Cool Energy diverTech Solar Diverter

Version 1.1

Installation and Users Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS

RETAIN FOR FUTURE REFERENCE

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HEALTH AND SAFETY INFORMATION

INFORMATION FOR INSTALLER AND SERVICE ENGINEERS

Under the Consumer Protection Act 1987 and the Health and Safety at Work Act 1974, it is required to provide information on substances hazardous to health (COSHH Regulations 1998).
Cool Energy takes every reasonable care to ensure that these products are designed and constructed to meet these general safety requirements, provided they are properly installed and used.
To fulfil this requirement, products are comprehensively tested and examined before dispatch.
When working on the appliance, it is the responsibility of the user/engineer to ensure that any necessary personal protective clothing or equipment is worn when appropriate for parts, which could be considered hazardous or harmful.
This appliance may contain some of the items below:

Button Cell Battery & Printed Circuit Board

WEEE, also referred to as e-waste, is basically any waste item that has electrical components, circuitry, or a power supply.

When WEEE is thrown away it ends up in landfills or is incinerated, resulting in valuable resources being lost forever. Electrical items contain gold, silver, copper, and many other precious metals, which we should be doing our utmost to keep in circulation. Retrieving them from old equipment means we can reuse them in new items and reduce our reliance on the difficult and environmentally damaging process of mining them from the ground. In fact, if we recovered all the copper and gold from WEEE being thrown away in Europe, we would have more than enough for all of the new electrical equipment Europe purchases each year.
Most unwanted or broken electrical items can usually be repaired with the right tools. The more electricals we reuse in our community, the less damage we do to the environment (and our pockets!). If reuse isn't an option, or items cannot be returned to the original retailer or manufacturer, WEEE can be recycled by accredited reprocesses. Reprocesses break the items down into their component parts and recover the valuable resources within for use in new products.

Glue, Sealants, and Paints
Glue, sealants, and paints are used in this appliance and present no known hazards when used in the manner of which they are intended.

IMPORTANT SAFETY INFORMATION FOR THE END-USER

- Installation of the appliance must only be carried out by persons with suitable competence.
- Do not attempt to modify, repair or service the appliance yourself.
- Do not insert body parts or any other items into the air inlet or outlet.
- Do not operate the unit or the programmer with wet fingers.
- Keep the programmer unit of out of reach of children.
- The electrical supply must be isolated during a heightened risk of lightning strikes.
- Do not attempt to move the appliance once it is installed; this must be carried out by a qualified engineer.
- Isolate the electrical supply to the appliance if an odour presents, or scorching is detected.
- Only use this appliance for the purpose intended.
- Ensure the area around the appliance is clean, well-ventilated, and kept free of all obstructions.
- Do not keep items on top of the appliance or use it to support other appliances.
- Do not under any circumstances stand on the appliance.
- Isolate the electrical supply to the appliance if it is to be switched off for a period of more than two months.
- Periodically check the condition of any supports for deterioration.
- Do not wash the unit with water, alcohol, benzene, thinner, glass cleaner or powders.
- During cleaning, isolate the electrical supply to the appliance.

Section 1

Introduction

Product Overview

The Cool Energy diverTech Solar Energy Diverter is designed to harvest energy that would normally be exported to the grid. It monitors the whole house electricity supply and when export is detected it starts to divert electricity to a heating element in 100W increments, upto 3600w. Two elements can be connected and heated sequentially with element 1 always taking priority. The device will also show real time data of unit status and total energy saved.

Common FAQ's

What can I connect to my diverTech?

The diverTech is designed for use with up to 2 immersion heaters each rated up to 3kW for water heating, although it is possible to connect other resistive heaters like towel radiator elements.
The heating elements should always have their own thermostat controls, independent of the connection to the diverTech unit.

How does the diverTech know when my heating element is satisfied?

When the set temperature is reached on each element the external thermostat operates to switch the element off which the diverTech unit detects automatically. Once the first element is satisfied it automatically switches over to heat the second (if connected). Every 20 minutes following this the diverTech will check the first elements requirement for heat and as such treats this with priority over the second element.

When does my diverTech energy diverter start to work?

As your PV array starts to generate more power than what you are using within your property, the diverTech unit detects this using the CT clamp. It then begins to harvest this free export energy by diverting it to the heating elements.

What happens if I switch on other appliances whilst the diverTech is working?

Don't worry, the diverTech will detect the change in consumption and adjust automatically.

How do I know how much energy the diverTech has saved me?

The diverTech has a built-in display, which can display savings from Today, Yesterday, Last 7 Days, Last 28 Days, & Total Savings.

How does it work when battery storage is installed at the same property?

