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## **sync energy EVAB1 Series Dynamic Load Balancer**



## Specifications

- **Model:** EVAB1ETP400 (Three phase balancer with 3X 400A CT)
- **Model:** EVAB1ESP120 (Single phase balancer with 1X 120A CT)
- **Model:** EVAB1D (Hub for integration into existing panel)
- **Power Supply:** 220-240V AC
- **Installation:** Internal use only

## Product Usage Instructions

### Introduction

This guide is intended for use by competent electrical installers to explain basic requirements and options to be considered when installing a Sync Energy Balancer. The unit is designed for installation inside and to work with the range of EV chargers from Sync Energy.

### Box contents

#### EVAB1ETP400

- Balancer hub in an IP20 enclosure

- 3X 400A Split core CT
- MCB and wiring terminals

## **EVAB1ESP120**

- Balancer hub in an IP20 enclosure
- 1X 120A Split core CT
- MCB and wiring terminals

## **EVAB1D**

- Balancer hub

## **Tools required**

- Screwdriver
- suitable drill bit
- fixings

## **Safety information**

### **Warning**

- The supplied Dynamic Load Balancer is manufactured to be safe without risk provided they are installed correctly, used, and maintained by the manufacturer's recommendations, which is to be installed by a competent electrical installer by national and local regulations and legislation applicable at the time of installation, e.g., BS7671:2018 amendment 2.
- The Balancer is designed to be supplied with a 220-240V nominal AC supply, and enclosures are suitable for internal use only.
- The power for the EV chargers does not run through the hub; it is designed to be installed separately to monitor the EV circuits or the complete building supply for optimal performance.
- The Dynamic Load Balancer is protected by the pre-wired MCB and can be fed directly from the main circuits.
- In case of a communication fault or failure, all connected chargers will drop to a fail-

safe 6A maximum charge rate and flash purple to show the error fault.

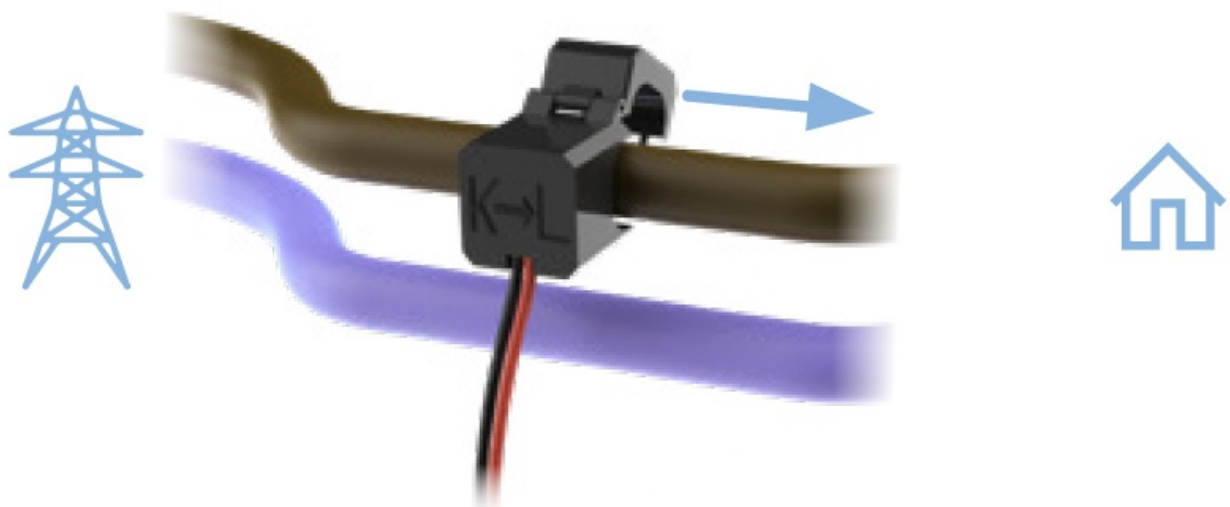
- Ensure the circuit supplying EV chargers is suitable for a minimum of 6A per charge point, and the total building supply is suitable for the total charge points installed at this minimum charge rate of 6A per charger.

