Charge-M8 Libra

Dynamic Load Balancer



Installation and Operation Manual

Installation Prerequisites

1. Confirm that your chosen OCPP platform* has completed the one-time Libra integration

2. Confirm that all EV chargers connected to your site are OCPP 1.6J compliant and connected to the server

* For a list of pre integrated OCPP platforms:

Tap Electric | Nemiah | Electric Miles | Clenergy EV | SaasCharge

3. The EV charging scheme should encompass phase rotation for best practice and to ensure a balanced supply for maximise load balancing effectiveness.

Model Variations

SKU	Barcode	Product Description
460-0000	5060797371726	Libra DLB Device 4G I RJ45 I Wi-Fi OCPP Three Phase Base Unit Only
460-0150	5060797371443	Libra DLB 150A CT's (3pcs) - 24mmØ
460-0400	5060797371450	Libra DLB 400A CT's (3pcs) - 36mmØ
460-0600	5060797371467	Libra DLB 600A CT's (3pcs) - 50mmØ
460-1001	5060797371788	Libra DLB 1000A CT's (3pcs) - 50mmØ
460-1000	5060797371474	Libra DLB 1000A Rogowski Coil & Integrator Set (3pcs) - 110mmØ with 24vdc DIN power supply
460-1500		Libra DLB 1500A Rogowski Coil & Integrator Set (3pcs) - 110mmØ with 24vdc DIN power supply
460-2500		Libra DLB 2500A Rogowski Coil & Integrator Set (3pcs) - 110mmØ with 24vdc DIN power supply

We can offer a bespoke configuration with Rogowski Coils to suit any sized incoming cable. Please contact us for more details.

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Pre-Installation Notes

Thank you for purchasing a Charge-m8® Libra dynamic load balancer.

Please read the installation and operating instructions carefully, to ensure correct installation and configuration, and a trouble-free experience.

This device must be installed in compliance with BS EN 61851, IET Wiring Regulations (BS 7671); the recommendations of the IET Code of Practice for Electric Vehicle Charging Equipment Installations (as amended); Electricity Safety, Quality and Continuity Regulations, Building Regulations Part P and all other applicable standards.

The device is complex and not intended for end-user service or maintenance. The unit should only be opened by a qualified Charge-m8® engineer or approved installer, the opening of the unit by any other person will invalidate the manufacturer's warranty.

This manual is intended as a guide, and all reasonable effort has been made to ensure the accuracy of the information contained herein at the time of publishing. At all times installers should reference their local electrical regulations, in particular guidance on the installation of EV charging equipment and qualifications required.

Installer guidance for specific functions and commissioning are available on request. You must provide your OZEV installer number and/or proof of qualifications.

Once installed, be sure to register your device with us, to ensure prompt after-sales service.

If you have any queries regarding Charge-m8® charging equipment, please contact us.

WARRANTY

Charge-m8 Limited provide a 3 year manufacturers warranty from the date of purchase.

Technical support can be obtained by contacting the customer team on sales@charge-m8.com or calling +44 333 242 3328



Signed on behalf of Charge-M8 Limited:



Name: Iain Hughes

Position: Technical Director

Date: 7th May 2024

1. Introduction

a. Product Type

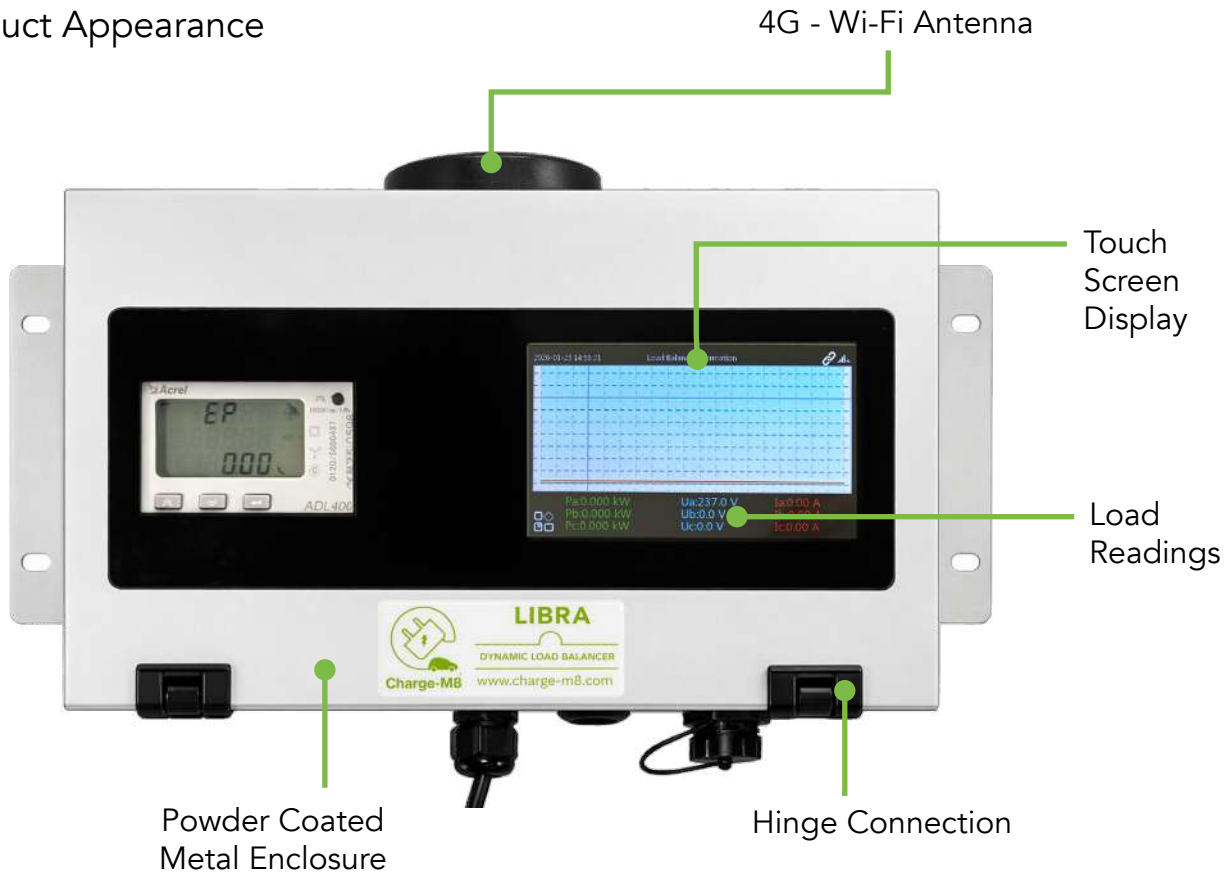
The Charge-m8® Libra is designed exclusively for use as a dynamic load and data transmission device.

With direct OCPP platform integration, the Libra DLB transmits live data to the OCPP platform, allowing the maximum capacity for EV charging to be accurately allocated in real-time by the OCPP platform, reflecting the actual demand and helping to prevent overload events and business disruption.

The Charge-m8® Libra is enabled with multiple on-board network connection options, including WIFI, RJ45 Ethernet and 4G Mobile.

