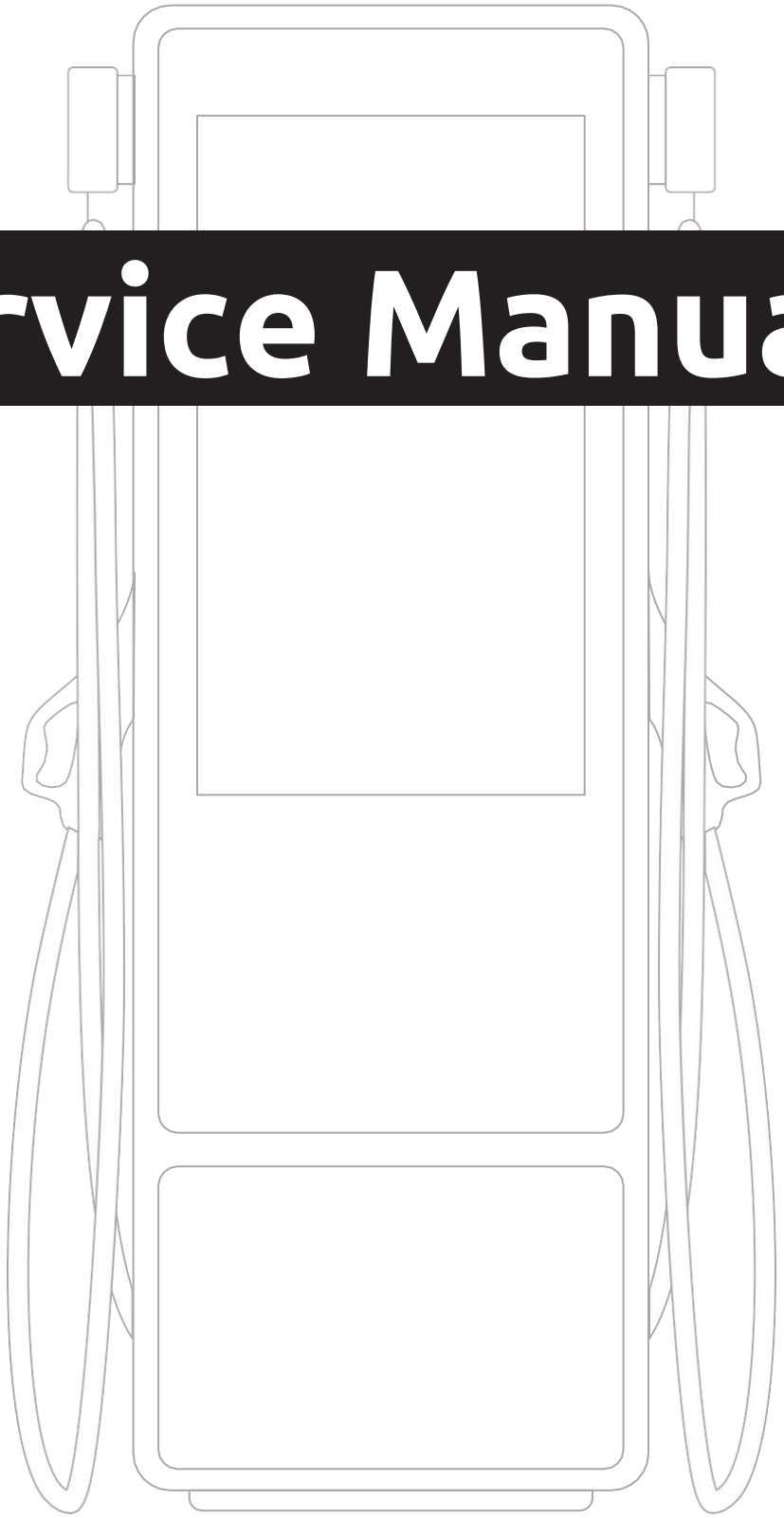
blueberry

Service Manual



PRODUCT DOCUMENTATION 4.0

Powered by i-charging

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blueberry

1. ABOUT THE MANUAL

The purpose of this manual is to provide the steps and settings required for commissioning, configuration and troubleshooting of blueberry line chargers.
Please make sure that this manual is carefully read and ensure that all safety notices given are followed.

All technical details, specifications and design characteristics of the product may change without prior notice. The content of this document was carefully checked, however, in case of any inaccuracy, the user is asked to report it to i-charging. This manual should be saved for future reference.

2. IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual must be read carefully before the commissioning, configuration and troubleshooting of the blueberry line chargers. Incorrect operation as a result of non-compliance with the instructions provided by this manual may lead to severe injuries or damages.

The working steps described must only be carried out by qualified personnel who, based on their knowledge and experience, can assess, and carry out all steps described in this manual and recognize potential hazards. Under no circumstances the compliance with the information in this manual relieve the user to comply with all applicable local codes and safety standards.

FIRE PROTECTION

To avoid fire, the following rules must be observed:

- The user must under no circumstances make any changes to the blueberry or use it in a manner that was not designed for. Any disregard of this instruction represents a safety risk and will void the warranty with immediate effect.
- It is forbidden to use blueberry when is technically inoperative or which does not correspond to its intended use or to the conditions specified by the manufacturer or which are not subject to periodic checks.

Damages that may occur resulting from custom installations, that are not described in this document are not i-charging responsibility.