## Installation requirements

The Balancer enclosure is suitable for internal installations only., It is recommended to be installed close to the incoming power or EV circuit that is being monitored, and the CT clamp cables should not be extended beyond 50m.

### CT Clamp Connection

1. Locate the main incoming power cable to the property. The CT Clamp needs to be fitted before any of the tails are split for correct measurement.



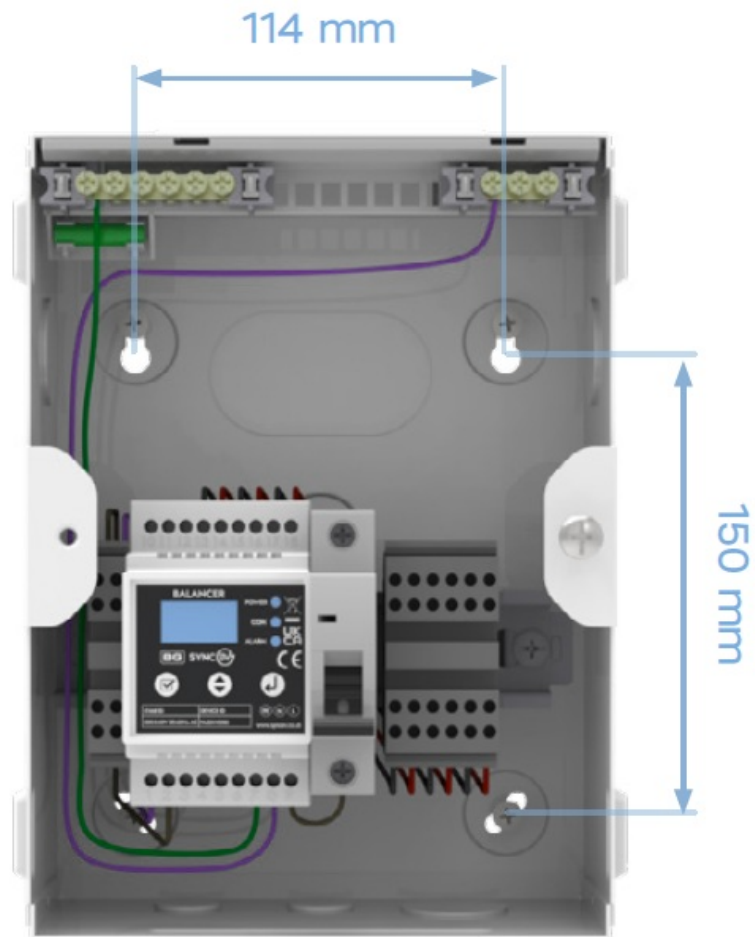
2. Open the CT Clamp and fit it around the incoming Live power cable, which is typically marked brown for most installations. Ensure the Arrow is pointing into the property from the incoming fuse. K towards Source, L towards Load.
3. CT Clamp current and voltage readings can be checked via the Bluetooth EV installer App to ensure correct connection and orientation. If using an existing RS485 MOD BUS meter, which is on the BG Sync EV approved list, this can be connected into the hly.

### Electrical Installation of the Enclosure

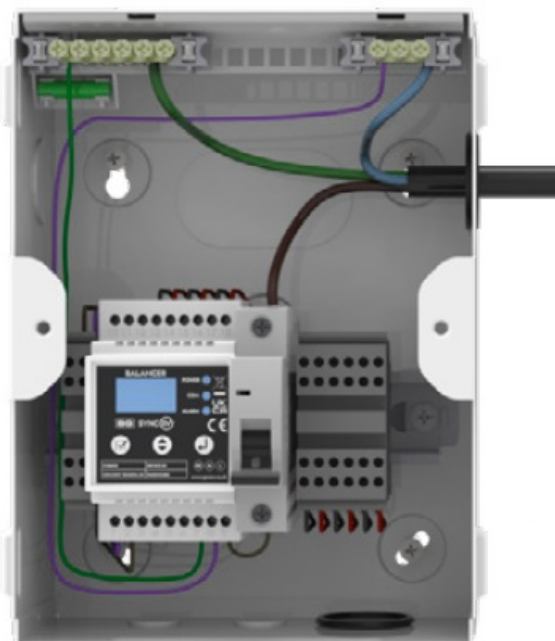
1. Isolate the power.
2. Undo 2 lid retaining screws and remove the lid. DIN rail and components can be removed if needed.