Standard specification includes OCPP 1.6 Web Socket connectivity which can be pre-configured to your platform of choice making it suitable a wide variety of commercial, semi-public and public applications.

b. Product Appearance



c. Box Contents

1. Libra AC Dynamic Load Balancing Device
2. Wall Fixings x 4
3. Installation & Operating Manual
4. CT Clamps or Rowgowski Coils depending on model chosen

d. Libra Specification

Control Processor	
Processor	NXP Cortex ® -A7 i.MX6ULL
Frequency	800MHz
Operating System	Linux
Memory	512M DDR3
Electronic hard disk	512M Nand Flash
Environmental Testing	-40^{0}C~+85^{0}C
Supply Voltage	5V

Meter	
Model	ADL-400 3x230/400V, RS485 Class II 2014/32/EU
Approval	EU MID

Power Supply	
Model	PMT-12V50W2BA Input AC100-240 TUV/R50417801

Communication	
4G LTE	EC25-EU LTE, GSM, WCDMA & GPS 2014/53/EU
Ethernet	RJ45
Wi-Fi	ESP32-WROOM-32U 2014/53/EU
Communication Protocol	OCPP 1.6

Enclosure	
Display Interface	4.3 inch LCD touchscreen
Enclosure Material	Powder Coated Steel

Environmental	
Operating Temperature	-25~55^{0}C
Storage Temperature	-40~70^{0}C
Relative humidity	5% ~ 95%, non-condensation
Altitude	≤ 2000 m
Cooling	Natural
Usage Ambient	Indoor
Operating environment	No conductive dust, non-corrosive gas, non-explosive gas, no strong vibration

Certification	
CE	Certified by Dekra on 22/10/24. Cert No: 6200289.01AOC

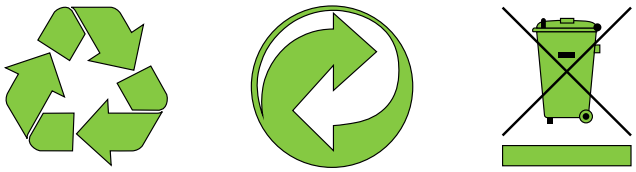
e. Storage, Transportation & Recycling

The Libra DLB packaging is designed for transit, however as with any electrical appliance, care should be taken to avoid excessive handling and potential damage to the case or internal components.

Care should be taken whilst unpacking the Libra DLB to ensure all components are present, and no damage is visible to the unit.

Packaging should be recycled where facilities exist.

End of life electrical equipment should be disposed of in compliance with The Waste Electrical and Electronic Equipment (WEEE) Regulations (2013)



2. Installation

a. Before You Start



Check the proposed location for the installation complies with Building Regulations Part P , the DLB device must be installed in compliance with BS EN 61851, IET Wiring Regulations (BS 7671); the recommendations of the IET Code of Practice for Electric Vehicle Charging Equipment Installations (as amended); Electricity Safety, Quality and Continuity Regulations, and all other applicable standards.

If not being installed by a Charge-m8® engineer, the installer must be suitably qualified and hold verifiable certification for the installation of EV charging equipment, and be authorised by Charge-m8 as an approved installer.

The Charge-m8 Libra DLB requires a 6A 3 phase 5 core 1mm supply. Whilst the unit is designed to monitor 3 phase supplies. It can be used to monitor a single phase if required. Please contact us for information.

Depending upon the supply cable installation parameters, suitable protection of the correct type and model to fit in compliance with the existing electrical supply equipment maybe required to protect the supply cable to the device (not supplied).

Ensure that all appropriate tools used during the installation have been insulated / grounded to prevent accidental short circuit or personal injury.

Under no circumstances should the Charge-m8® Libra be amended or have any parts connected to it without the manufacturers consent. To do so will invalidate the manufacturer's warranty.

b. Safety Notice



Electrical equipment contains high voltage current, care must be taken to ensure your personal safety. Always follow the manufacturers operating instructions.

Contact Charge-m8® after-sales support for assistance if the unit displays fault warnings and/or fails to operate correctly.

Avoid unnecessarily disconnecting the power supply when the device is running normally.

c. Installation Guide

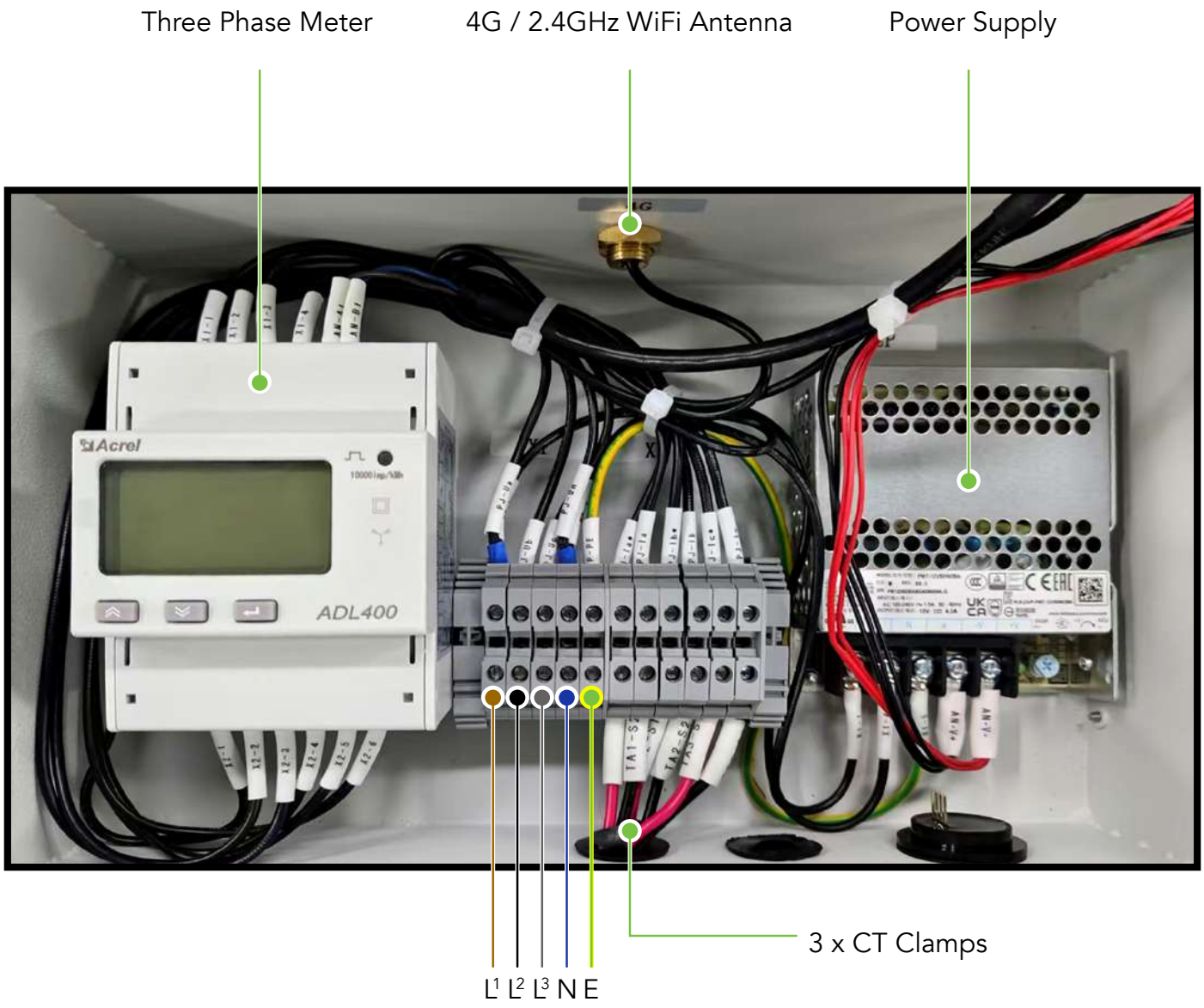
i. Standard Wall Fixing

The Libra DLB should be fixed to a suitable wall, sufficient in strength to support the weight and operational use, using the fixings provided or other suitable fixings if required.