The diverTech units default export threshold setting is 100W. When installed with a battery system with a cut-in below 100W no changes are normally necessary as the battery storage system would always be prioritized by default.

What happens if I have a power cut?

Don't worry, the diverTech will automatically restart and retain all of your settings and saved data

Section 2

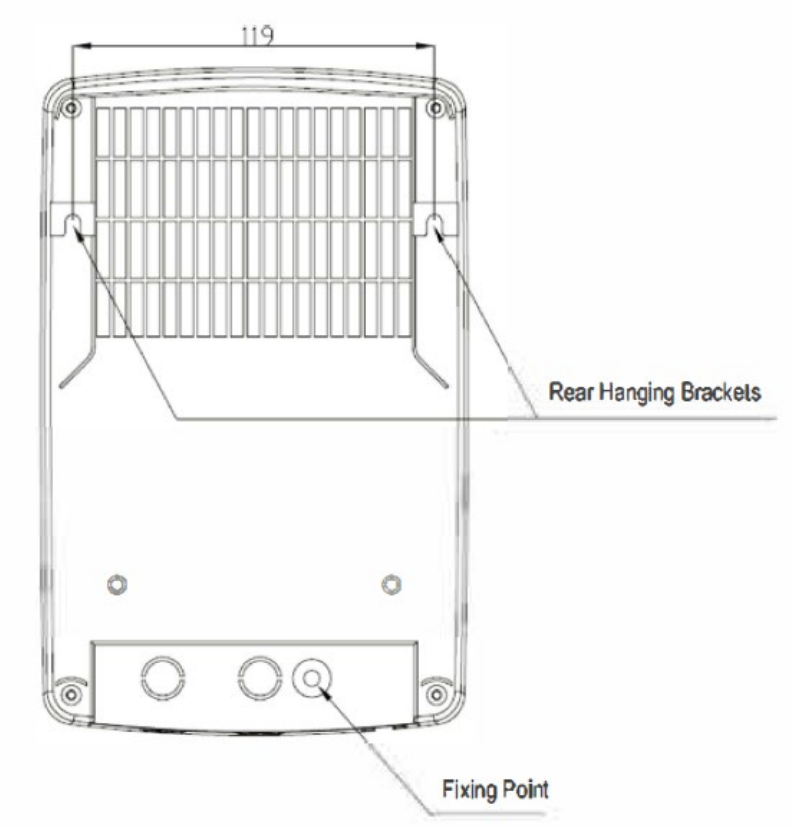
Installation

The following general information describes how to install the diverTech Solar Energy Diverter.

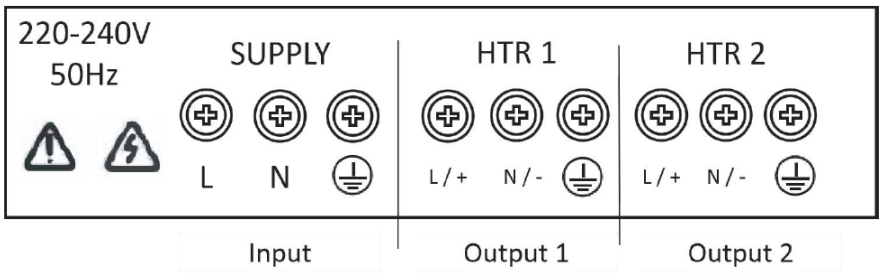
Note: **Before installing this product, read and follow all warning notices and instructions. Only a qualified / competent person should install the diverTech solar energy diverter.**

Mounting:

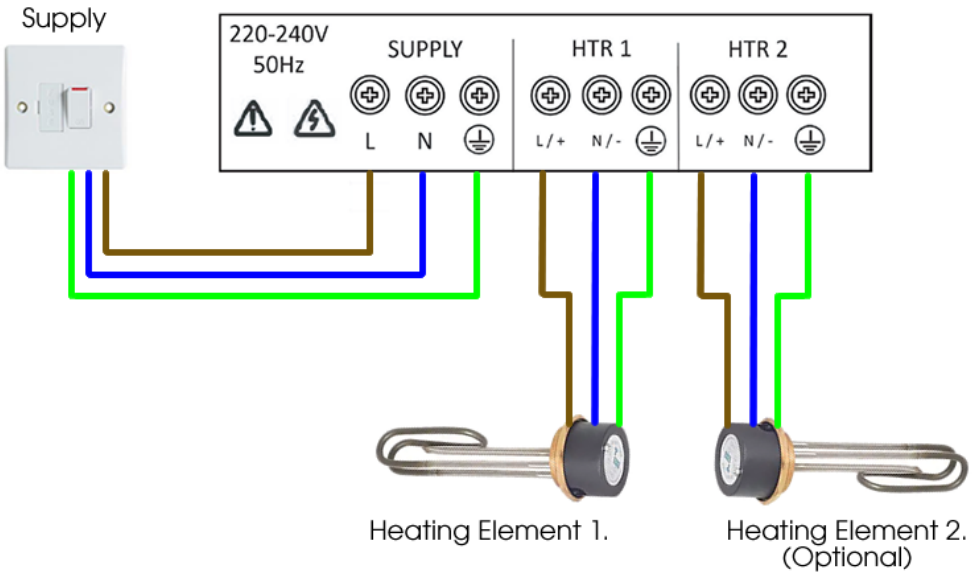
The diverTech unit should be suitably mounted to the wall using appropriate fixings.
Mounting should be at a height appropriate to allow the screen to be visible and buttons accessible.
The room where the diverTech unit is installed should be well ventilated and a minimum of a 150mm air gap around all sides of the unit should be maintained to allow airflow for cooling.