3. Drill the correct fixings to mount the enclosure.



4. Drill or knock our required cable entries. Ensure the correct glands or grommets are used.
5. Mount the enclosure using suitable fixings.



6. Fit and terminate incoming power.
  - Live – into MCB
  - CPC – into Earth Rail

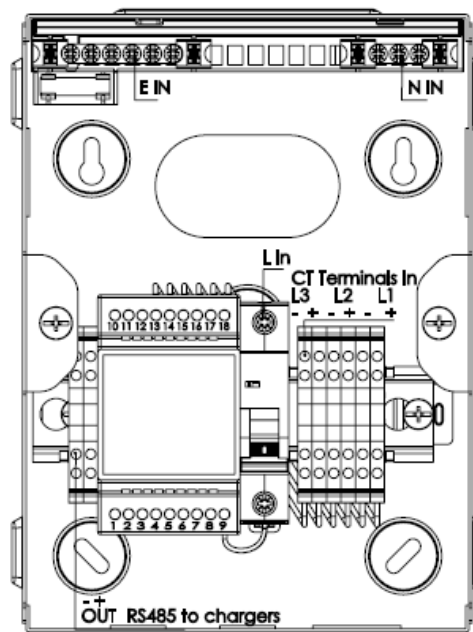
- Neutral – into neutral rail

7. Connect the CT clamps, ensuring correct polarity.

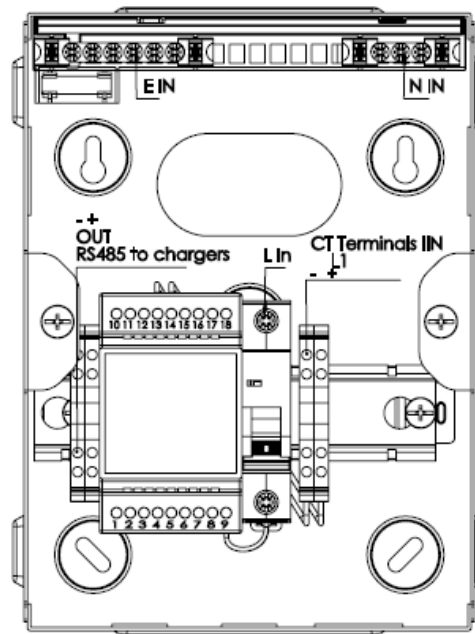


8. Terminate a twisted pair cable to the output terminals;s, these can be looped in/out of each charger, or multiple connections can be terminated into the Balancer. Ensuring correct polarity in the hub and the chargers.

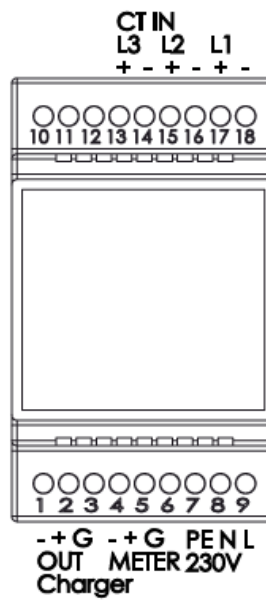
### **EVAB1ETP400**



- **EVAB1ESP120**



- EVAB1D



9. Ensure all connections are secure, then refit the lid and tighten the retaining screws.





## App Commissioning

- INSTALLER APP – Download the 'Sync Energy' app by clicking this link.. Also available from the Installer
- Portal on the sync.energy website, or using the QR code opposite.