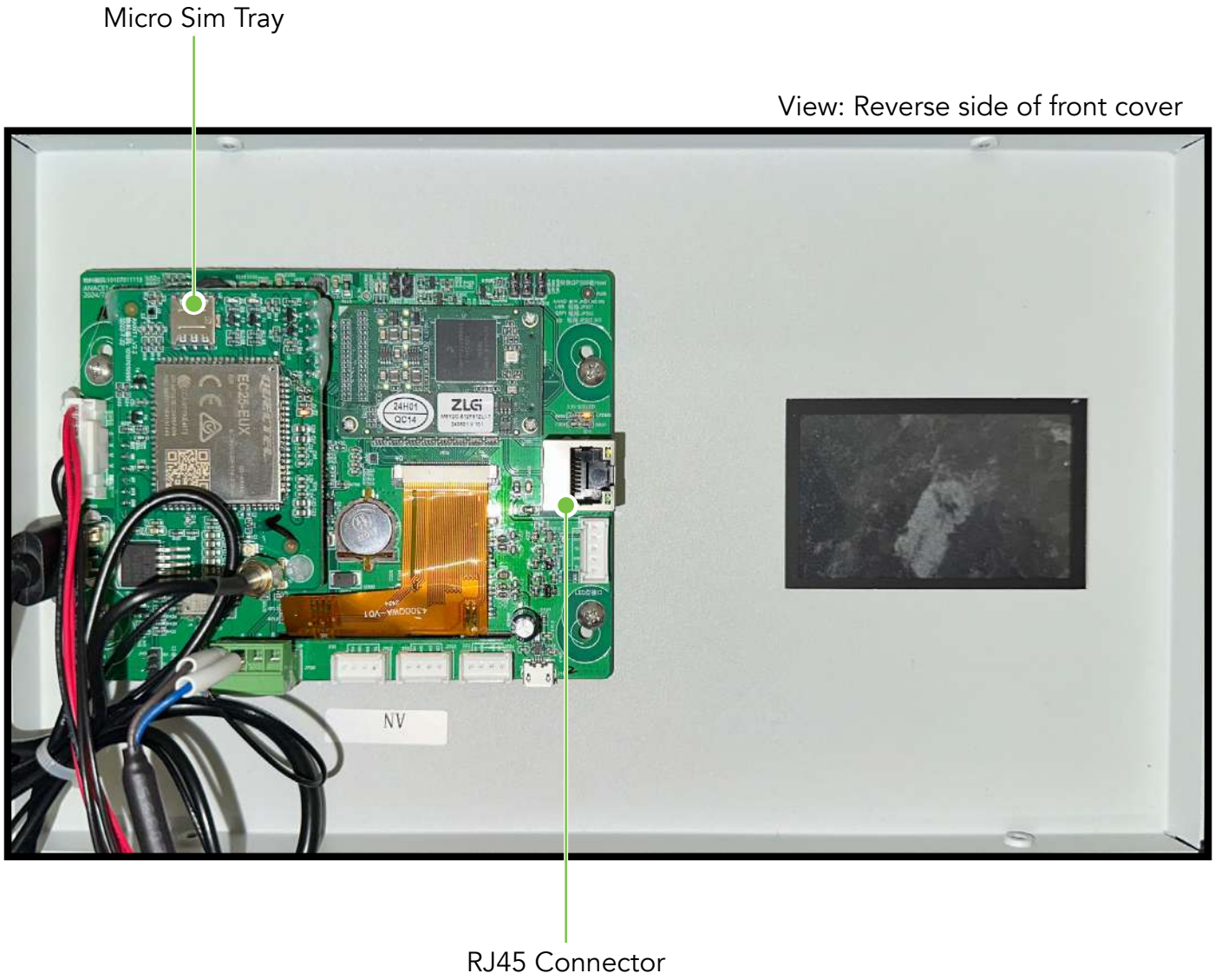
Care should be taken to site the Libra DLB charger away from direct water sources or excessive moisture.

ii. Supply Connection

A 6A 1mm supply cable should be connected using suitable circuit protection (not supplied).



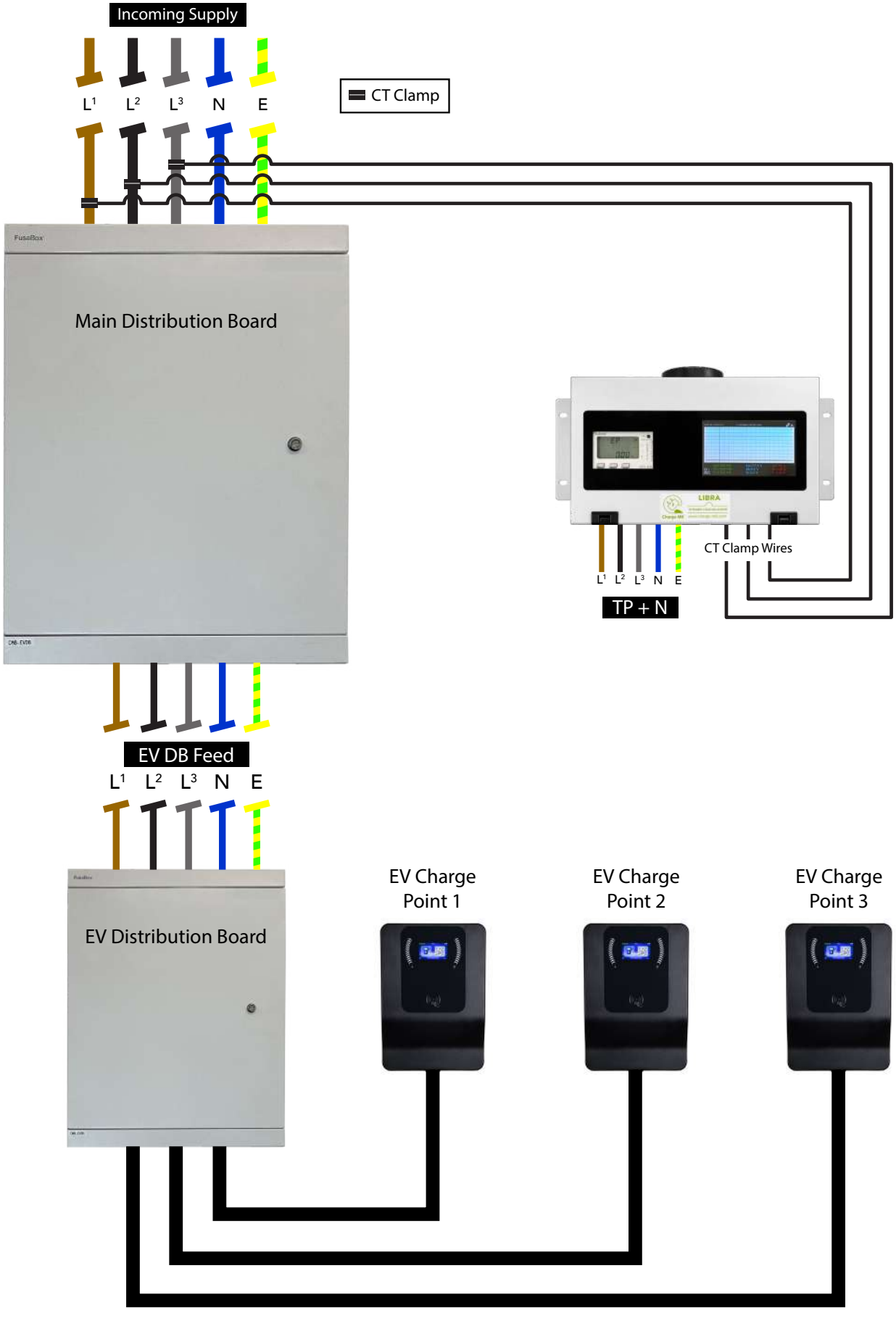
iii. Connection Ports



iv. Rogowski Coil and Integrator Wiring Diagram (Click here)