Cool Energy diverTech Electrical Connections

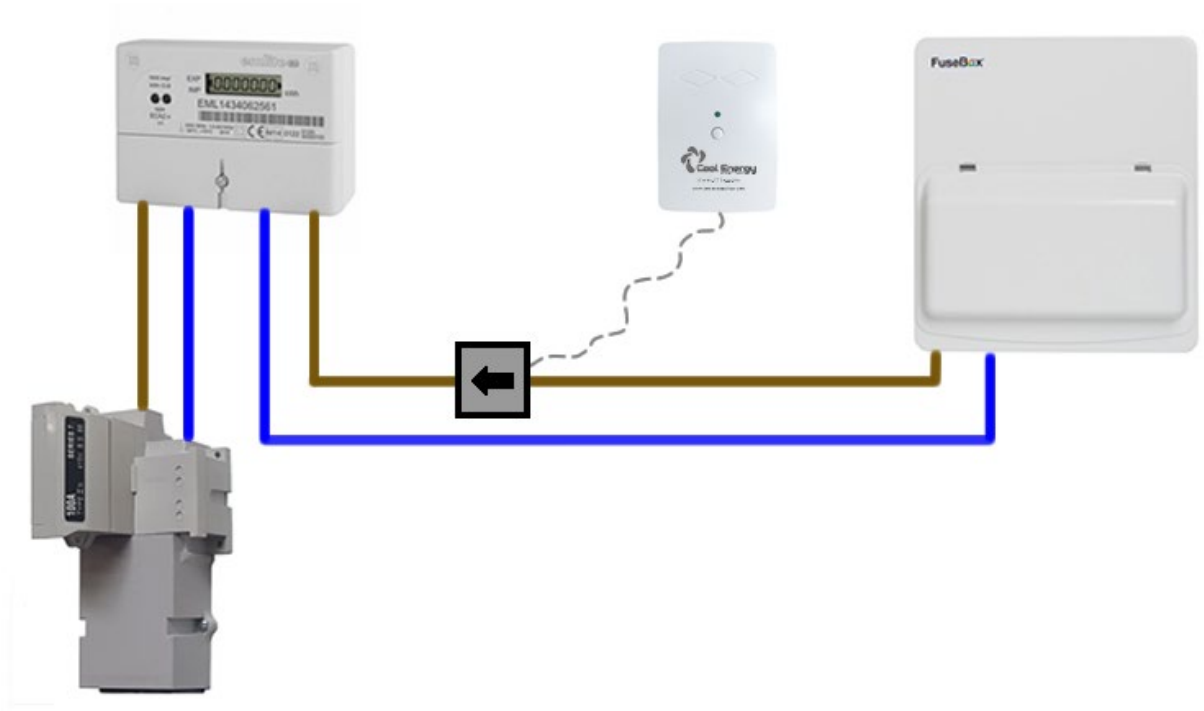


Wiring Diagram



Heating elements to be connected as above.
Element 1. will always take priority, and when satisfied will automatically switch over to Element 2.
Every 20 minutes the diverTech unit will check to see if there is any demand for Element 1. and switch back to heating this element if there is a demand present.

Installation of the Wireless CT Sender



The wireless CT transmitted box should be mounted on the wall near to the electricity meter.
The CT or Current Transformer clamp should then be installed with the arrow pointing toward the electricity meter.

Wireless CT Sender Pairing:

To initiate pairing of the wireless CT sender to the diverTech unit follow the below steps:

1. Ensure sender unit has 2 x AA batteries installed.
2. On the inverTech unit press "**Display" + "Down"** buttons together for 1 second – The Screen will now show **"Pairing"**
3. On the sender unit hold the middle button for 3 seconds and it will try and connect to the inverTech unit.
4. Once paring is complete **"Pairing Success"** will be displayed on the screen.
5. If **"Pairing Failed"** is displayed, please check and repeat the above process.