BEFORE CHARGING

Before operating the blueberry charging station, make sure that the surrounding environment is free from hazards, that the blueberry does not have any error message on the display and that the charging cable(s) are not damaged.

SAFE CHARGING SESSION

Perform the charging process as described in the User Manual. Once the process is completed, the plug must be placed in the correspondent holder.

In Case of Fire

In case of an emergency, the main switch of the switchboard power supply shall be turned off.

In case of fire, the main switch of the switchboard power supply shall also be turned off and the source of the flame must be eliminated with a class C fire extinguisher. All components of blueberry charging station are self-extinguishable which means that in case of fire, once the source of the flame has been removed, it will cease burning.

2.1. Safety Notices

Special warnings and safety measures may appear throughout this document or on the equipment to warn of potential hazards or to call attention.

The symbols carry the following meanings:

RISK OF ELECTRIC SHOCK!

Procedures marked with this symbol must not be carried out under any circumstances before following the “DANGER” instructions.
Actions contrary to these safety notices may lead to severe injury and death.

WARNING!

Procedures marked with this symbol should be carried out with special care. Hazards that may lead to personal injuries.

CAUTION!

Procedures marked with this symbol must be carried out with special care.
Hazards that may lead to damage in the equipment itself or to other electric devices.

PLEASE NOTE!

Sections marked with this symbol are intended to draw attention to important information that is necessary for the reliable operation of the blueberry charging station.

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3. COMMISSIONING

3.1. Configuration

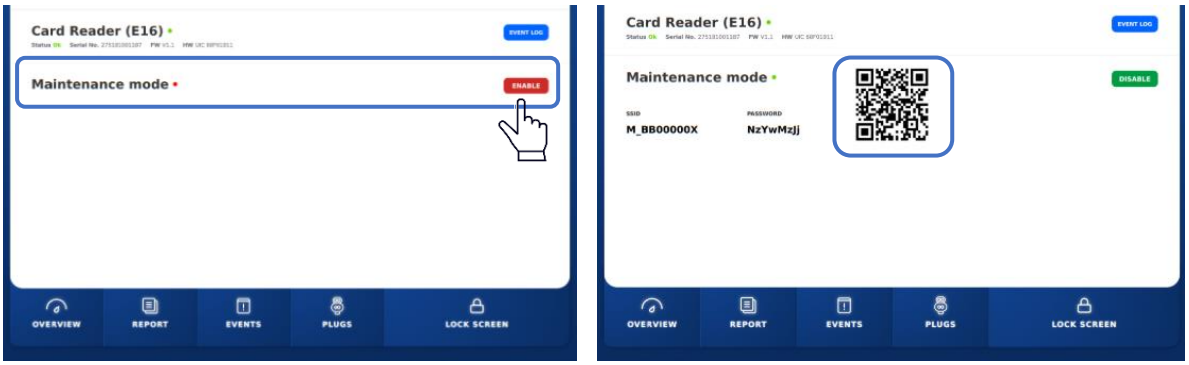
PLEASE NOTE!
Before performing the next steps, please make sure that the switch disconnector and all the circuit breakers of the equipment are switched on and make sure that you have the username and password needed to sign in the maintenance tool.

The first step for the commissioning will be to do the configuration of the charger on the maintenance tool which can be accessed by one of two ways:

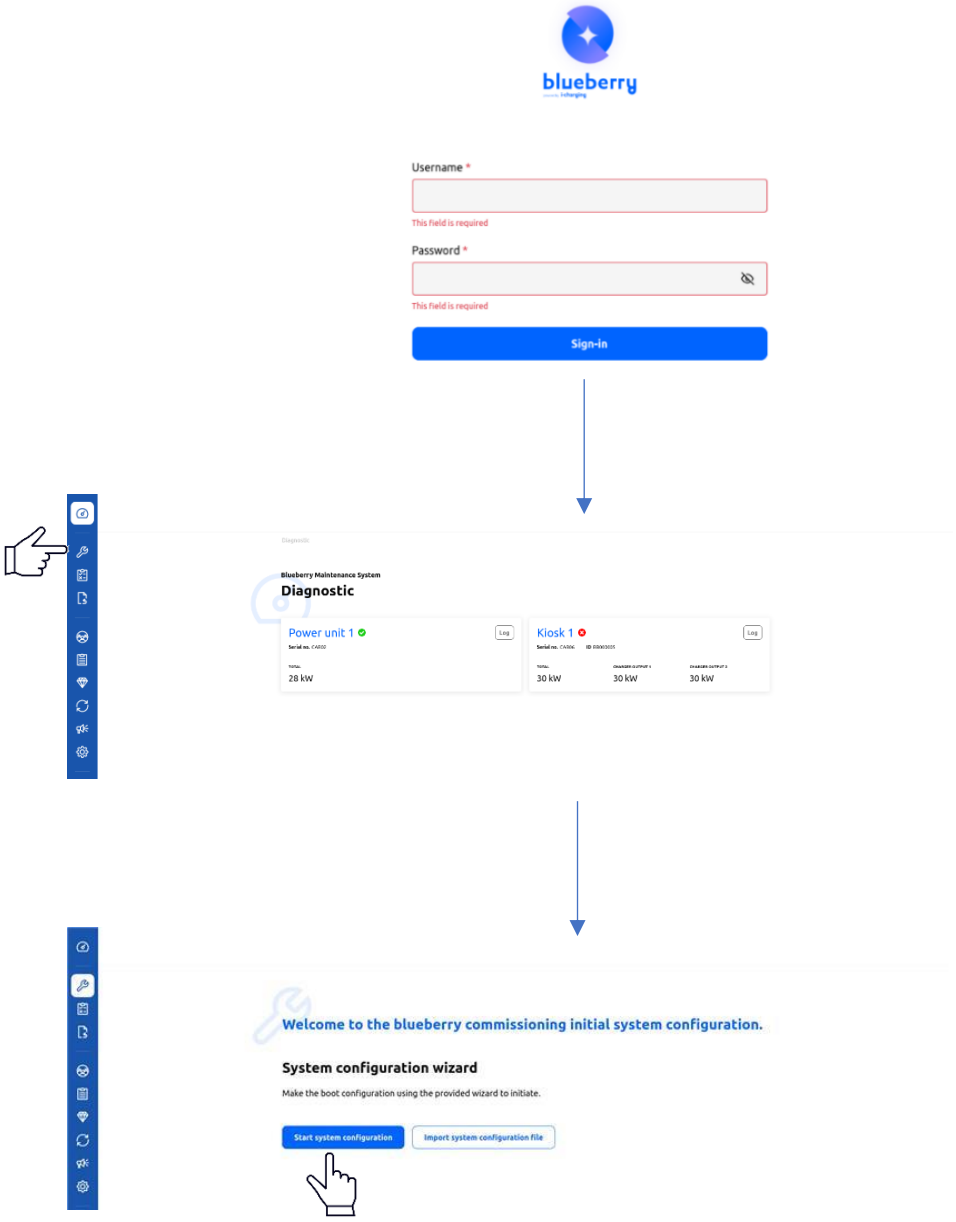
1 - Connecting an ethernet cable to the router, on LAN2 or LAN3, and access the url http://192.168.2.100
(Please consult the product Installation Manual for router position on the equipment)

