

PV diverter installation instructions

MDC0007-05

For Mixergy embedded diverters



mixergy

System details

The Mixergy solar diverter is a device which allows your hot water cylinder to redirect and absorb excess solar energy from local PV panels in the form of hot water. This absorbed energy offsets primary energy demand of the hot water system, reducing running costs and lowering the carbon footprint of your water heating.

There are four versions of the system. All have a Mixergy solar diverter fitted to the cylinder but have a different accessory kit depending on the application

- MAS0071 accessory kit. Single current clamp and interface (MAS0061). This is for use with a single phase electricity supply.
- MAS0077 accessory kit. Single current clamp and interface (MAS0196). This is for use with a single phase electricity supply.
- MAS0074 accessory kit. Three phase power meter and three ESCT-24 current clamps. This is for use with a three phase electricity supply. Note that this is fitted in the properties consumer unit and must be installed by a qualified electrical installer
- MAS0076 accessory kit. Similar to the MAS0074 kit but with smaller (SCT-10) current clamps and a different version of the three phase power meter. Note that this is fitted in the properties consumer unit and must be installed by a qualified electrical installer
- Check the part number on the outside of the accessory box to see which one you are installing.

System specification

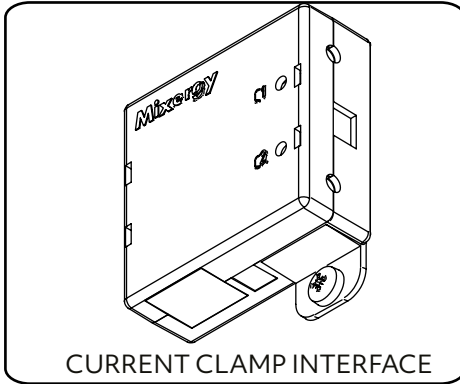
Thermostat cut-out temperature	80 °C
Immersion heater(s) rating	230-240 V~ 2.7-3.0 kW
Immersion heater(s) specification	EN 60335-2-73
Immersion heater(s) type	356 mm Incoloy/Ti
Modulation range	30W - 3000W
Immersion heater(s) type	100W

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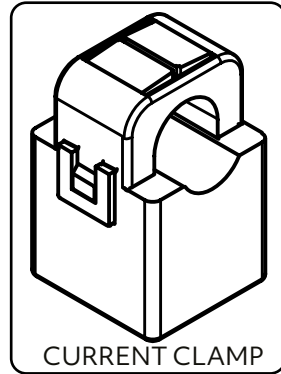
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Included parts - MAS0071 single current clamp kit

- Solar diverter (pre-fitted to cylinder)
- Current clamp interface (MAS0061) x 1
- SCT-16 Current clamp (MEC0029) x 1
- Mounting hardware (VHB pad, screws x 2, wall plugs x 2)
- 1 m ethernet cable x1, 2m ethernet cable x1



CURRENT CLAMP INTERFACE



CURRENT CLAMP

Included parts - MAS0074 - three phase kit

- Solar diverter (pre-fitted to cylinder)
- SDM630MCT three phase DIN rail mounting power meter (MEL0078)
- ESCT-T24-100A/5A Current clamp (MEL0079) x 3
- 1 m ethernet cable x2, 2m ethernet cable x2



3 PHASE METER



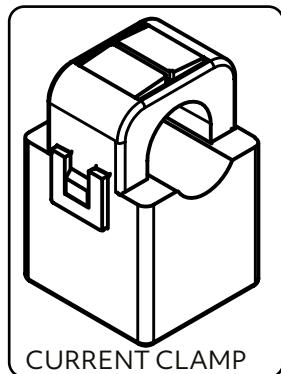
CURRENT CLAMP

Included parts - MAS0077 single phase current clamp kit

- Solar diverter (pre-fitted to cylinder)
- Current clamp interface MK2 (MAS0196) x 1
- SCT-16 Current clamp (MEC0029) x 1
- Mounting hardware (VHB pad, screws x 2, wall plugs x 2)
- 1 m ethernet cable x1, 2m ethernet cable x1



CURRENT CLAMP INTERFACE



CURRENT CLAMP

Included parts - MAS0076 - three phase kit

- Solar diverter (pre-fitted to cylinder)
- SDM630MCT-MV three phase DIN rail mounting power meter (MEL0089)
- SCT10-60A-333mV Current clamp (MEL0090) x 3
- 1 m ethernet cable x2, 2m ethernet cable x2



3 PHASE METER



CURRENT CLAMP

Installing the current reader - single phase versions

Positioning the current clamp interface

The current clamp interface must be placed within 300mm of the household's incoming mains supply cabling.