User Operation

Icons:

Diverting Solar Energy

Warning – Check Unit

Button Description:

Display – Use to scroll display for past / present savings and real time information.

Up / Down – Use to scroll through timing settings

Boost – Use to manually boost heater outputs

Displayed Information:

Heating by solar xxx kW	Shows real time energy being diverted
Water tank hot	Displays when all elements are satisfied
Water heating off	Displays when there is no spare export energy to divert
Saving Today	Shows the energy diverted today
Saving Yesterday	Shows the energy diverted yesterday
7 Day Savings	Shows energy diverted over the past 7 days
Total Savings	Shows total energy diverted for all time
Time HH:MM	Current time in 24 Hour format

Reset Data:

Display + Boost Together – Clears all Software Data!

Reset Button (Under wiring cover) – Clears all Hardware Data!

Timing Operation

The diverTech energy diverter can provide users with three manual boost time periods if required.
When set the maximum output will be sent to the heater outputs during this time even if there is not enough export power.

Boost times can be set using the Up / Down buttons.
Press “Up” to enter the current setting page which displays the first time period and pressing “Up” again will move to the next. Using the “Down” key will select the time to be adjusted and then confirm selection again with the “Up” key.

Display	**Function**
Boost Time 1.	Set the boost time for period 1. Setting 00:00 will disable this setting
Boost Time 2.	Set the boost time for period 2. Setting 00:00 will disable this setting
Boost Time 3.	Set the boost time for period 3. Setting 00:00 will disable this setting
Set time HH:MM	Set the clock time

Technical Specifications

Cool Energy diverTech Solar Diverter	
Operating Voltage	**AC 220-240V 50Hz**
Maximum Permissible Load	**16A (Max 3.68kW)**
Radio Frequency	**433MHz**
Operating Temperature	**-10 to 45°C**
Standby Power	**1-3W**
Dimensions	**130x218x63.5mm**
Weight	**720g**

Cool Energy diverTech Wireless CT Sender	
Power Supply	**2x AA 1.5V Batteries**
Battery Life	**Upto 24 Months**
Radio Frequency	**433MHz**
Operating Temperature	**-25 to 45°C**
Radio Range	**Upto 30m Indoor / 250m Outdoor**
Current Transformer	**50A / 50mA**
Dimensions	**68x96x30mm**
Weight	**70g**

Commissioning

The system should only be installed and commissioned by a qualified electrician.

Whilst solar PV is generating, try and limit the household loads whilst commissioning the unit to allow some electricity to flow back to the grid.
With the diverTech unit powered on check that it is starting to divert surplus power to the heating elements.
Then test the boost function.

If the PV array is not currently generating, you can temporarily reverse the CT clamp and turn on a household appliance like a kettle or electric fire. This will simulate export and cause the diverTech unit to think that there is solar surplus and start diverting power to the elements.
Don't forget to put the CT clamp back in the correct direction afterwards!

Remember, the element outputs are sequential, and the second output won't be triggered until the first element is satisfied. If you wish to test the second output, it is possible to temporarily reduce the thermostat temperature on the first element to ensure changeover. **Don't forget to correctly set the element thermostat again afterwards!**

Warning Icon

The warning icon may be displayed with the below messages:

Sender Battery Low	Batteries in the Wireless CT Sender are low – Please Replace
Lost Signal to Sender	1. Batteries in Wireless CT Sender may be flat 2. Sender too far away, signal obstruction or interference
Overload	Power draw above 3.68kW detected, check element sizing & grid voltage.

Warranty

The diverTech Solar Energy Diverter is covered by a 3 Year Warranty if installed correctly by a qualified electrician and registered with Cool Energy directly.

- The warranty starts from the delivery date by an approved dealer.
- To validate the warranty must be registered with Cool Energy within 30 days of this date, unless otherwise agreed by an approved electrician. This must include Dealer Invoice, Competent Person Scheme Registration, Installation Address & Unit Serial Number.

Cool Energy reserve the right to refuse warranty claims in any of the following circumstances:

- Case seal broken or evidence of modifications.
- Incorrect installation / failure to comply with wiring regulations.
- Evidence of water ingress
- Evidence of damage to outer casings
- Lack of ventilation around the unit
- Force Majeure – Lightning Strikes, Power surges or any element out of control.

Conformities

EN62368 – 1:2014+A11:2017
LVD Directive 2014/35/EU
EN301 489-3 V2.1.1:2017
EN301 489-1 V2.2.0:2017
EN300 220-1 V3.1.1:2017
EN300 220-2 V3.1.1:2017
EN62479:2010
Radio Equipment Directive RED 2014/53/EU

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