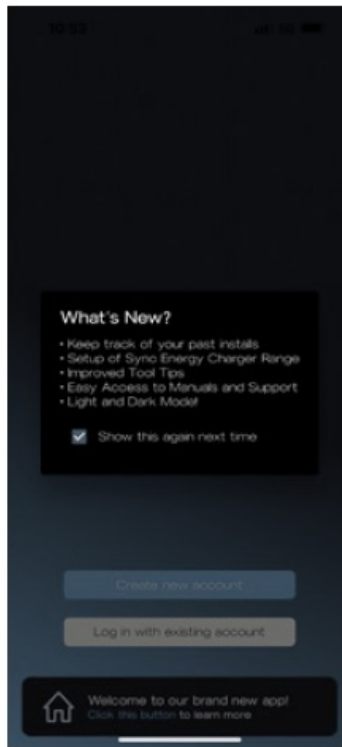
## Intuitive Interface

The revamped interface is designed with the installer in mind. Everything you need is available through a new side menu. Nu Effortless Setup: seamlessly configure your EV Chargers and balancer devices with just a few taps. Get up and running in no time

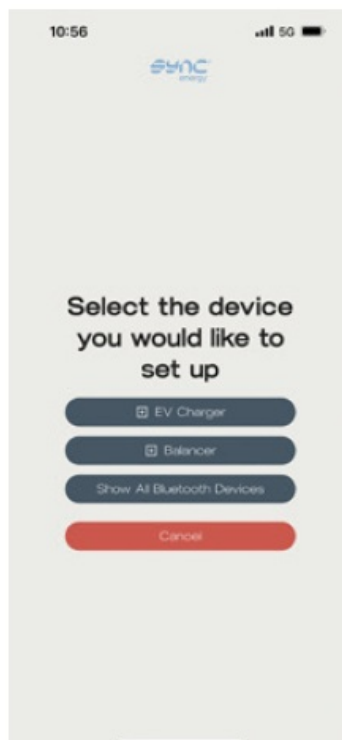
## Account Management

Create and manage your account effortlessly. Keep a history of all your installed Chargers.

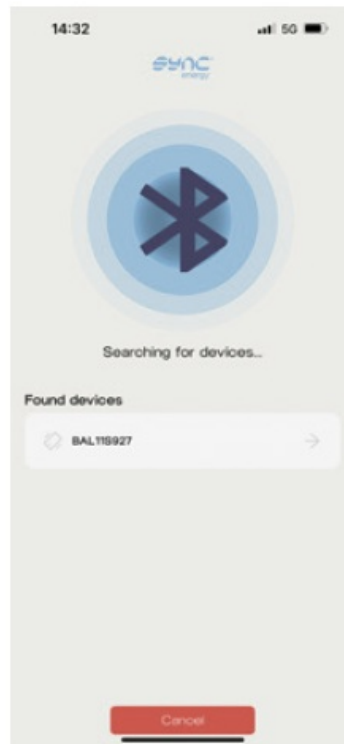
1. Open the Sync Energy Installer App. If this is the first time, you will be required to create an account. This will give you a history of the chargers and balancers installed and further help with options.



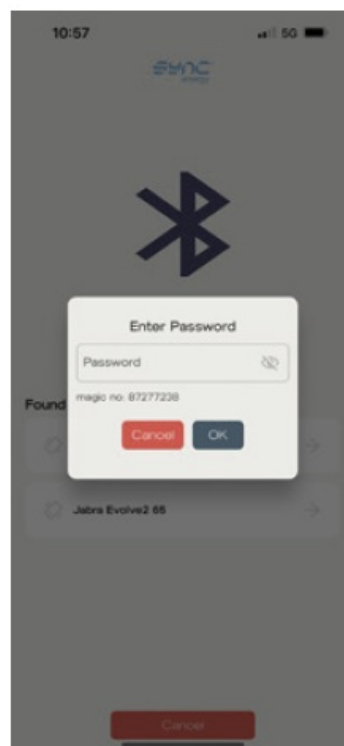
2. Ensure Bluetooth is activated on your device, and select Set up new product. If the Balancer ID does not show up under the Balancer option, go back and select Show all Bluetooth devices. If no Bluetooth devices are shown, please check that Bluetooth is turned on and the permission was granted in the app.



