSA: 1mm<sup>2</sup> Min
- Conductor Material: Copper
- Operating Temperature -20°C to +105°C
- Flame Rating VW-1



## Instructions

### 1

Remove the plastic cover found under the curved front plate to reveal the AUX connections.



Aux Supply Terminals

Underside of the Eniscope unit with the bottom casing removed

### 2

Connect the AUX supply to the Eniscope in the way showed in the wiring diagram.

# Important Safety Information

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This manual may not be altered or reproduced in whole or in part by any means without the express written consent of Best Energy Saving Technology Ltd.

The information contained in this document is believed to be accurate at the time of publication, however, Best Energy Saving Technology Ltd assumes no responsibility for any errors which may appear here and reserves the right to make changes without notice.

Please read this manual carefully before installation, operation and maintenance of the Eniscope meter. The following symbols in this manual and on the Eniscope meter are used to provide warning of danger or risk during the installation and operation of the meters.



Electric Shock Symbol: Carries information about procedures which must be followed to reduce the risk of electric shock and danger to personal health.



Safety Alert Symbol: Carries information about circumstances which if not considered may result in injury or death.

Installation and maintenance of the Eniscope should only be performed by qualified, competent professionals who have received training and should have experience with high voltage and current devices.

Best Energy Saving Technology Ltd shall not be responsible or liable for any damages caused by improper installation.

# C Electricity Monitoring

## Part i Voltage Sensing Installation

---

To monitor electrical loads this Electricity Monitoring section should be closely followed and the previous safety page should be read before proceeding.

To provide all of the required electrical parameters the Eniscope 8 need to monitor Voltage and Current the following pages will provide further information.

## Voltage Input

---

Maximum input voltage for the Eniscope Meter shall not exceed 346LN/600LL V~ rms for three phase or 346LN V~ rms for single phase.

A Neutral must be connected and should be ground referenced (PME).

### Cable Requirements

- Conductor AWG: 18 AWG, NFPA 70 “National Electrical Code“
- Voltage Rating: 600V~
- Conductor Area CSA: 1mm<sup>2</sup>
- Conductor Material: Copper
- Operating Temperature -20°C to +105°C
- Flame Rating VW-1

### 6 amp MCB

A 6 amp triple pole MCB 'B' trip curve to IEC60898 should be used on the voltage measurement input terminals.

A similar specified RCD/ELCB device can also be used.

### Isolator Disconnect Switch

A 16 amp triple pole Isolator/Disconnect switch rated at a minimum of 600V~ should be used to isolate the Eniscope from the measured supply and should be marked as such.

## Instructions

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1

Identify a Distribution board that can supply a three phase reference supply via a MCB.

2

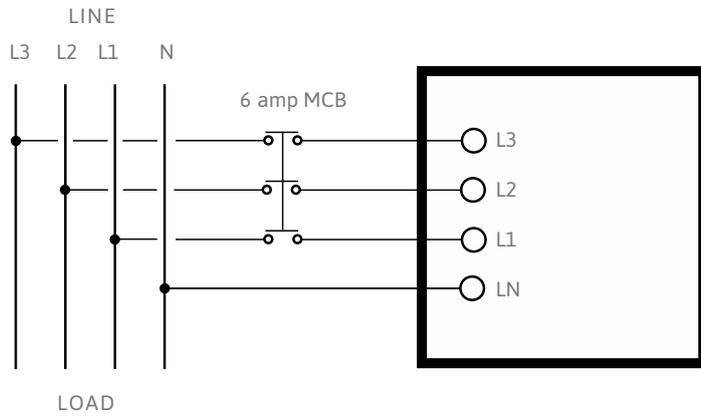
Remove the protective cover to expose the Voltage sensing connections.

3

Connect the voltage reference cables to the connectors using the correct wiring configuration as shown below for either single Phase, Single Phase Two Wire or Three phase.

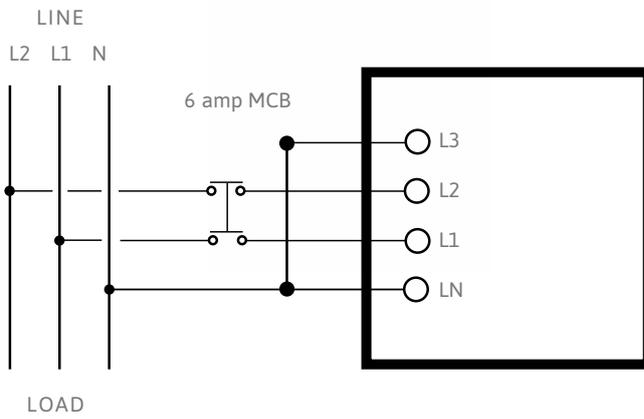
### Three Phase Connection (3LN)

3-Phase 4-Line (Most common connection)



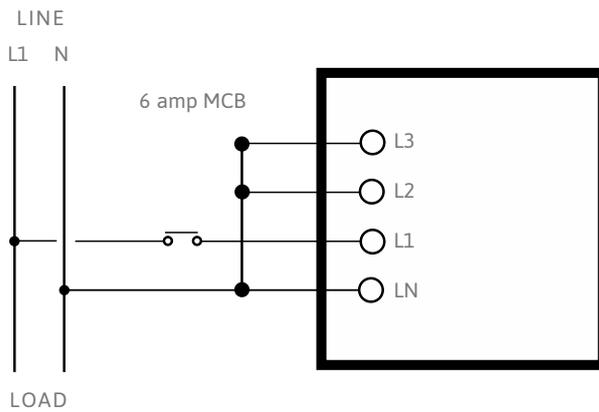
### Single Phase Connection (2LN)

3-Line (mainly used North America)



### Single Phase Connection (LN)

2-Line



# C Electricity Monitoring

## Part ii CT Installation

### Current Transformer Installation overview

A current transformer (CT) produces a voltage output signal directly proportional to the current flowing in the conductor around which it is put. The output signal from the CT is sent to the meter and the current flow in the primary circuit calculated.