2- Via wifi:

- Tap the maintenance card
- Go to the bottom menu and press “Maintenance”
- Select “Kiosk” and then select “Cabinet”
- Enable the maintenance mode, scan the QR code and access the url http://192.168.3.254 (see figures below)

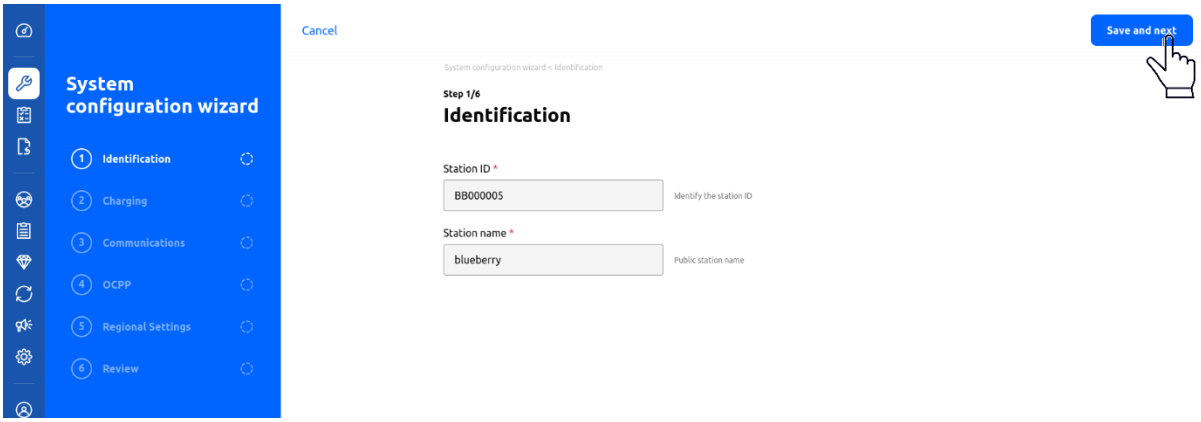


After the sign-in, start the process by pressing the button “Start initial configuration” and then “Start system configuration” in the next page:

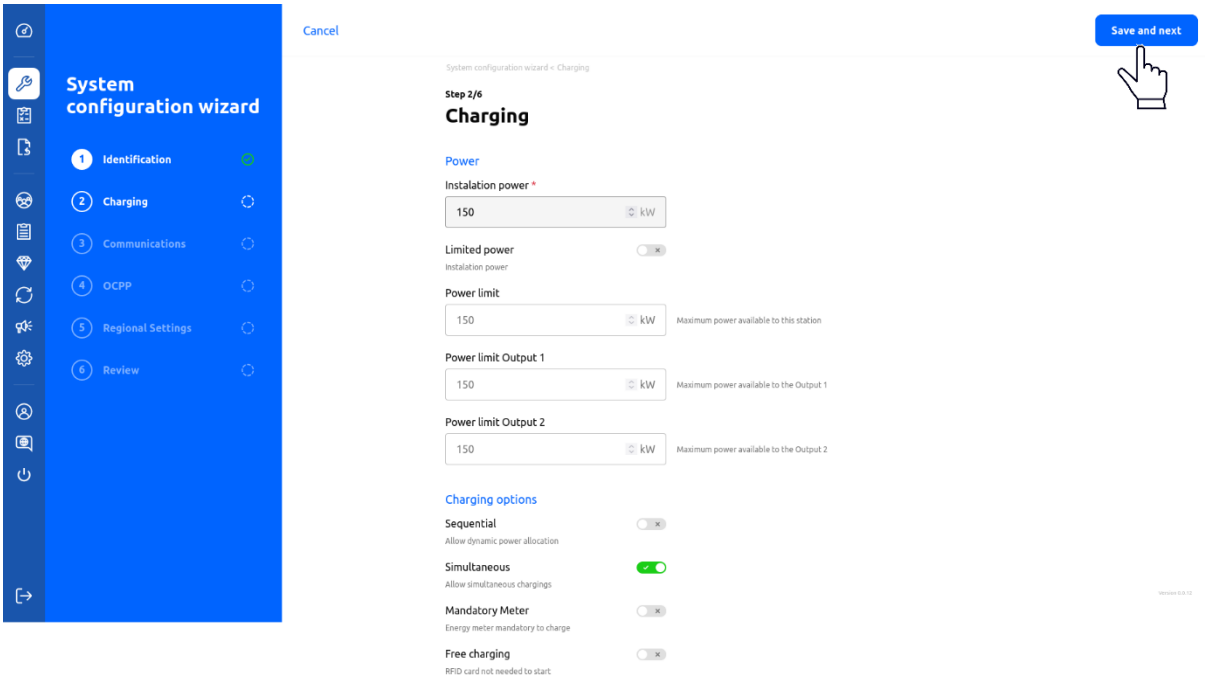


In the next steps, fill in the information that is required:

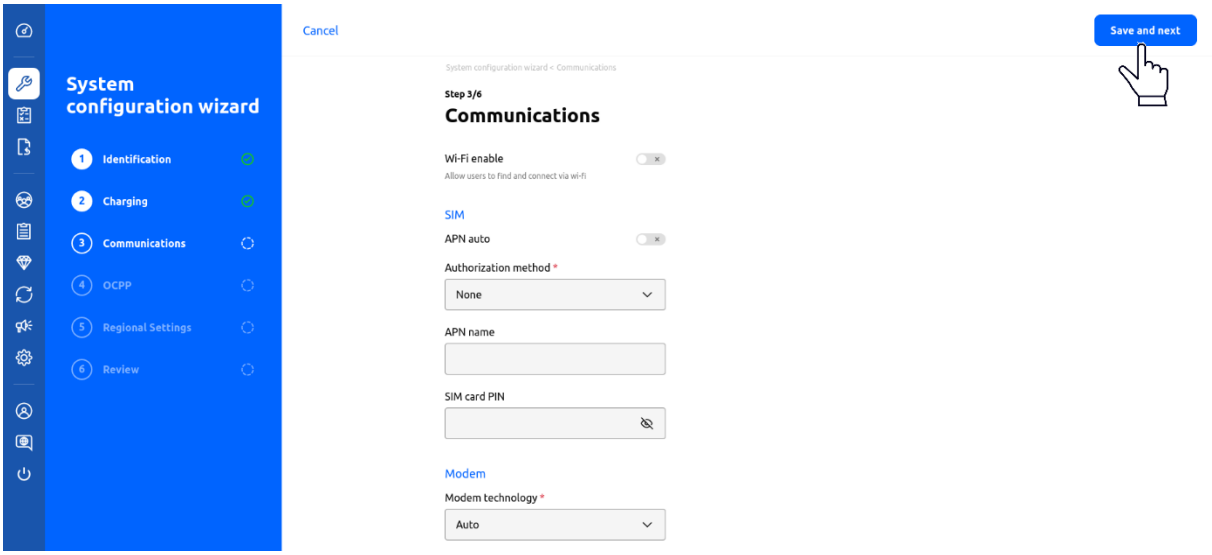
STEP 1 – blueberry charging station identification