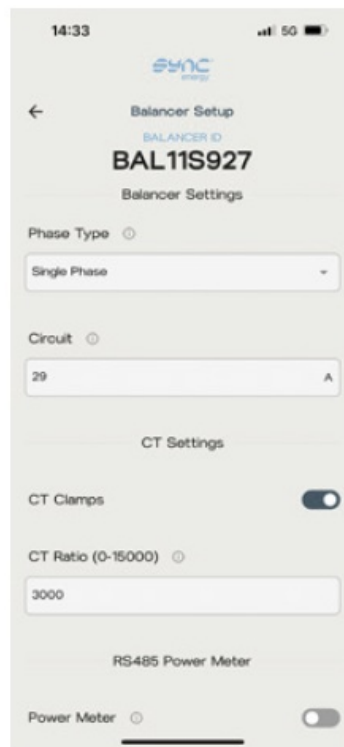
3. Select the correct Balancer ID that matches the Balancer ID code as shown on the product's identification label.



4. Then enter the password shown on the identification label.



5. **Balancer Settings:** Select the installation type from three-phase or single-phase, and set the maximum circuit limit



## 6. CT Settings

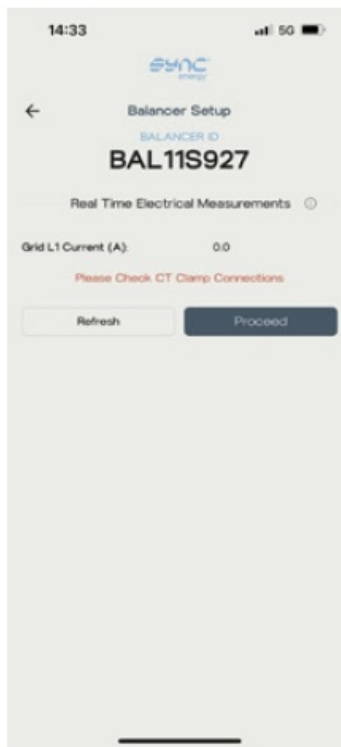
If using the included CT Clamps, this information does not need to be changed. If using alternative CT's then enter the CT Primary Ratio.



## 7. RS485 Power Meter

If using an external RS485 MODBUS meter for circuit monitoring, then enable Power Meter and enter the Baud Rate and RS485 Address of the meter. For compatibility, please check the datasheet or contact technical support.

Press Save and Proceed to save these settings.

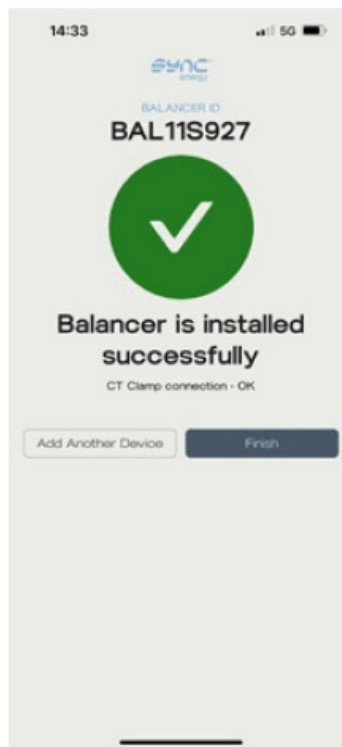


8. Check that the shown electrical measurements match the measurements. This will allow checking that the Load Management CT is fitted in the correct orientation and location. A negative value indicates a reverse direction of power due to to, e.g., solar surplus, but could also indicate that the clamp has been installed in a reversed (incorrect) orientation or polarity.

### **Please Note**

A minimum of 3 amps is required to ensure correct CT connection. Press Refresh to retrieve the latest readings.

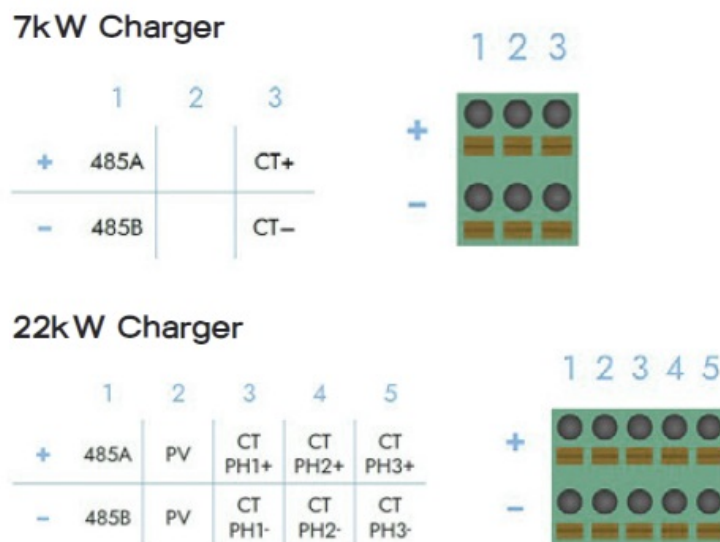
- Press Proceed to complete installation setup