A CT is required for each phase.

- **Only CT's listed by the manufacturer should be used. Under NO CIRCUMSTANCES use any other type of CT as severe damage or injury may result.**
- Current transformers are marked with the ratio between the maximum primary current and the maximum secondary signal. For example a 200 A:333 mV CT produces a 333 mV output signal when 200 A is flowing through the primary.
- It is best to match the CT primary as closely as possible to the maximum expected current to get the best possible accuracy. This is because CT's are less accurate at low loads than they are at full load.
- If using a 200 A CT you will need to input a figure of 200 into the Eniscope meter settings menu. Information on how to complete this can be found in the Eniscope 4 commissioning section Guide, on page 15.

### Polarity

- CT's are direction sensitive and must be fitted the correct way around. CT's are marked with an arrow to indicate which direction they should face around the cable or buss-bar. The arrow must point towards the load or in the direction of normal power flow.
- The CT outputs - secondary s - must be connected to the meter the correct way round. Current transformers are supplied with secondary leads black and white in colour which must be connected to the correct terminals on RJ12 adaptor. The meter will not register correctly if any of the CT's are connected incorrectly.
- The CT's must be connected to the correct phase inputs on the meter. The meter will not register correctly if the CT for L1 is connected to the inputs for L3 current, for example.
- Unused inputs should be shorted together to avoid spurious readings

Please follow the instructions on the next pages for a successful installation

### Important Safety Information



Caution, risk of electric shock.



Ignoring this warning can lead to serious injury or death.

Only listed CT types should be used with the equipment. Failure to adhere to this requirement will invalidate the warranty.

At the time of printing the available CT's to order via are:

25mm Aperture 30 Amp  
CT/BCF30/30A/25

25mm Aperture 60 Amp  
CT/BCF60/60A/25

25mm Aperture 120 Amp  
CT/BCF120/120A/25

25mm Aperture 300 Amp  
CT/BCF300/300A/25

50 x 50mm Aperture 500 Amp  
BCT/4LSF500A/50/50

50 x 88mm Aperture 1000 Amp  
BCT/4LSF1000A/50/88

63 x 100mm Aperture 2000 Amp  
BCT/4LSF2000A/63/100

63 x 138mm Aperture 3000 Amp  
BCT/4LSF3000A/63/138

75 x 175mm Aperture 4000 Amp  
BCT/4LSF4000A/75/175

75 x 225mm Aperture 6000 Amp  
BCT/4LSF6000A/75/225

# C Electricity Monitoring CT Installation

Installation Instructions for Current Transformers

## Important Safety Information

### Warning



Read all documentation prior to service or installation

Only to be installed in a ambient temperatures between -40C and +55C. Maximum altitude 2000 meters.

## Method of Installation

1. Locate and isolate power to distribution panel where installation is to take place.
2. Remove any screws, remove or tilt the removable leg of the current transformer.
3. Attach the current transformer around the conductor to be monitored without placing excessive strain or pressure on the current transformer terminals, if fitted. Do not route the leads over sharp edges.
4. Take care to fit the current transformer with the arrow in the direction of current flow.
5. Repeat points 1 to 4 for the other phases to be measured.
6. Connect the current transformer secondary winding wires to the Eniscope RJ12 connector. See pages 13 and 14 for details.
7. Connect all the installed current transformer secondary wires to the Eniscope RJ12 connector before reapplying power to the distribution panel.

## Important Safety Information



## Caution, risk of electric shock.



1. The recommended current transformer types are intended for field installation within distribution and control equipment to measure electrical current.
2. Always disconnect the circuit from the power distribution system before service or installation.
3. Do not install the current transformers in an area blocking ventilation or in an area of breaker arc venting.
4. These current transformers are not suitable for Class II wiring methods or connecting to Class II equipment.
5. Do not allow the current transformer or cables to come into direct contact with live terminals or buss that exceeds voltages of 600V~

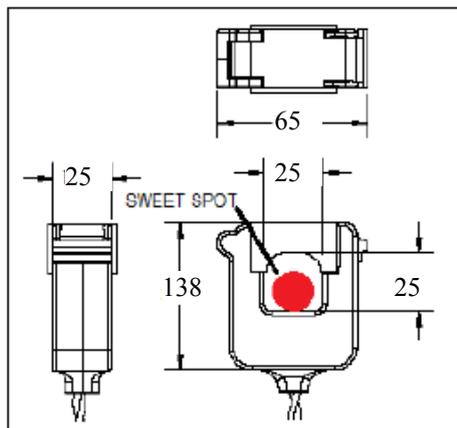
## Further Instructions

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### The process for fitting a split-core CT is as follows:



Pic 1



Pic 2



Pic 3

### 1

Pull the top of the CT from the bottom half or lift the clip securing the hinged section on the CT from the main body as shown in Pic 1..