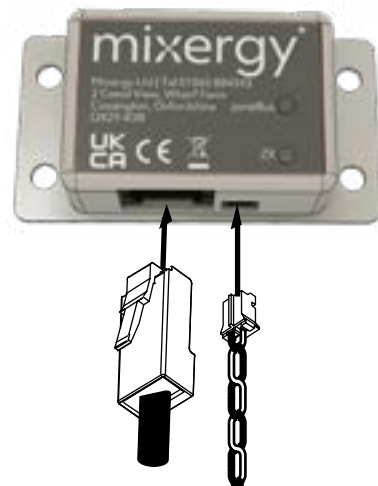
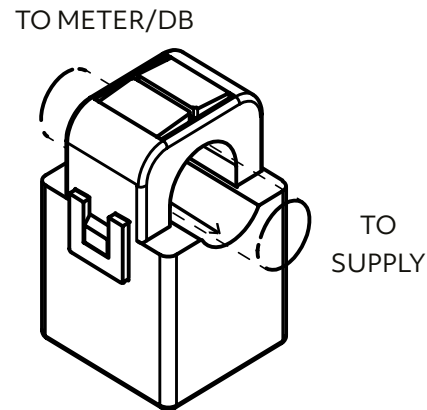
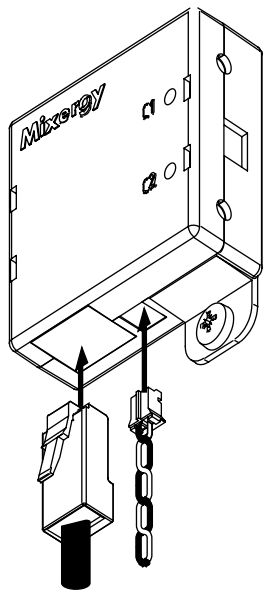
The current clamp interface should be fixed to the wall with the provided screws or adhesive pad.

Installation of the current clamps

The current clamp should be attached around the neutral (blue/black) cable on the incoming mains supply with the arrow pointing **towards** the incoming supply 80/100A main fuse or breaker.

If this is impractical it can be fitted round the live (brown/red) cable with the arrow pointing **away** from the incoming supply.

The current clamp must then be plugged into the current clamp interface as pictured.