## Connecting the Charger to the Balancer

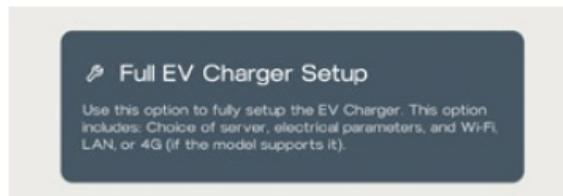
The cable connecting the hub to the charger can be up to 150m from the Balancer to the last connected charger, with up to 16 chargers either looped in/out or wired back to the balancer directly.

Connection point for the communication cable

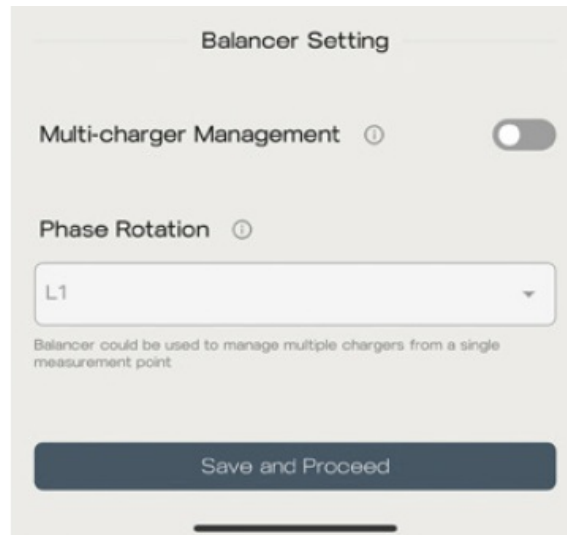


The connected EV Chargers need to have balancer multi-charger management enabled. Connect to each charger via the BG SyncEV Charger Set up App.

1. Select Configuration settings.



- Press Next to move to Load management settings.
2. Enable Multi-charger Management and select the correct phase rotation for the charger.



3. Press Next to save settings. The Charger will check that it has the correct connections and alert if any communication failure occurs. Please allow up to 10 seconds for the hub and charger to confirm connection. If the Charger loses communication to the hub, it will flash Purple to show the fault, but still allows charging at a safe fallback level of 6A per charger.

## Troubleshooting

- For further information, or to refer to our FAQs, please visit our website: [www.sync.energy](http://www.sync.energy)
- The screen on the Hub will state if any connection issues, ensure the hub is reading CT clamp values correctly, and the offered power to the chargers.

**The status of the EV charger can be identified by referencing the colour shown on the LED indicator or**

- **Flashing Purple** – Communication issue to Balancer hub – Check connections are correct polarity into the hub and the chargers.
- **Solid Blue** – Standby – Charger has power and is connected to the network. Or, if in

'plug and charge' mode is not connected to the network, it is ready to charge.

- **Flashing BLUE** – Charger is connected but not charging, awaiting confirmation of charge in APP or scheduled start time.
- **Solid Dark Green** – Charger is active and charging.
- **Solid Yellow** – Charger is offline from the network, check the local network is active and Wi-Fi is working on the 2.4Ghz band
- **Flashing Red** – Indicates the charger is in fault mode and has stopped charging for the user's safety

### Potential causes:

Internal RCD has tripped, Vehicle fault, Undervoltage or overvoltage charging voltage

- Remove the connection to the vehicle and reset the power to the EV charger.