Fit the main segment around the cable or bus bar. With the arrow pointing towards the direction of current flow ( the load). Then fit the small segment around the cable against the main segment.

Make sure that no insulation or any other material is trapped between the two segments and firmly press together.

For greater accuracy of measurement it is advisable to cable tie the conductor to the CT body so the conductor passes through the centre of the CT. See Pic 2.

### 2

Now connect the CT secondary leads to the corresponding terminal on the RJ12 adaptor as shown.

### 3

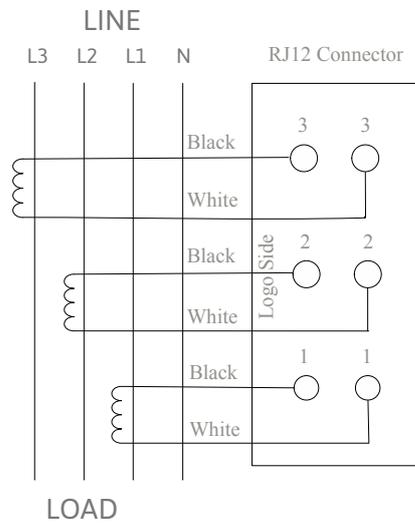
The white cable of each CT connects to terminals 1, 2 and 3 of ONE SIDE of the terminal block. The black cable of each CT connects to terminals 1, 2 and 3 of the OTHER SIDE of the terminal block.

See Pic 3.

If the Analytics platform shows a negative kW trace either reverse the black and white leads or reverse the direction of current flow through the CT's.

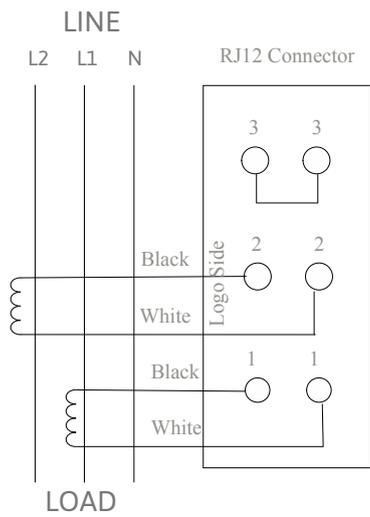
## Three Phase

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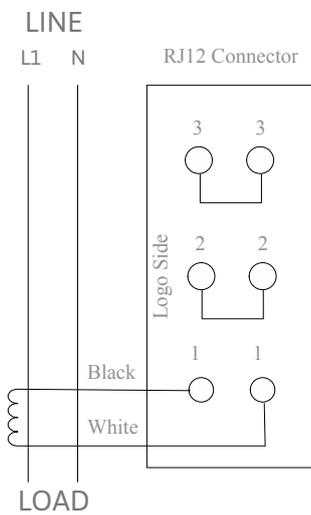
## Two Phase

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## Single Phase

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Once all the required CT's have been connected to the RJ12 adaptor connect the RJ12 connector into the correct CT point.

If you need to extend the CT lead this can be done up to 10 meters using 600V 1 mm<sup>2</sup> 18 AWG, single wire to VW-1 flame rating.

Route CT cables away from mains voltage current carrying cables.



**You have now completed the Electricity monitoring section. Please review the commissioning section to ensure the Real-time display and Analytics is receiving the recorded data.**

## D Pulse Inputs

---

The Pulse inputs provide the ability to monitor a pulse output typically from Gas and Water meters.

These inputs require a separate so called 'dry contact'. Only non-powered circuits should be connected. Typical input would be from the reed-relay switch (pulse output) of a water meter conforming to IEC62053-31 or DIN43864 (S0).

**NOTE: The Modbus and Pulse inputs share a common floating isolated 5V bias supply**  
**For maximum safety, this may be connected to ground via the common pins on the Modbus connectors** The isolation provided is for ground loop breaking only **Do not assume elevated voltage isolation**

The Pulse Inputs are in Pairs i.e. Two Pulse inputs per 4-way connector.

### From Right to Left

PIN 1) 2)	Function Pulse 1
3) 4)	Function Pulse 2

**Please ensure you consult and comply with local regulations before connecting any pulse inputs**

For further information please contact Best Energy Saving Technology Ltd until until the manual has been updated.

## E Modbus Communications (RS485 Serial Connection)

---

These inputs provide for separate RS485 connections to control and monitor other meters or load-side products.

These inputs are not currently functional and will require future software updates. At this time the manual will be updated to provide more information.

# F Temperature Sensing 1 Wire Input (3.5mm Stereo Jack)

## Temperature Probes

The Pulse inputs provide the ability to monitor a pulse output typically from Gas and Water meters. Temperature probes are connected to the Enscope via the 1 wire 3.5mm stereo jack socket. See Pic 1.

Temperature probes can be obtained from BEST. They come as a complete unit with a metal clad water-proof sensor wired to a standard 3.5mm stereo plug. See Pic 2.

For a single temperature sensor, simply plug your temperature probe into this socket. After a few seconds the Enscope will recognise the temperature probes presence and you will be able to add it to a metering point.

For multiple temperature sensing, the probes can be daisy-chained, see Pic 3. The easiest way to accomplish this is to use a standard 3.5mm stereo jack socket doublers. These are easily available from your local electronics outlet. Simply plug the doubler into the 1 Wire socket on the Enscope to give you two sockets. This can be repeated up to the connection limit of the Enscope.