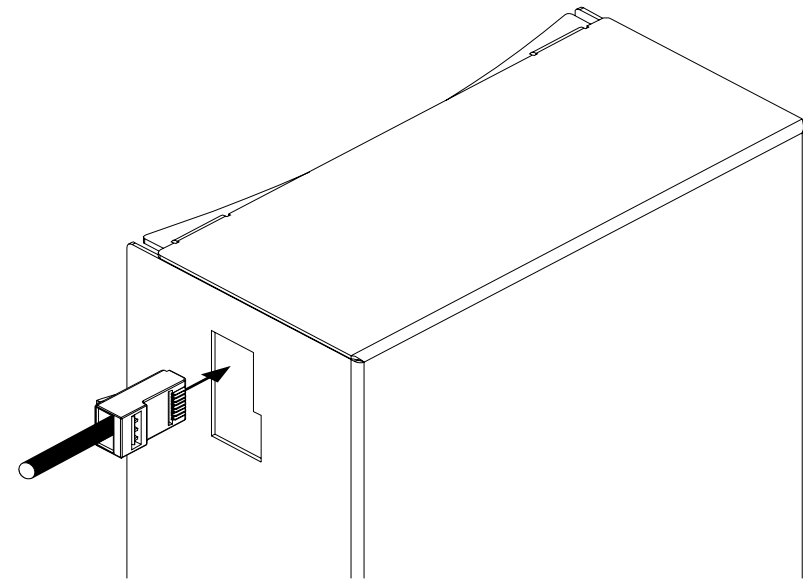


Connecting to the diverter - single or three phase version

Connection of the CT interface to the diverter

The CT interface must be connected to the diverter using either cat5e or cat6 ethernet cable and standard RJ-45 connectors using the TIA/EIA-568-B.1-2001 T568B wiring scheme. Ensure that the cable used contains all 4 twisted pairs (8 conductors). Connection should be made between the RJ-45 port located on the left side of the PV diverter enclosure as pictured below and to the single RJ45 connector on the single CT interface **OR** to the RS485 terminals of the 3 phase meter as described in "Connecting to the diverter" on page 8

NOTE: While ethernet cable is used for this connection, the communication protocols used are not compatible with standard networking hardware and the connection between the diverter and clamp must be direct (i.e. no network switches or routing equipment is to be fitted in between). All cables must be pin to pin and all eight conductors must be connected.



Installing the three phase meter

Installing the three phase meter (both versions)

The three phase meter is a DIN rail mounted unit supplied by Eastron. It is normally mounted inside the properties consumer unit. It can be mounted in a suitable external enclosure (not supplied) if there is insufficient space in the consumer unit.

Follow the Eastron installation instructions for the meter following the three phase four wire diagram - see opposite.

Note in particular the requirement for 1A fast blow fuses on the voltage inputs.

Installing the current clamps

See page 10.

Connecting to the diverter

The meter should be connected to the diverter using either cat5e or cat6 ethernet cable and standard RJ-45 connectors using the TIA/EIA-568-B.1-2001 T568B wiring scheme.

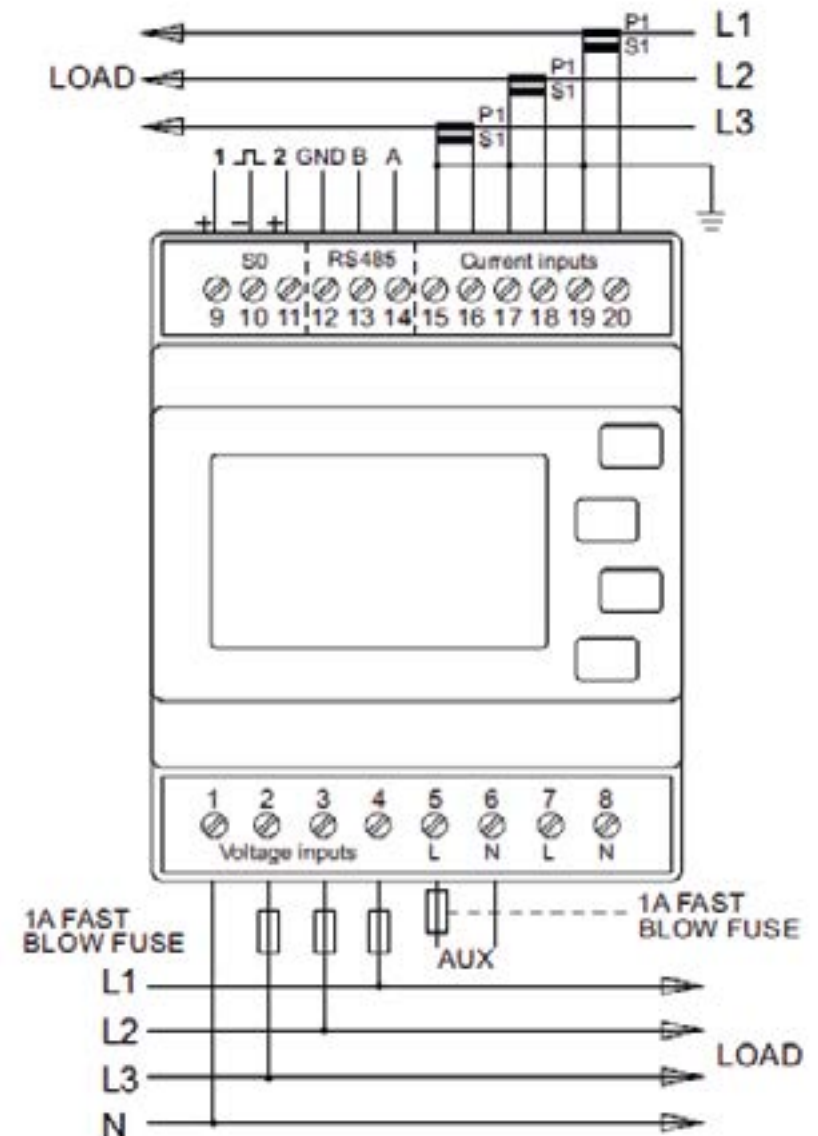
Connection should be made between the RJ-45 port located on the left side of the PV diverter enclosure as pictured above and the RS485 terminals on the meter.