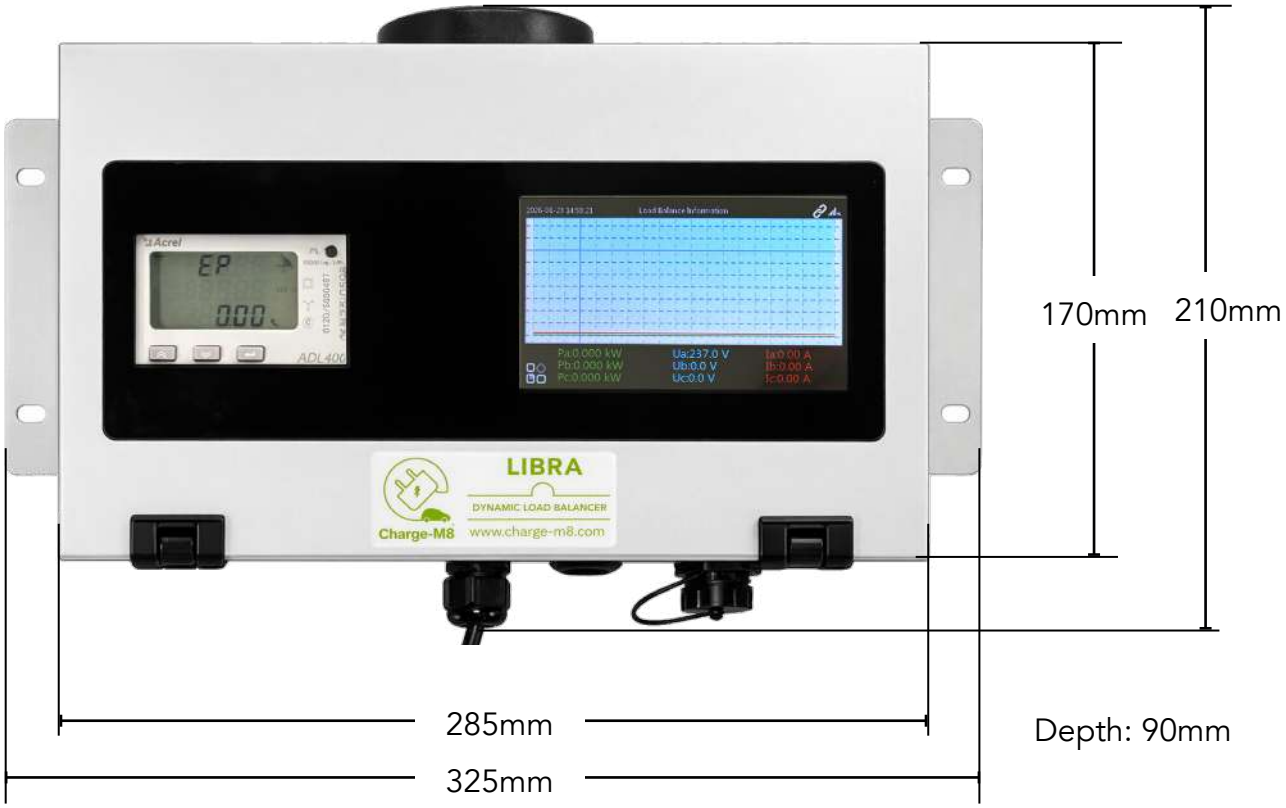
c. Installation Guide

EV Charging Electrical Infrastructure Overview



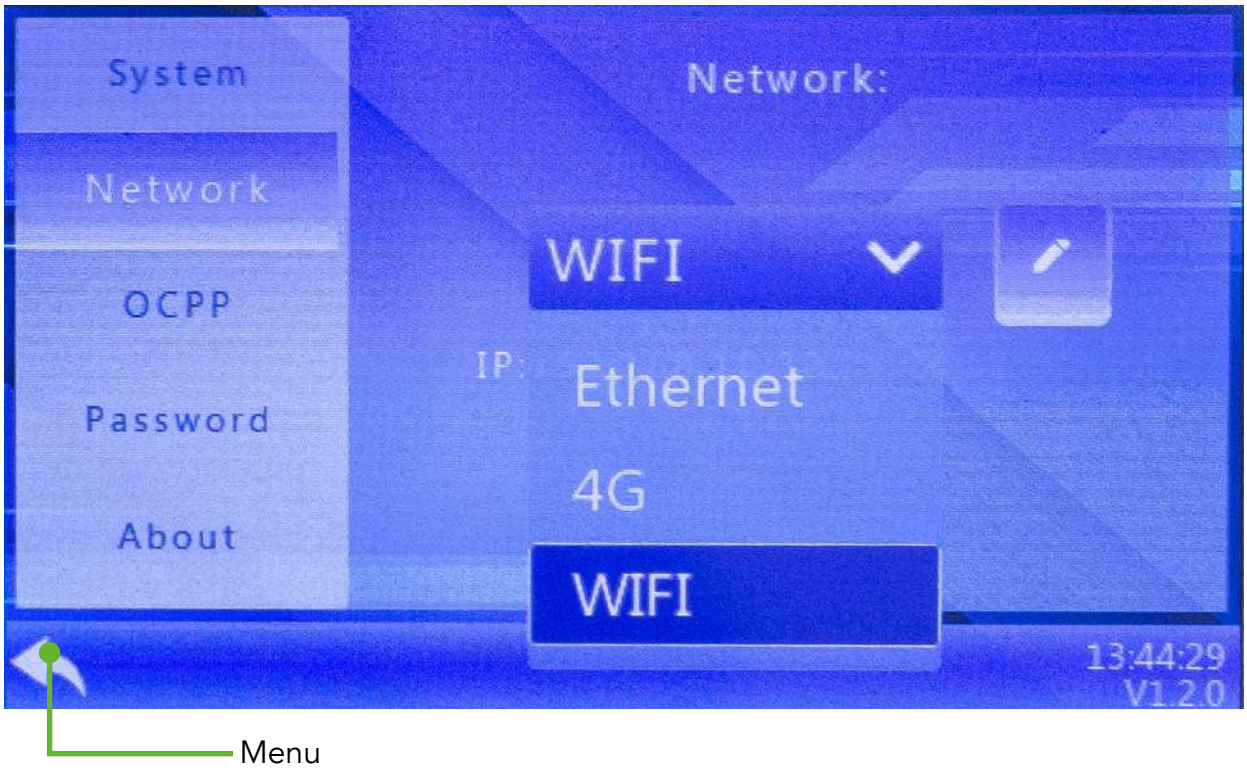
c. Installation Guide

Dimensions



d. Main Menu Access

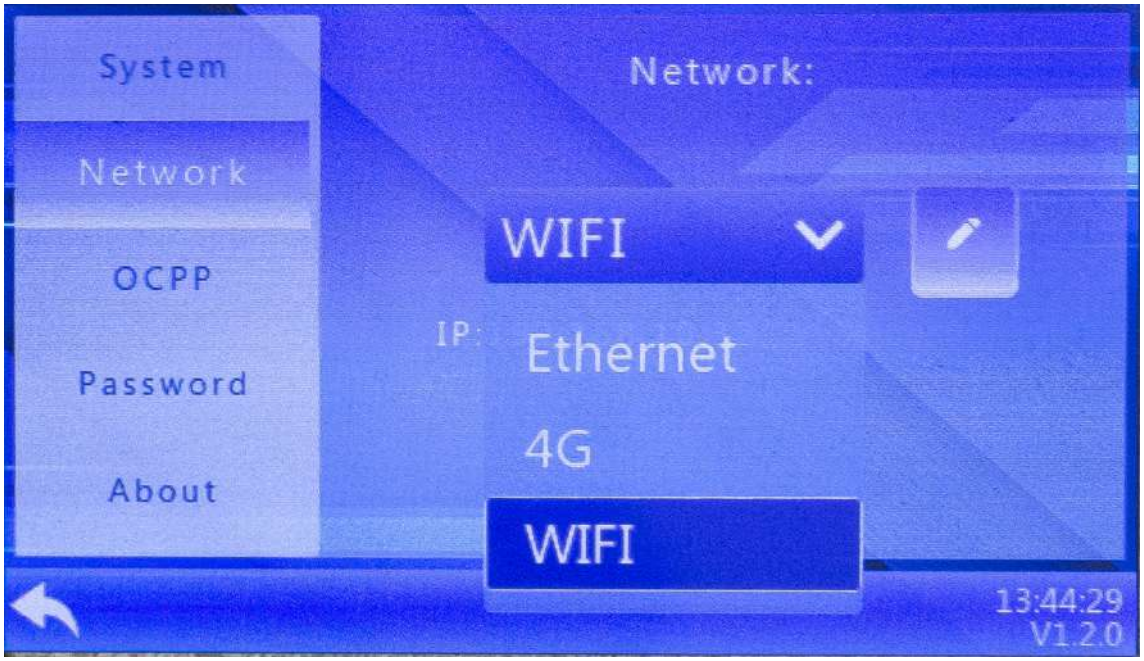
Press the menu button highlighted below on the touch screen to access the settings menu.



You will then be prompted to enter a password to continue into the main menu. The default password is: 123456. This can be changed as required - see page 16.

e. Settings Menu

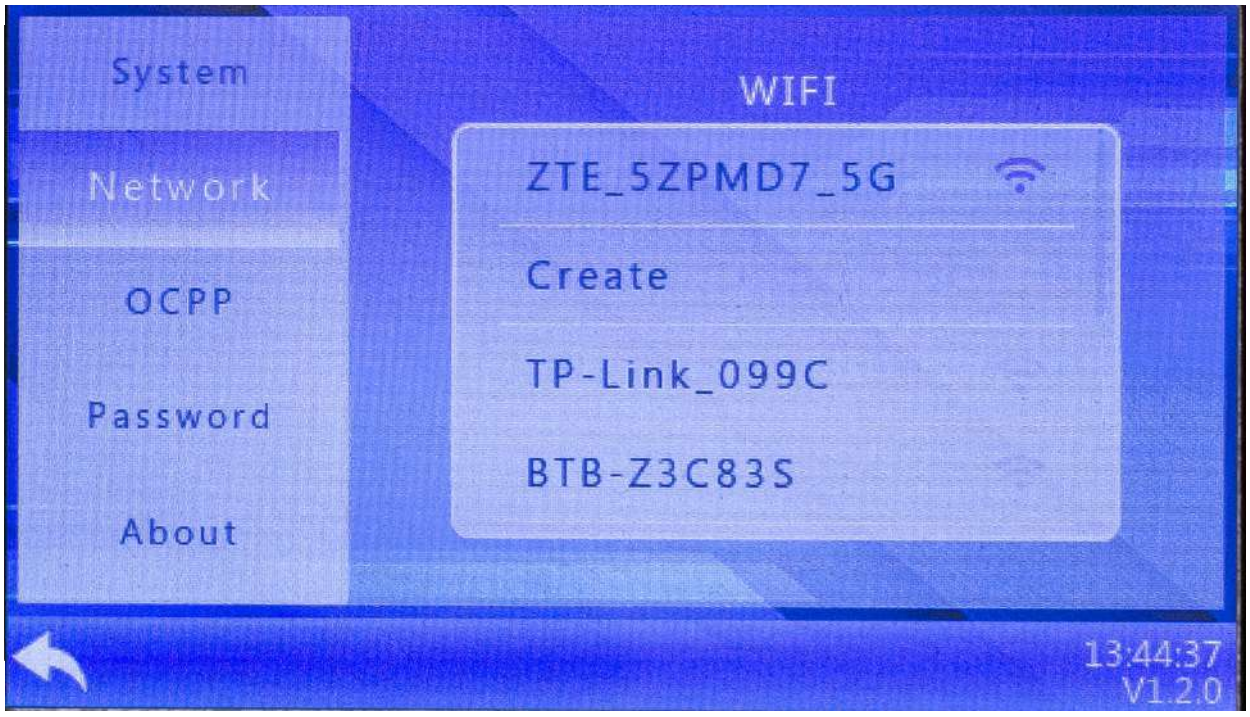
Select the communication menu to specify your chosen network connection method.