The leads may be extended using standard 3.5mm stereo jack extender cables, again easily available from your local electronics outlet. These come in various lengths, so choose one that meets your needs.

## Configuration

As each temperature probe is connected it will be recognised by the Enscope. Each sensor has a unique identification number.

To add a particular temperature sensor to a particular metering point, go into the set up for that metering point and select the probe you want from the list presented. See Pic 4.

To avoid confusion, do this in a systematic way. That is one probe at a time. This way, as each new probe is added, it will appear as a newly available temperature sensor to add to a metering point. Repeat until all probes are used. If necessary mark each probe with an identification number so you can find it in the future.

## Distance

The temperature probes will work over significant distances without loss of accuracy. However the limit is very dependant on the quality of wiring, the number of sensors, the proximity to electrical wiring and other noise sources.

We would recommend that the total network length is limited to 20 meters, however you may be able to accomplish longer distances if the wires are run separately.

## Accuracy and Temperature Ratings

The temperature probes have the following accuracy.

-10°C to +85°C +/- 0.5°C

-55°C to +125°C +/- 2°C

Care should be taken to use the correct cable/connector combination for the intended temperature range. Standard temperature probes and cable kits supplied by BEST are rated for use in temperatures between -10 C to +50 C, -55 C to +125 C temperature probe and cable kits are manufactured to order.



Pic 1



Pic 2



Pic 3

Pic 4



# SECTION 2

## SD CARD PORT

---

An SD card slot is provided for data retention during power failure.

An 8GB card is supplied as standard. The SD card holder is a push-push type. Care should be exercised when inserting the card to ensure it is inserted correctly.

If the card is not inserted correctly measurement data may be lost if the unit is de-powered or a power failure occurs.

The card shall be inserted during the installation and before mains power is connected. Removing or inserting while the unit is powered up is not recommended.

### Warning

Please ensure the SD card is fully inserted before the Eniscope is powered. Failure to do this will prevent Eniscope from backing up data in the event of a power failure.

# SECTION 3

# USB PORTS

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Four USB connections are provided for future expansion options  
These inputs are not currently functional and will require future software updates.

These inputs are not currently functional and will require future software updates.  
At this time the manual will be updated to provide more information.

# SECTION 4

# COMMISSIONING

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# A Connecting to the Network

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## How does the Eniscope 8 work?

### You will be required to connect the Eniscope 8 to the Local Area Network (LAN) with Internet access

The Eniscope is a small networked computer designed to collate data from various Metering points and display the results locally via a web browser along with transmitting data via HTTP to enable historical data to be viewed externally via a web browser.

Liasing with the client's IT Department will be vital, to ensure a smooth installation.

The Eniscope 8 can operate on a DHCP network or can have a fixed IP. If DHCP is selected and a DHCP server cannot be found, the Eniscope will revert to a default fixed address of 192.168.1.227.

In most cases, as long as you have the correct Network Settings entered into the Eniscope 8 it will just work. However, in some larger networks you may find that they have a more locked down network structure. In these cases, as a network professional may need to know the URLs and outgoing ports that are accessed and this information is contained below.

#### Outbound access to transfer data using http (port 80) and https (port 443)

\*.eniscope.com

#### Currently the sub domains are:

hub.eniscope.com  
aus.eniscope.com  
checkin.eniscope.com  
upload.eniscope.com  
analytics.eniscope.com

#### Outbound access to ntp for the time server

udp/ntp 123

#### Outbound access for DNS

tcp port 53 (unless they are using an internal DNS)

#### Inbound access for SSH (Optional)

TCP port 22 (you may require inbound NAT rules to achieve this)

## B Meter Setup

To access the Eniscope interface to enable the successful set up of your metering points and to connect the HUB to the LAN please follow the directions below.



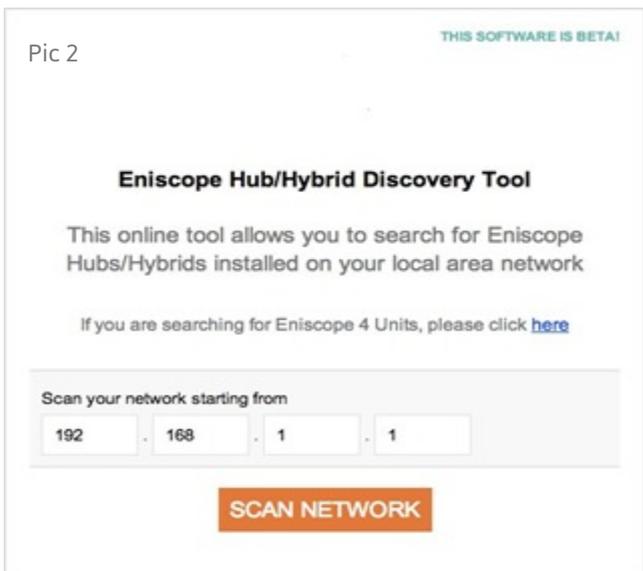
Pic 1

LAN Connection

## Instructions

1

Connect the Eniscope to your Local Area Network (LAN)