Remove the RJ45 connector and wire as follows

Signal	Wire Colour	Terminal
RS485 A	Orange	14
RS485 B	Orange/ White	13
GND	Green/White	12
GND	Green	12

The blue and brown pairs (if using 4 pair cable) should be cut back, ensuring that they can not short to each other or any other conductor.

Three phase meter wiring diagram



Installing the three phase current clamps

Installation of the current clamps

The current clamp must be attached around the live cable on each phase of the incoming mains supply.

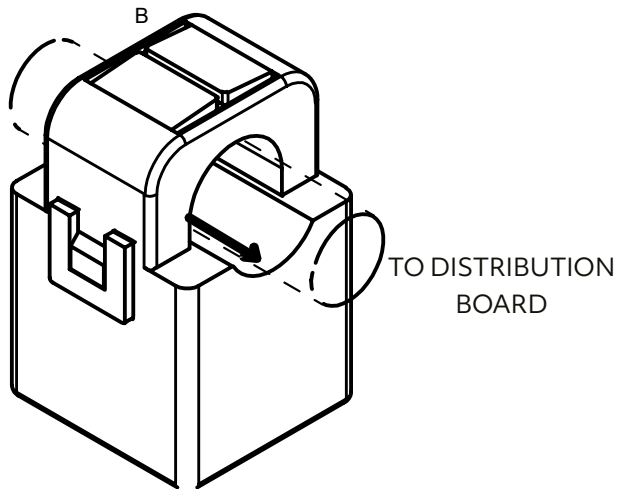
For correct functioning of the system they **must** be positioned to read the entire consumption of the property - normally between the main supply fuse/circuit breaker and the meter.

Fit with the arrow pointing in the normal direction of energy flow - ie with the arrow pointing towards the property and away from the supply.

Wire as follows:

Phase	Supply cable colour Old colours in ()	Meter terminal - clamp black wire	Meter terminal - clamp white wire
L1	Brown (Red)	19	20
L2	Black (Yellow)	17	18
L3	Grey (Blue)	15	16

FROM SUPPLY



Configuring the three phase meter

Configuring the three phase meter (both versions)

Follow the meter user manual to set the following parameters:

SDM630MCT SDM630MCT-MV

- | | | |
|-------------------|---------|-----------------|
| 1. Supply System: | SYS 3P4 | SYS 3P4 |
| 2. CT2* | 5 | 0.333 (pre set) |
| 3. CT1* (ratio) | 20 | 60 |
| 4. RS485 Address | 3 | 3 |
| 5. Baud Rate | 9600 | 9600 |
| 6. Stop bits | 1 | 1 |
| 7. Parity | None | None |

***WARNING. As this is a MID certified meter these parameters can only be set once. Take extreme care that they are correct before leaving the setup pages. In the event of a problem contact Mixergy support.**

Update system firmware (3 phase meter only)

The main controller **must** be running **V5.7.0** or higher firmware to operate with the 3 phase meter.

Once the controller has been connected to the internet check the Firmware Version in the installer web portal <https://www.mixergy.io/tanks>.