f. Connection to WiFi

The device includes a 2.4GHz WiFi module. Select the WiFi menu and the device will scan and display all available network SSID's within range.

Select your chosen network SSID and enter the password when promoted to complete the connection. The icon changes colour to green when the connection is completed.

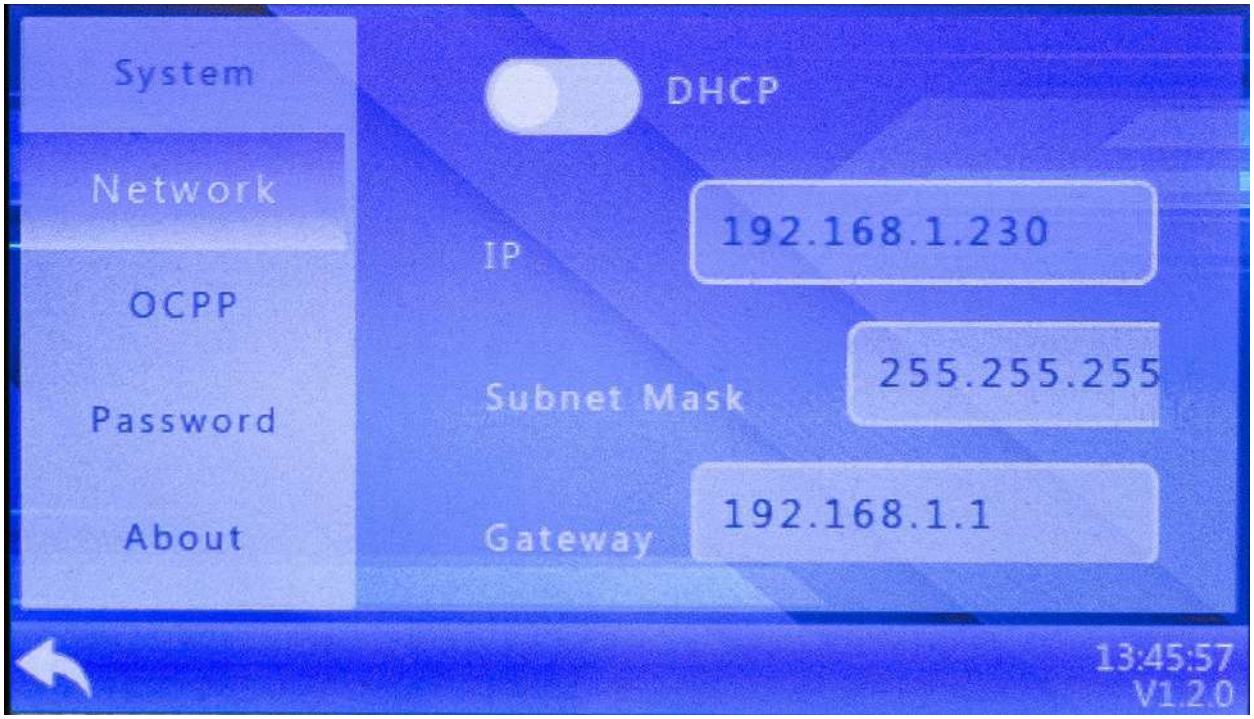


g. Connection to Ethernet (RJ45)

The device includes an RJ45 Ethernet connection port. Connect your RJ45 network cable to the port on the underside of the Libra. By default DHCP is selected for dynamic host configuration.