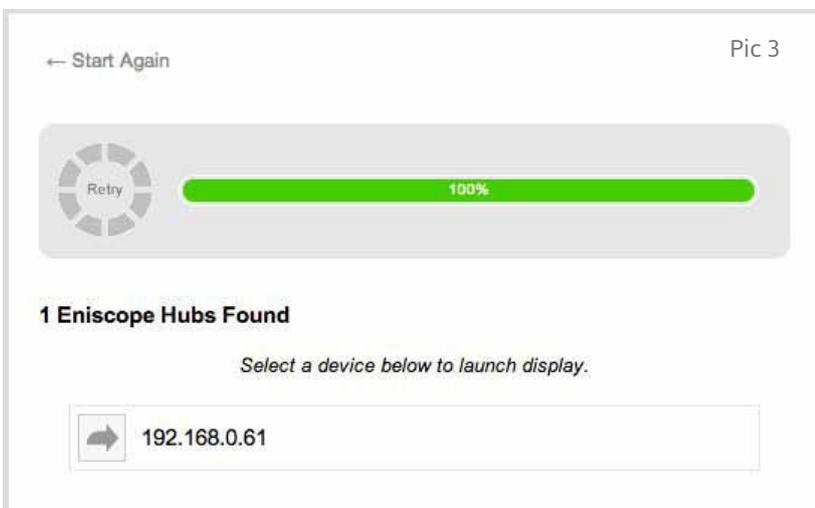
Pic 2

2

Now use the HUB discovery tool found on - <http://kb.BestEnergySavingTechnology.com/auto-discovery>

Ensure you enter in the correct network range and then select scan network' (Pic 2)

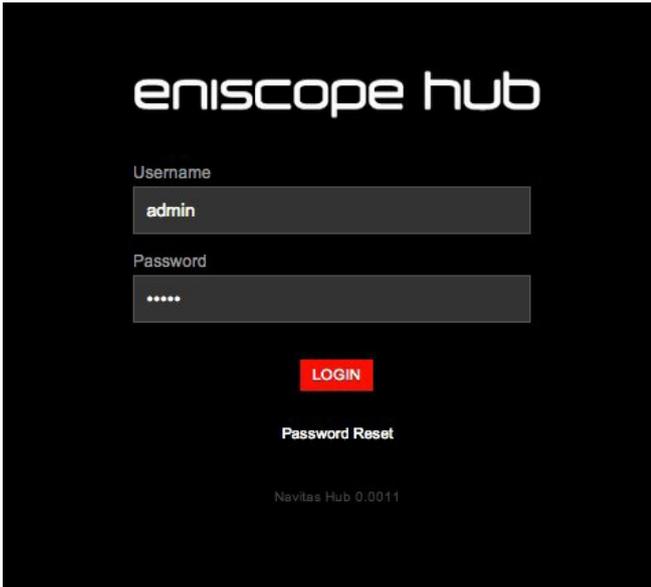
The tool will now search the network for any Eniscope's installed that have been assigned a DHCP address. (depending on the network the Eniscope may take up to 10min to register) (Pic 3)



Pic 3

3

Once the Eniscope has been found click the mouse pointer on the IP Address. Pic 3



Pic 34

## Instructions

4

You will now be directed to the Admin login screen.

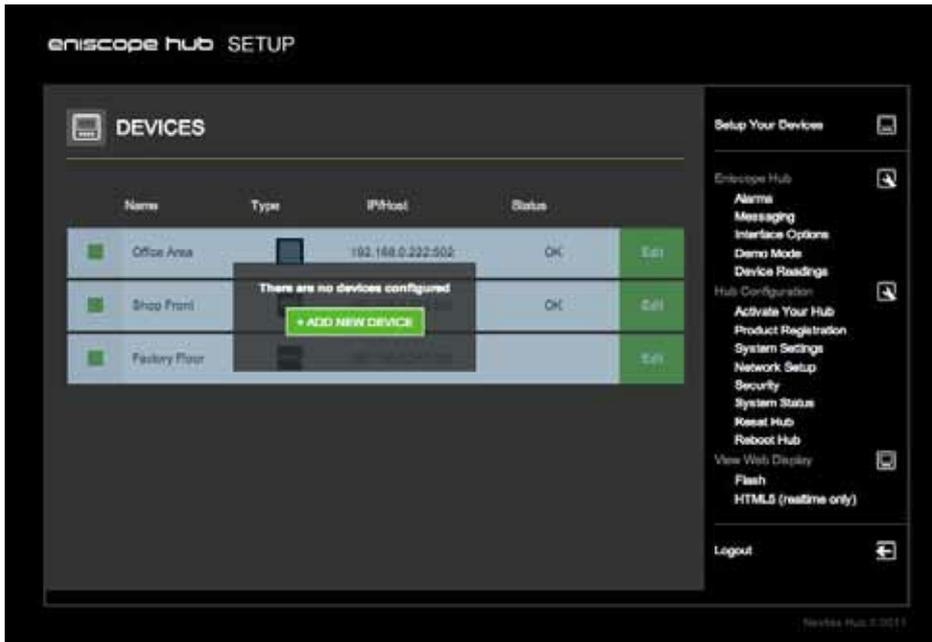
The default Username = admin  
Password= admin

Enter and then select 'LOGIN'