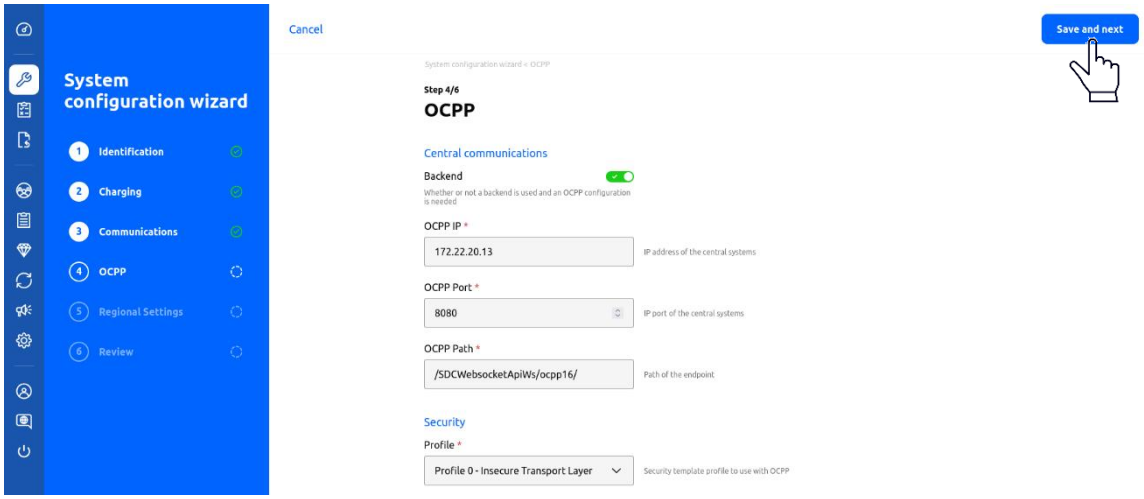
STEP 2 – Power and charging options



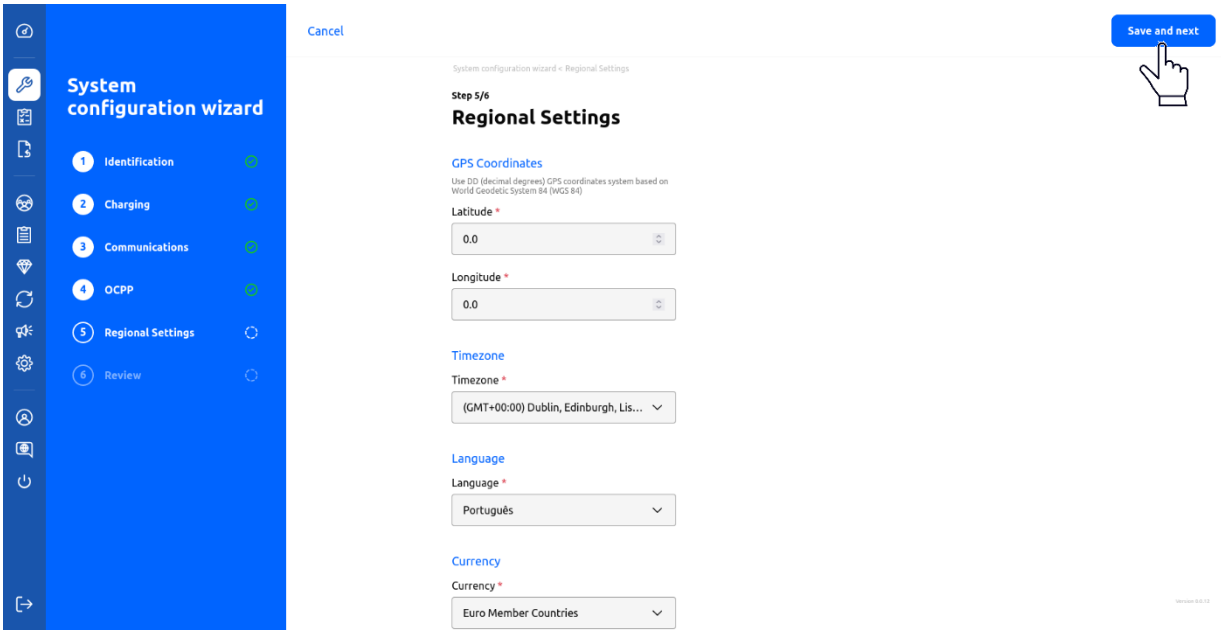
STEP 3 – Communications



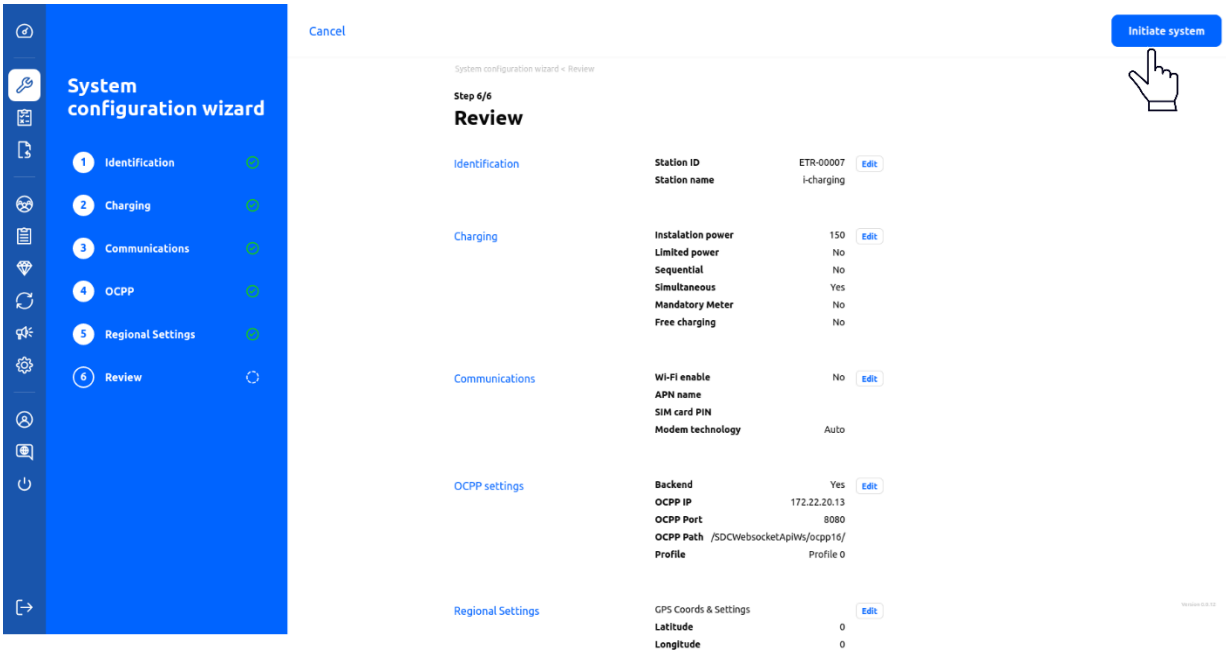
STEP 4 – OCPP Settings