For specific network routes (secure or isolated network routing) unselect the DHCP toggle button which will then open a screen for entry of the IP details provided by the site IT department.

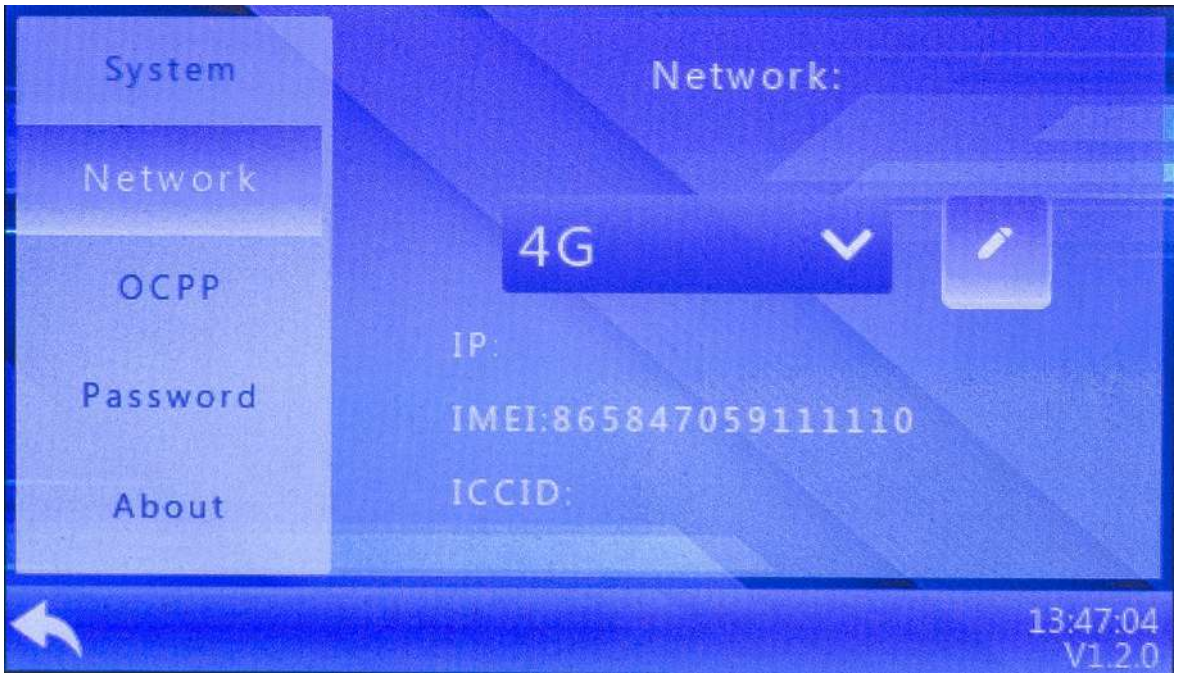


h. Connection to 4G

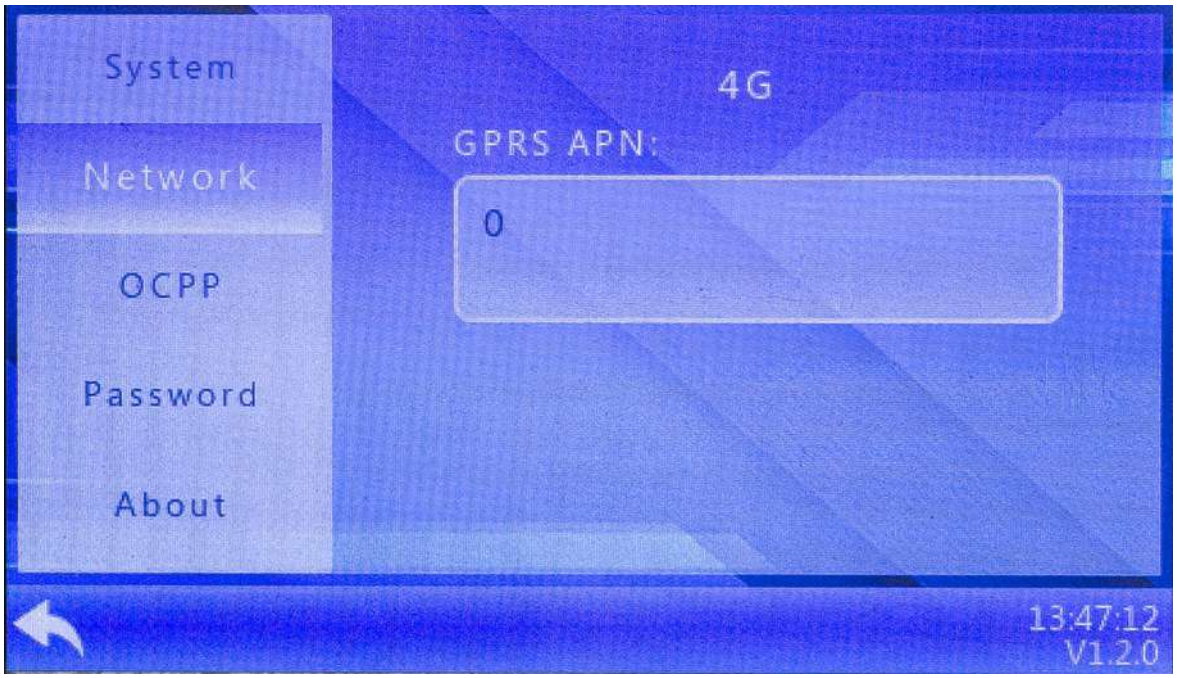
The device includes a 4G module which requires a micro sim card from your chosen network.

With the unit powered off,insert the sim card face down before replacing the cover and powering up the unit.