Pic 5

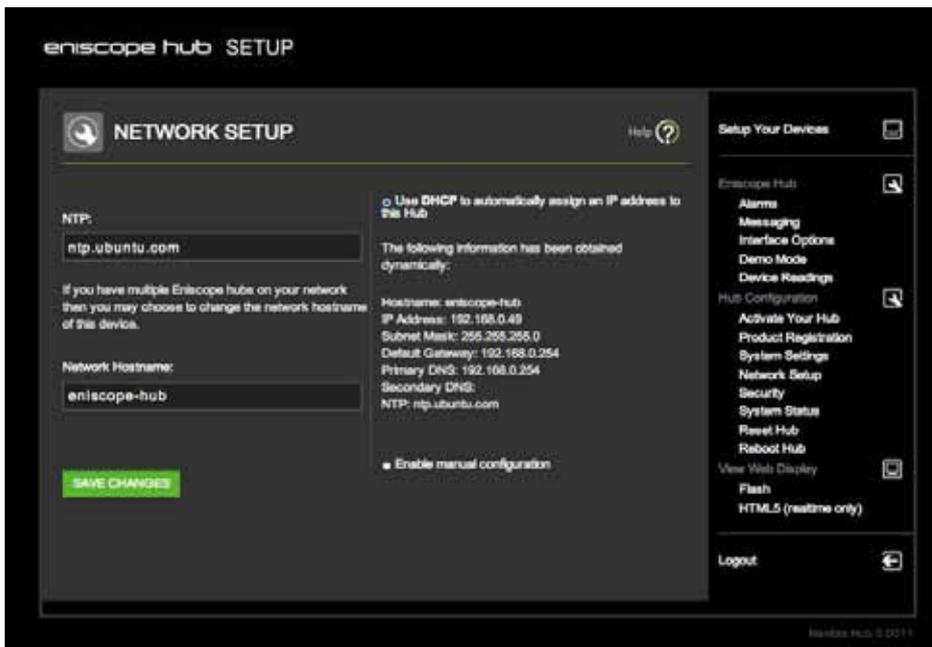
5

Complete the Registration of the HUB by entering in the company details. And selecting save.



Pic 6

Pic 7



## Instructions

6

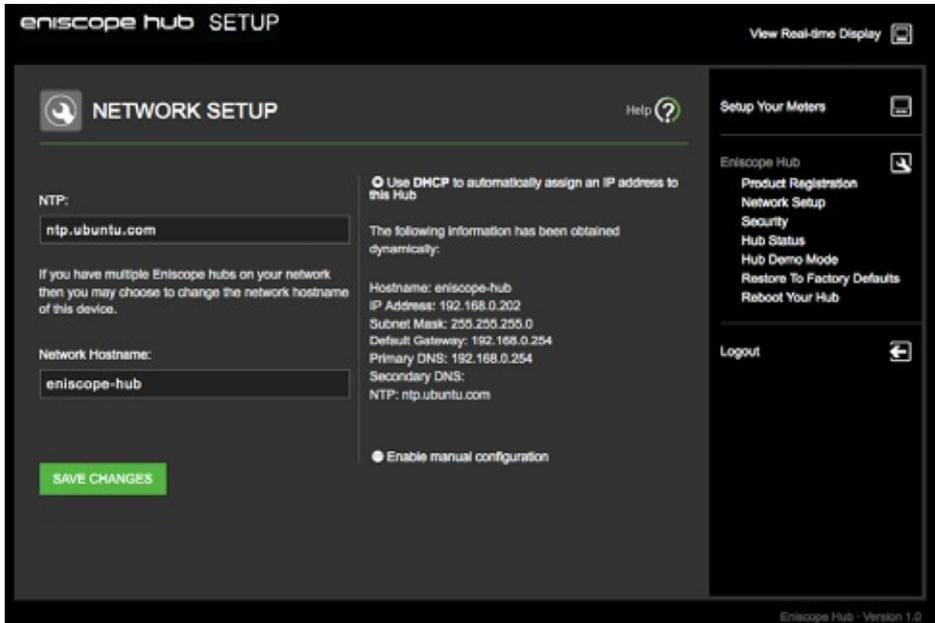
Now select the Menu item on the left 'Network Setup' (Pic 6)

7

You will see that the Eniscope has DHCP selected we now highly recommend changing this to a static address to ensure it can always be located.

To do this select 'Enable Manual Configuration' Enter in the Static address details and then 'Save Changes' (Pic 7)

## C Additional Menu/Setup Options



8

Manual Configuration - Allows you to manually configure the network setup for your Eniscope 8.

These details will need to be supplied by an onsite IT technician familiar with the local network and should be found on your pre-installation guide.

### Network Setup

This page allows you to configure how your Eniscope 8 appears on your Local Area Network.

**NTP Server** The IP address or domain name of an Internet Time Server, such as pool.ntp.org

**Network Hostname** If you have multiple Eniscope 8 devices on your network then you can enter a unique network name for each device.

**DHCP** **Dynamic Host Configuration Protocol**  
Your Eniscope 8 will attempt to automatically obtain the required details from a DHCP server on your network in order to operate correctly. This is the most common option for many installations.