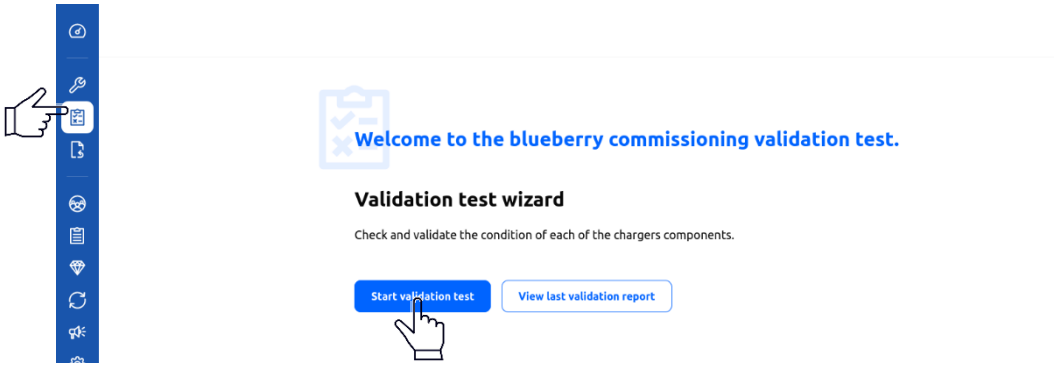
STEP 5 – Regional Settings



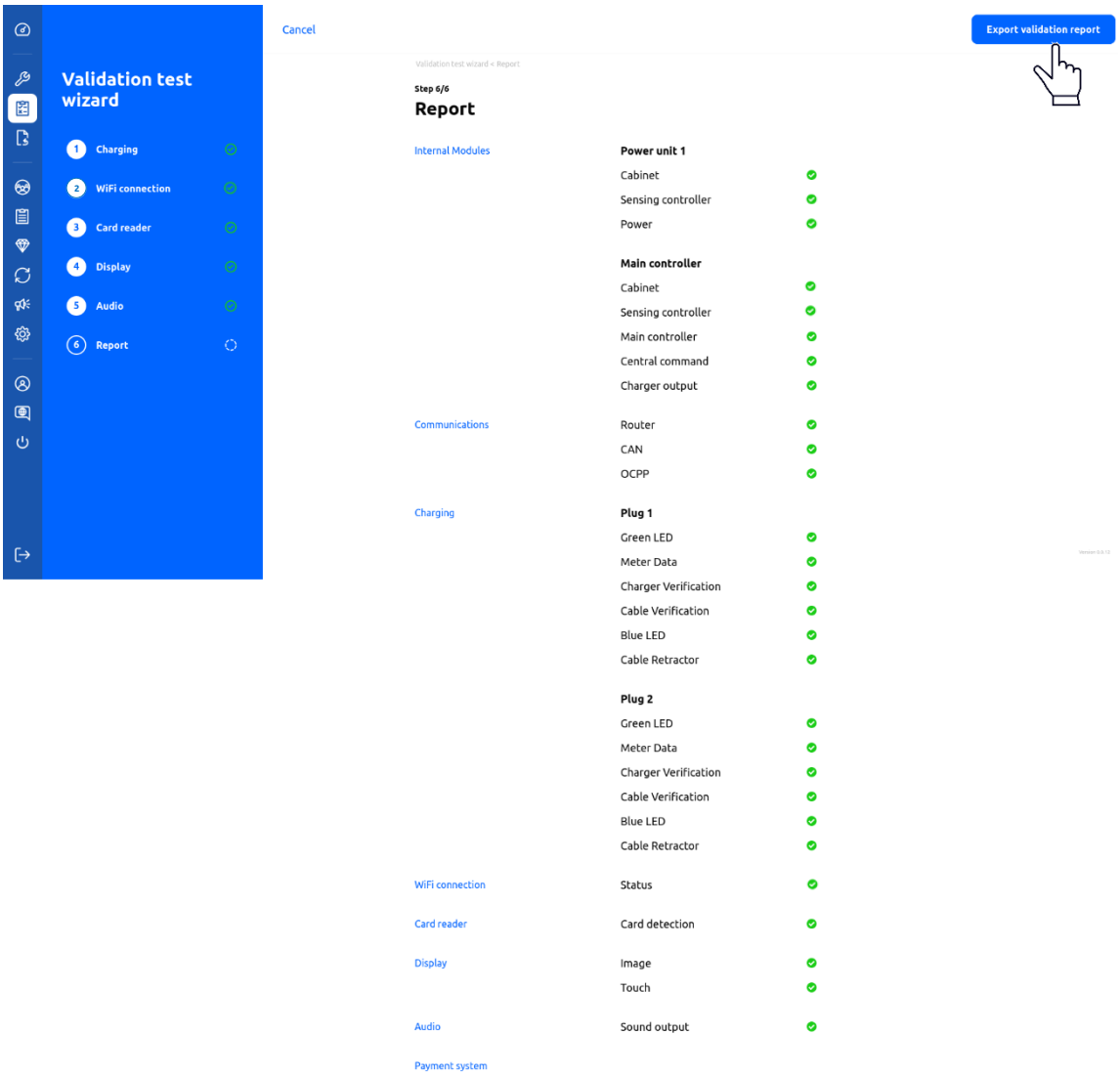
STEP 6 – Review of all configurations that were made in the previous steps and initiate sytem