With 4G selected in the menu click the pen icon to enter the Access Point Name (APN)

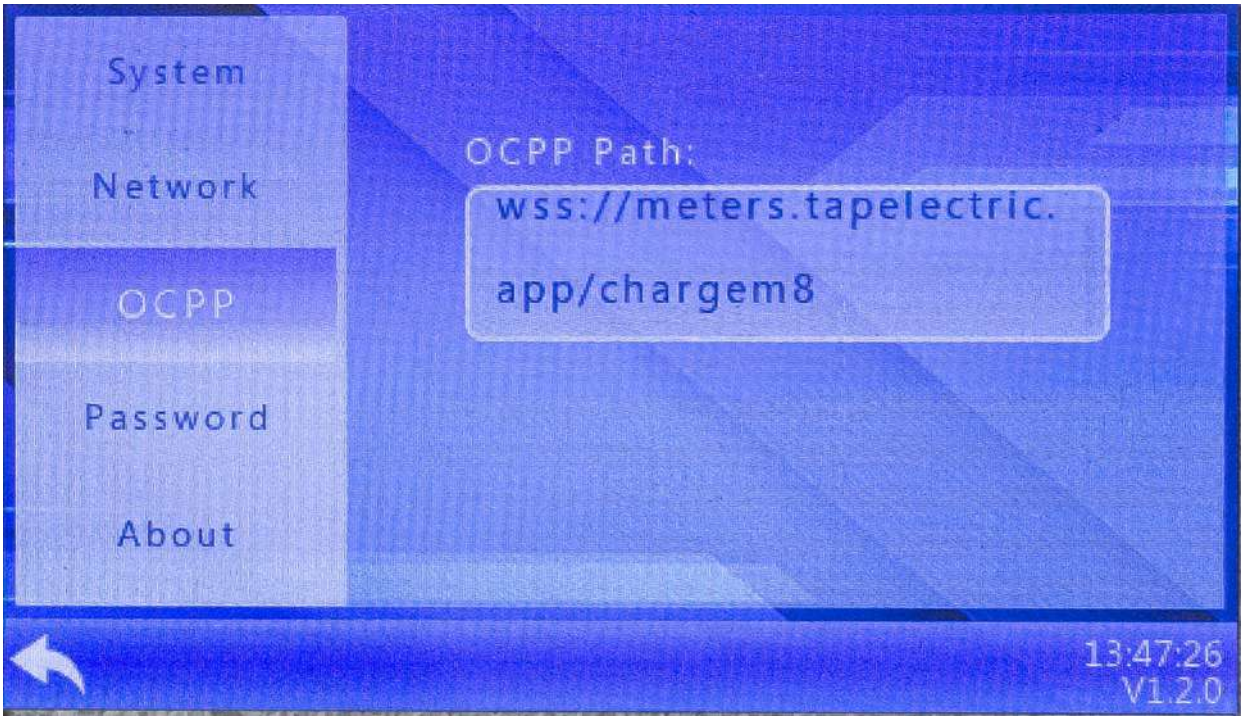


Enter the Access Point Name (APN) if required.

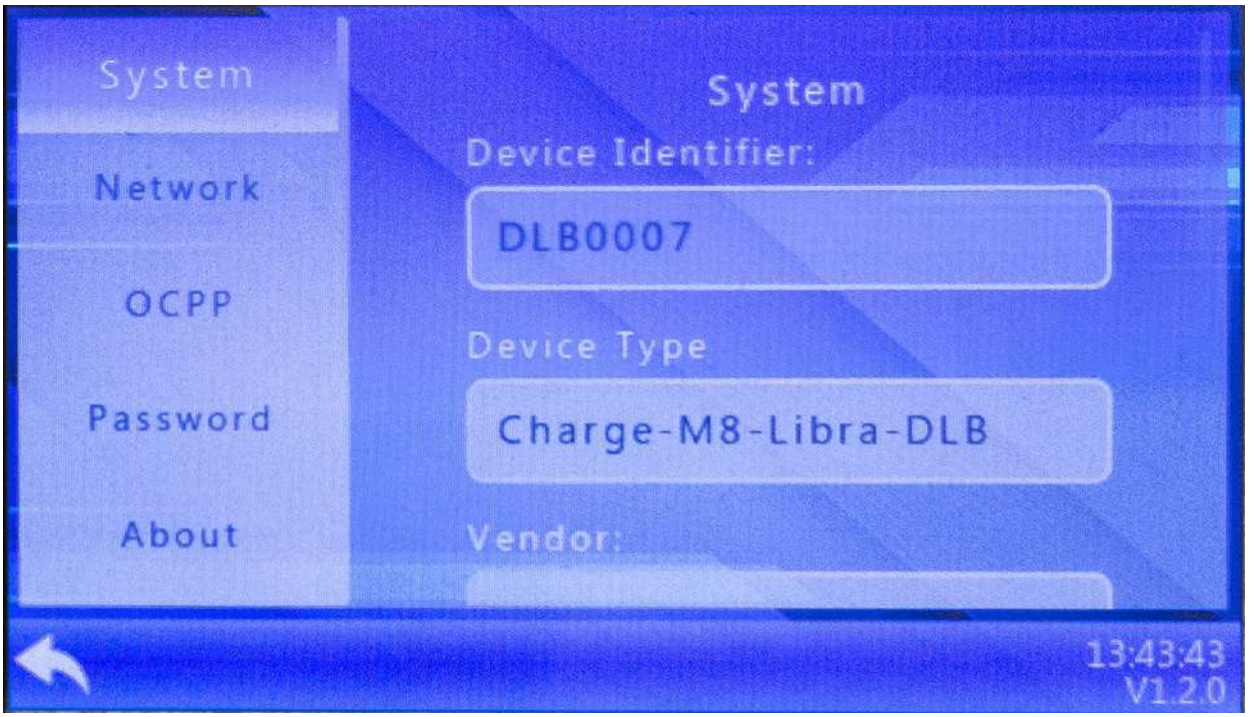


i. OCPP Settings

Select the OCPP tab on the left and enter your chosen OCPP platform.



You will then need to select the system tab on the left and create a unique name (normally the box ID) in the device identifier field.

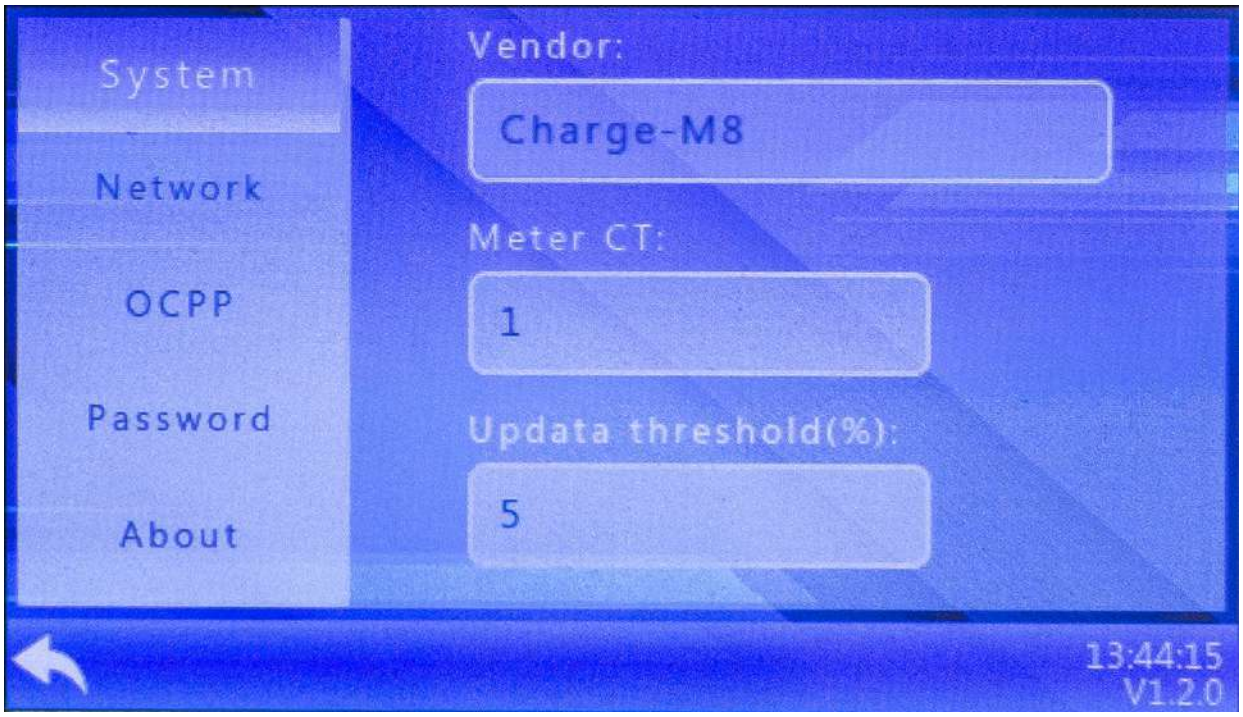


PLEASE NOTE: The device type and vendor names should remain unchanged.

j. Meter CT - Configuration Option

In certain circumstances users may require customised CT or Rowgowski coils for example, with larger electrical incomers. The Meter CT field allows the correct ratio to be set in accordance to the chosen CT Clamps / Coils which will update the meter automatically so the installer does not need to programme the meter directly.