### Manual Configuration

**IP Address** The network IP address of your Eniscope.

**Subnet Mask** The subnet mask for your network.

**Gateway** The IP address of your router or Internet gateway.

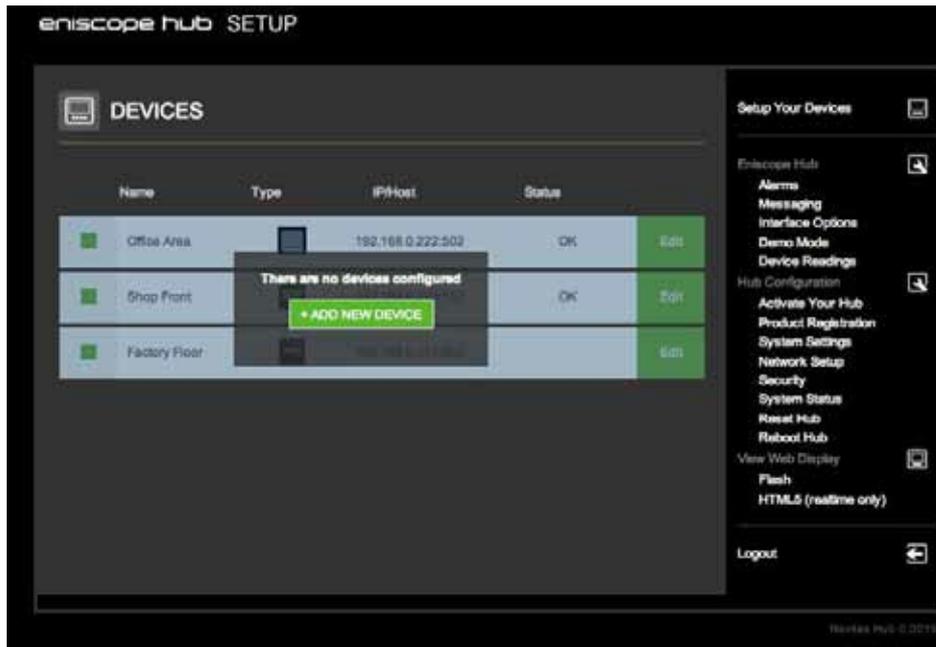
**Primary DNS** The IP address of your DNS server.

**Secondary DNS** The IP address of your backup DNS server.

## D Meter Setup

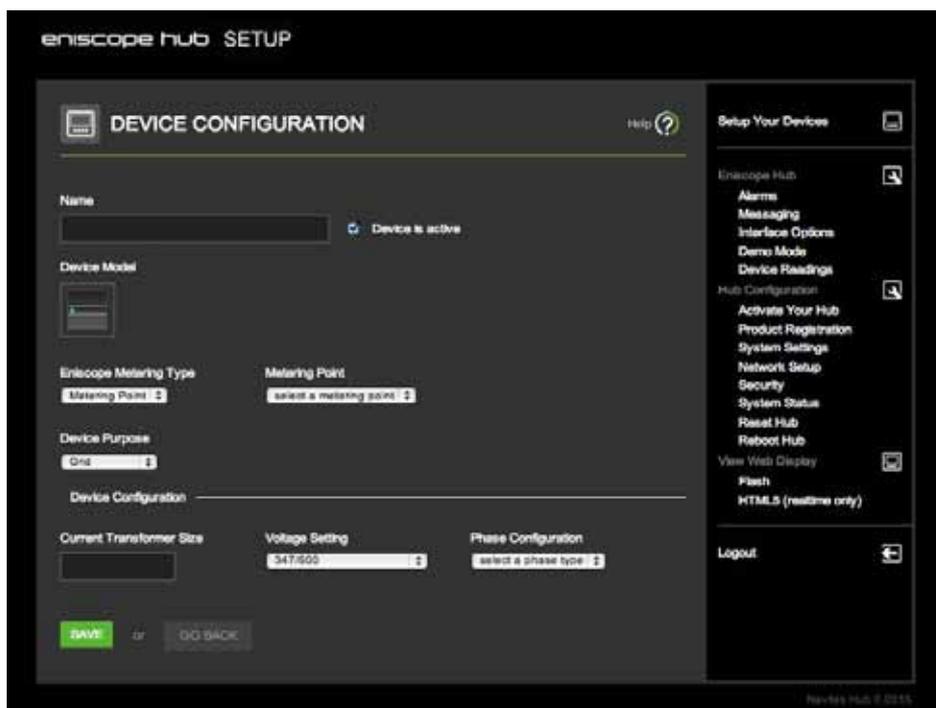
## Instructions

Please note for further information regarding the menu options select the help icon to provide further comprehensive explanations