## Technical information

### Environmental Protection



■ This symbol is known as the “Crossed-out Wheelie Bin Symbol”. When this symbol is marked on a product or battery, it means that it should not be disposed of with your general household waste. Some chemicals contained within electrical/electronic products or batteries can be harmful to health and the environment. Only dispose of electrical/electronic/battery items in separate collection schemes, which cater for the recovery and recycling of materials contained within. Your co-operation is vital to ensure the success of these schemes and for the protection of the environment.

### Guarantee

BG Sync EV products are guaranteed against faulty materials and workmanship for 3 years from the date of delivery: products will be repaired or (at Sync Energy's discretion) replacements will be supplied, or (at Sync Energy's discretion) a credit note will be issued. This guarantee is subject to Sync Energy's conditions of sale and, in particular, to the following conditions being met:



1. Notification of any defect is given to Sync Energy as soon as reasonably practicable after becoming apparent, and the products are then returned to Sync Energy.
2. The products have only been operated under normal operating conditions and have only been subject to normal use.
3. No work (other than normal and proper maintenance) has been carried out to the products without Sync Energy's prior written consent.
4. The products have been assembled, or incorporated into other goods, by a qualified and recognised electrician and only by any instructions issued by Sync Energy.
5. The defect has not arisen from an item manufactured or supplied by a person other than Sync Energy.
6. 3-year warranty as standard, optional product registration can be completed on the Sync Energy website.

Follow this link to visit our Warranty webpage

## **Technical data**

### **CODES**

- **EVAB1ETP400**

(Balancer and enclosure, for three-phase installations, supplied with CT clamps for up to 400A)

- **EVAB1ESP120**

(Balancer and enclosure, for single-phase installations, supplied with CT clamps for up to 120A)

- **EVAB1D**

(Balancer hub, for integration into existing panel boards)

### **ACCURACY**

2% CT CLAMP ACCURACY, SUPPORT FOR CONNECTION TO EXTERNAL RS485 MODBUS METER

### **ELECTRICAL CLASS**

CLASS 1

## **OVERLOAD AND FAULT PROTECTION**

INTEGRATED 6A MCB FOR SHORT CIRCUIT AND OVERCURRENT PROTECTION OF THE HUB

## **IP RATING**

IP20

## **CONNECTION PROTOCOL**

RS485

## **WARRANTY**

3 YEARS

## **Technical support**

- Need help with the app?
- Contact Monta customer support through the app or via the website [Monta.com](https://monta.com)
- Need help with the charge-point?
- Contact Sync Energy technical support at: [support@sync.energy](mailto:support@sync.energy) or via the website at [www.sync.energy](https://www.sync.energy)

**Sync Energy (previously BG SyncEV) is a trading name of Luceco PLC**

## **Luceco PLC**

Stafford Park 1, Telford, TF3 3BD, England

## **(EU) Luceco SE**

C/ Bobinadora 1-5, 08302 Mataro, Spain

## **FAQs**

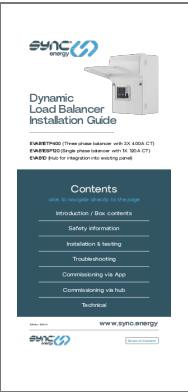
What should I do in case of a communication fault or failure?

In case of a communication fault or failure, all connected chargers will drop to a fail-safe 6A maximum charge rate and flash purple to indicate the error fault. Ensure to resolve the communication issue promptly.

How can I ensure correct orientation of CT Clamp current and voltage readings?

Use the Bluetooth EV installer App to check CT Clamp current and voltage readings for correct connection and orientation. The arrow on the CT Clamp should point towards the source for accurate measurements.

## Documents / Resources

	<p><a href="#">sync energy EVAB1 Series Dynamic Load Balancer [pdf]</a> Installation Guide</p> <p>e</p> <p>EVAB1ETP400, EVAB1ESP120, EVAB1D, EVAB1 Series Dynamic Load Balancer, EVAB1 Series, Dynamic Load Balancer, Load Balancer, Balanc</p> <p>er</p>
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## References

- [User Manual](#)

sync energy

Balancer, Dynamic Load Balancer, EVAB1 Series, EVAB1 Series Dynamic Load Balancer, EVAB1D, EVAB1ESP120, EVAB1ETP400, Load Balancer, sync energy

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