Before initiating the system, a validation test shall be made to guarantee that all components are operating correctly:



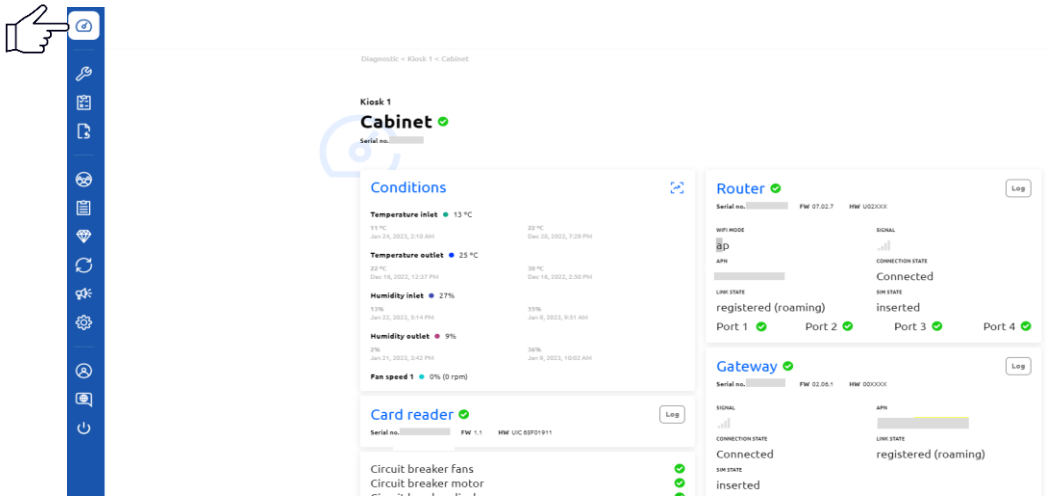
Follow the steps and answer the questions to check if the blueberry charging station is operating correctly. In the end, the results of the validation test will be available to download.



PLEASE NOTE!

For geographies with different frequency bands from Europe, if any problem with Communications occurs, must be done the following:

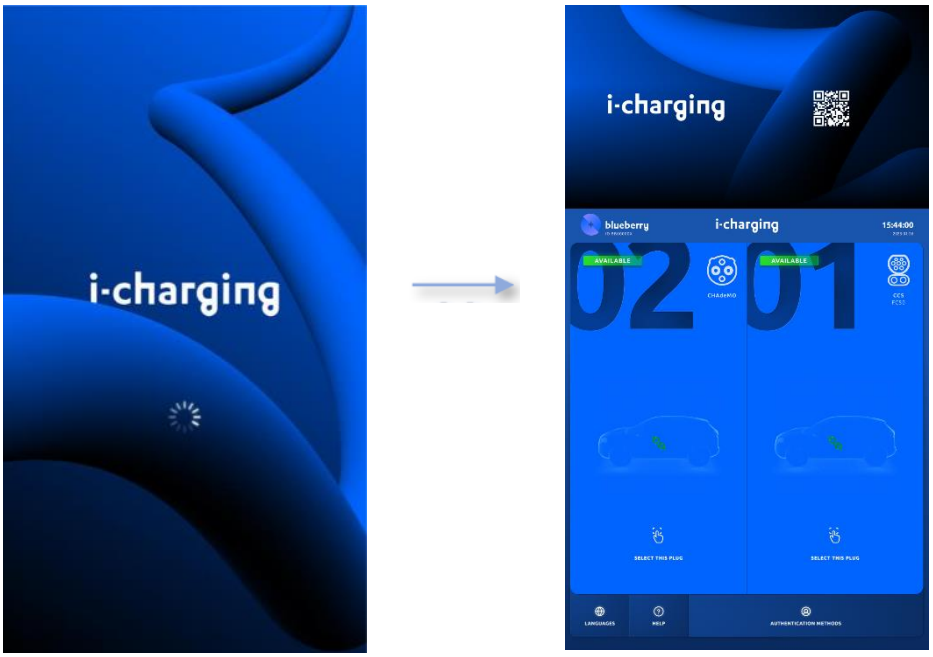
- Confirm that the System Configuration Wizard in tabs Communication and OCPP are correct.
- Next step will be confirming the router status on Dashboard (see image below)



Both router and Gateway must have the following states: link registered, SIM inserted and Connection Connected.

If the problem persists, please contact i-charging Service team.
Gateway is not relevant for charging operation but is required for remote diagnostics and firmware update.

After the initial configuration and if everything is correctly configured, the blueberry charging station will proceed to the initial menu.



In case of error, the display will show the message “Out of Service”. If the blueberry has two outputs and only one is correctly configured, the display will show the other output as unavailable.