This feature is not currently enabled as it is in Beta testing. Once testing is complete it will be made available via a firmware update.

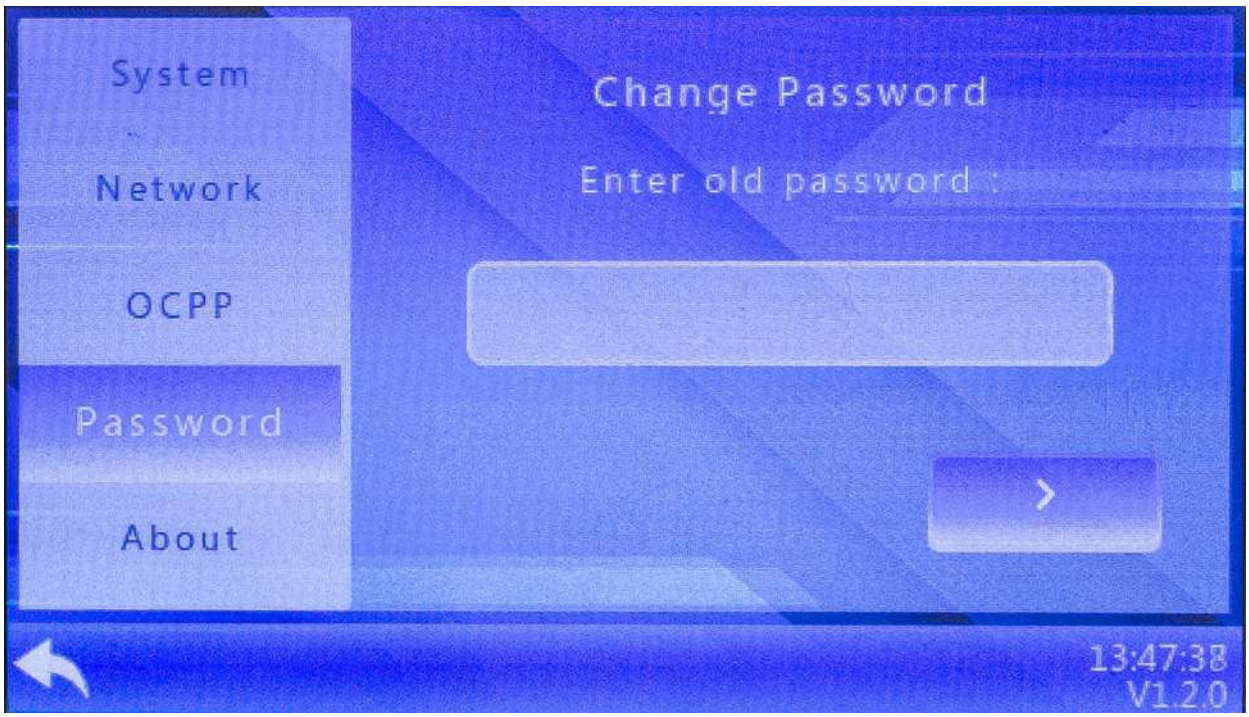


k. Updata Threshold (%)

This feature is designed to reduce data consumption by reducing the amount of meter readings sent to the OCPP platform. The user sets a percentage band in the field which means that if the power consumption readings do not increase or decrease by the specified percentage, then the data will not be sent. For example during periods of stable power usage such as off-peak or overnight data packets can be significantly reduced.

l. Change Password

To change the default password select the password tab on the left. You will then be required to enter the old password followed by your new 6 digit numeric password.



m. About Screen

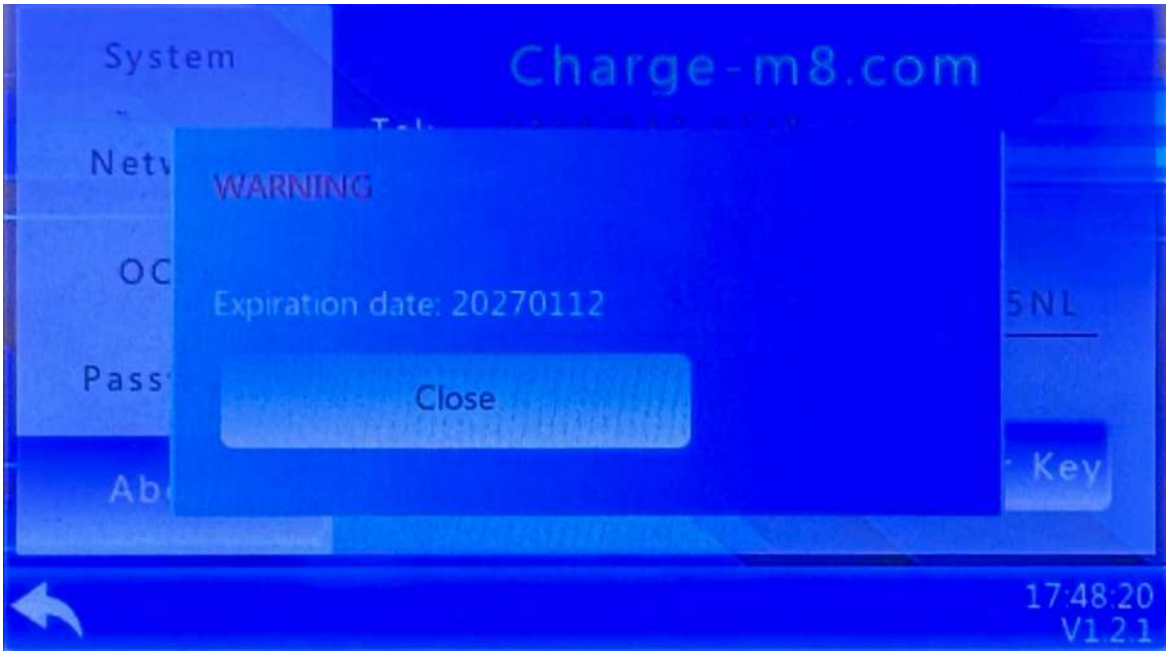
To review information about your Libra dynamic load balancing unit including firmware, software release and manufacturer contact details select About from the menu.



The Libra DLB is supplied with a 3 year product licence including 4G data (if selected), firmware updates and technical support. Following the 3 years a new licence will need to be purchased and can be authenticated by selecting the Enter Key menu and then typing in the supplied code.



The Libra will then confirm the new licence expiration date.



n. Maintenance

Your Dynamic Load Balancing device should be checked regularly for any obvious signs of damage and the residual current protection tested to ensure safe operation.

If you are in any doubt or have cause for concern you should immediately press the emergency stop button and contact Charge-M8® Customer Service for advice.

Issue 1.6 September 2024 E&OE
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