Pic 1

Pic 2

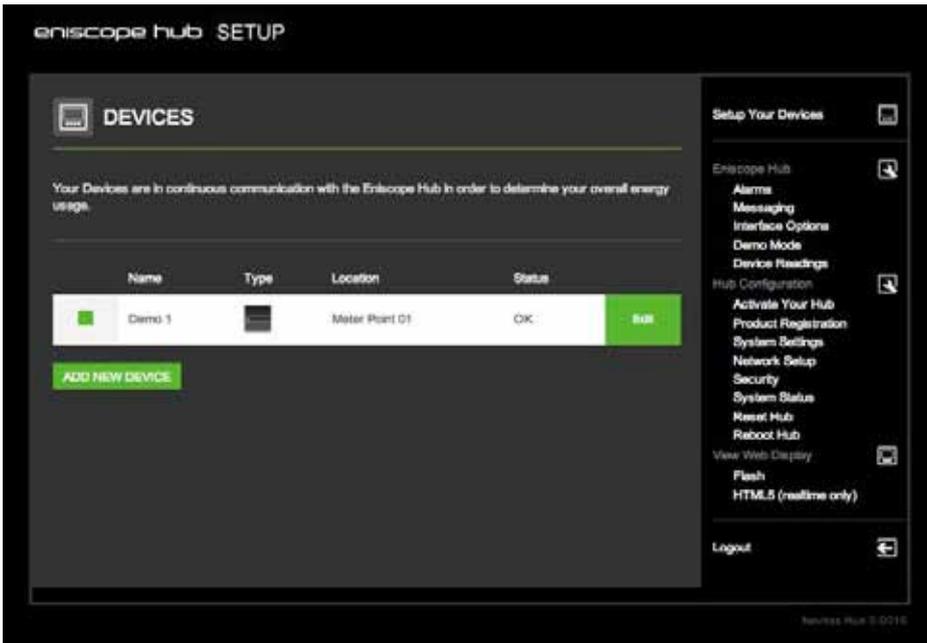


1

1. On the right side of the screen are all of your menu items. Please select 'Set up your meters'

2

Now Complete the editable fields. Ensuring the correct metering point is selected and the correct CT value (This should be the max current rating of your CT) Then press Save.

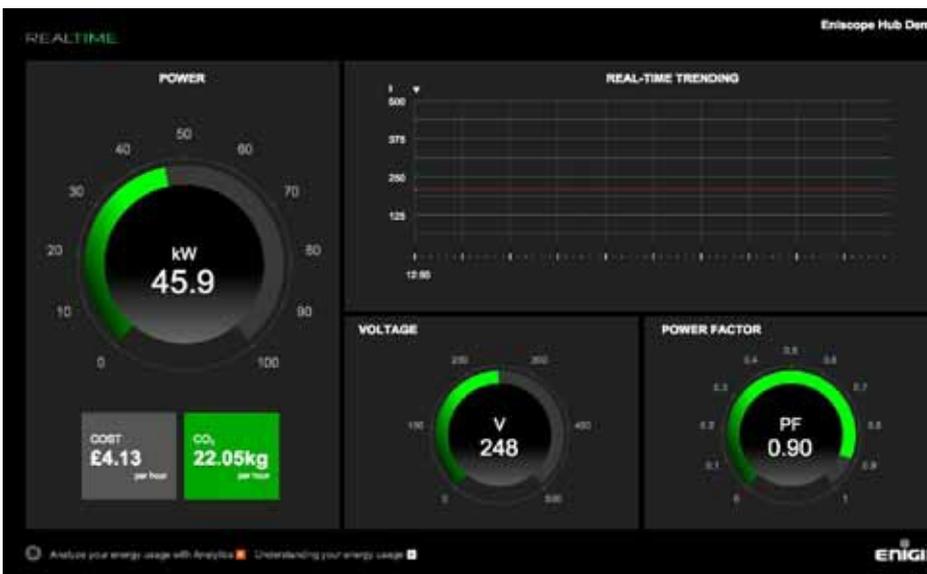


Pic 3

3

You will now see your registered Eniscope device.

Pic 4



4

To access the Real time display you can select from the HTML5 version or the Flash web page from the right hand menu. Or for future access simply enter in the Eniscope IP Address in your web browser i.e 192.168.1.127 (To access the admin page add /admin at the end).

## E Activating Eniscope 8

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Please follow the steps listed in <https://help.bestsupportdesk.com> to activate the Eniscope 8 system.

## Adding Eniscope 8 to Analytics

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Please follow the steps listed in <https://help.bestsupportdesk.com> to add the Eniscope 8 system to Analytics.

## F Resetting the Eniscope 8

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To reset the Eniscope 8 to factory defaults please follow the procedure below.

1. Disconnect the power supply and the measurement supply using the isolator switches. Wait 10 seconds.
2. Press the reset button (see page 5 for location) and at the same time switch on the power supply. The red LED in the window will rapidly flash.
3. Eniscope has now reset to default factory settings and the set up process will need to be repeated.

# SECTION 5

## Technical Specification Eniscope 8

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### Environment

<b>Humidity</b>	< 90% (non condensing)
<b>Meter Operating Temperature</b>	0-40°C nominal
<b>Storage Temperature</b>	-10°C – 60°C nominal
<b>Altitude</b>	2000m above sea level maximum

### Aux Supply

**100 – 240V~ 50/60 Hz nominal**

<b>Power Consumption</b>	< 20W
<b>Current</b>	20mA

### Electrical Metering

<b>Nominal Full Scale Voltage</b>	346V~LN/600V~LL - Voltage Category III
<b>Withstand Voltage</b>	1000V~ LN & LL
<b>Input Impedance</b>	> 2MΩ
<b>Metering Frequency</b>	50/60 Hz nominal
<b>Pickup Voltage</b>	0V
<b>Voltage Accuracy</b>	Better than 1%
<b>CT Type</b>	Split Core - Measurement Category III compliant ONLY to UL2808, 333 mV output per channel nominal, Max 1V
<b>CT Operating Temperature</b>	-40C to +55C
<b>CT Max Primary Voltage</b>	600V~
<b>CT Nominal Current</b>	According to available CT's
<b>Metering Range</b>	30-300 Amps as standard in stock on ECOS (500 to 6000 amps available on request)
<b>Withstand Current</b>	6 x Nominal CT Current
<b>Pickup Current</b>	0A
<b>Accuracy</b>	+/-1% as per IEC60044-1, Table 11