Contact Mixergy Technical Support by calling +44 (0)1865 884 343 and selecting option 3 or emailing service@mixergy.co.uk to get the software updated if necessary. They will need the MX number of the controller.

Software setup

To enable diverter functionality, ensure the check-box 'Use spare PV to heat tank' is selected. This option can be found in the tank settings page on the Mixergy phone app or web portal (<https://www.mixergy.io>).

The screenshot shows the 'PV Diverter Settings' web interface. It includes several configuration options: 'PV Diverter Cut-in Threshold' set to 0W, 'PV Diverter Charge Limit' set to 100%, and 'PV Diverter Target Temperature' set to 0W. A red highlight is placed over the 'Use spare PV to heat tank' checkbox, which is currently checked. Below these settings are fields for 'PV Diverter Start Time' and 'PV Diverter End Time', and a 'Clear PV Schedule' button.

The screenshot shows the 'Tank Settings' mobile app interface. It features a 'PV DIVERTER SETTINGS' section with 'Cut-in Threshold' at 0W, 'PV Charge Limit' at 100%, and 'PV Diverter Target Temperature' at 60°C. Below this is a 'PV DIVERTER SCHEDULE' section with a toggle for 'Use spare PV to heat tank' which is turned on. At the bottom, there are fields for 'PV Diverter Start Time' (08:00) and 'PV Diverter End Time' (16:00), along with a 'Clear PV Diverter Schedule' button.

Commissioning checklist

Have the solar panels been correctly installed and commissioned on site?	
Has a solar inverter been installed and properly commissioned according to manufacturer's instructions?	
Has the smart cylinder and diverter been installed and properly commissioned according to manufacturer's instructions (MDC0001/MDC0007)?	
Has the current measurement device (clamp + reader) of the diverter been installed correctly according to manufacturer's instructions?	
Commissioning engineer's signature	
Customer's signature	
Date	/ /

Troubleshooting

If the fans on the diverter repeatedly run for a second then stop for eight seconds this indicates a communication problem with the diverter. Check the cable from controller to diverter.

The single phase current clamp interfaces both have two LEDs. Their behaviour depends on the firmware version.

On the original version of the MAS0061 interface both LEDs will flash every eight seconds until communication from the controller is established. Wait till the controller has booted up and check that both LEDs are NOT flashing.

On the latest version of the MAS0061 interface and all versions of the MAS0196 interface both LEDs should flash twice per second in normal operation. One (ZX) indicates that the timing signal has been received from the controller, the other (zoneBus) that a message has been received from the controller. Wait till the controller has booted up then check that both LEDs are flashing twice per second.

If there is a communication issue check the cabling from the diverter to the current clamp interface.

If the cylinder switches the immersion on to full power at all times when diverting, this indicates that the current clamp has been installed with the arrow pointing in the wrong direction. Double check the arrow direction is facing as described on page 6. If the problem persists please contact Mixergy directly.

Spare parts

Do not attempt to repair or replace any parts of the Mixergy diverter unless you are a trained operative. If you suspect a fault or a replacement part is needed, please contact Mixergy directly.

To determine the correct parts for your system, please ensure you have your cylinder MX number which can be found on the nameplate located at the front of the cylinder.

Part description	Part no.
Enclosure cover	MME0074
Diverter PCB	MAS0056
Diverter complete assembly	MAS0060
Current reader (single)	MAS0061
Current reader MK2	MAS0196
High-limit stat (GTLHR070)	MEL0034
3 phase meter SDM630CT	MEL0078
ESCT-24 current clamp	MEL0079
3 phase meter SDM630CT-MV (mV inputs)	MEL0089
SCT-10 current clamp	MEL0090

For more information on our
hot water tanks,
visit us at **mixergy.co.uk**
email us at **enquiries@mixergy.co.uk**
or call us on **+44 (0)1865 884 343**

mixergy

Mixergy Ltd, 2 Canal View, Wharf Farm,
Eynsham Road, Cassington, Oxfordshire OX29 4DB

T: +44 (0)1865 884 343 | www.mixergy.co.uk