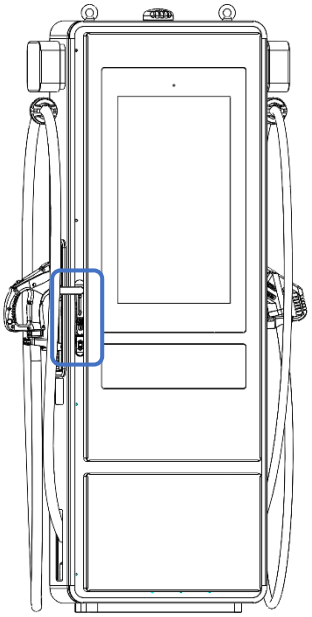
Please refer to Chapter 4 troubleshooting to diagnose and correct the error.

4. OPERATOR SEALING

After the commissioning, once the door is closed and the charger is correctly configured, the customer can seal the equipment. For that, a tamper-proof label can be used and shall be placed on half cylinder of the locking system, as shown below.

User Unit

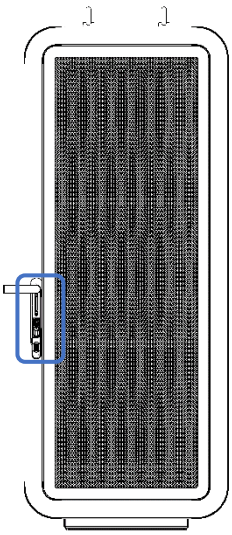
[the locking system is on the front of the unit]



This image is only a representation.

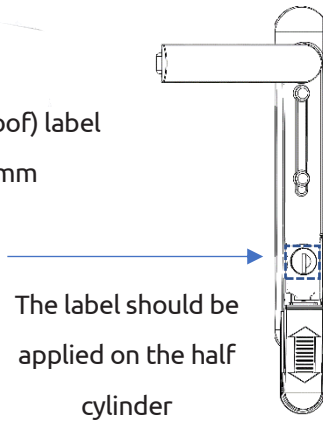
Power Unit (when applicable)

[both sides]



Locking System

Safety (tamper-proof) label with 20 x 20 mm

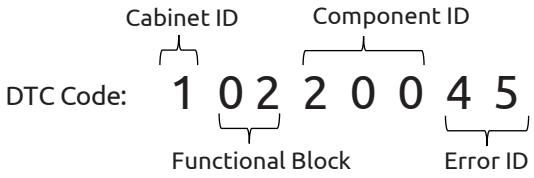


The label should be applied on the half cylinder

When someone tries to open the door, the label must be removed and it will leave traces on the half cylinder

5. TROUBLESHOOTING

To diagnose and correct possible faults, i-charging defined diagnostic trouble codes (DTCs) that will help understanding what is causing the error. The DTC code is a numerical code that depends on the error type and on the component in error. The meaning of each DTC code is shown below:



In this example, the error is on the cabinet with ID nº1, in the functional block nº02, component ID nº200 and the error is identified by the ID nº45.

The description of each functional block, component and error type is presented in the following tables.

Cabinet Identification:

Cabinet	ID
blueberry / Blueberry PLUS – User Unit	1
Power Unit I	2
Power Unit II	3
Power Unit III	4
Satellite I	5
Satellite II	6
Satellite III	7
Fusion	8

Functional Block Identification:

Functional Block	ID
Cabinet Management	01
Central Management	02
Power	03
Output 1	04
Output 2	05
Output 3	06
Output 4	07

Component Identification:

Component	ID
Communication	002
Retractor	004
CCS Interface	006
EV	008
Charge Sequence	009
Charging Signals	010
Charging Cable	011
IMD	012
Voltage sensor	013
Current sensor	014
Potentiometer	015
Connector Lock	016
CCS1	017
CCS2	018
CHAdeMO	019
GB/T	020
DC Meter	021
NACS	022
MCS	023
AC Type 2	024
EPO Button	050
Tilt Sensor	051
Door Sensor	052
Fire Sensor	053
Humidity/Temp Sensor Bottom	056
Humidity/Temp Sensor Top	057
Crimping 1	064
Crimping 2	065
Display	066
Potentiometer 1	067
Potentiometer 2	068
Peripherals	069
Cabinet	072
Sensing Controller	073
Power Module 1	100
Power Module 2	101
Power Module 3	102
Power Module 4	103
DC contactor 1	104
DC contactor 2	105
DC contactor 3	106
DC contactor 4	107
Diode 1	108
Diode 2	109
Diode 3	110
Diode 4	111
AC contactor 1	112

Component	ID
AC contactor 2	113
AC contactor 3	114
AC contactor 4	115
Circuit Breaker 1	116
Circuit Breaker 2	117
Circuit Breaker 3	118
Circuit Breaker 4	119
Power Controller	120
Router	200
Switch	201
Card Reader	202
Payment System	203
Memory	204
CPU	205
OS Disk	206
Data Disk	207
Can Module	209
Charging Module	210
Database Module	211
Datalog Module	212
Diagnostic Module	213
Eventlog Module	214
Hmi Be Module	215
Hmi Fe Module	216
Iec15118 Module	217
DC Meter Module	218
Ocpp Module	219
SwUpdate module	220
WDog Module	221
Main Controller	222
Gateway	223
User Manager Module	224
Modbus Slave Module	225

Error Identification:

Error	ID
Wire not detected	01
Overtemperature	02
Out of Range	03
Can Fail (Controller)	04
Control Error	05
Potentiometer fail	06
AC voltage fault	07
AC current fault	08
Command and feedback mismatch	09
Under temperature	10
Triggered	11
Peripherals Fault	12
DC Overvoltage	13
DC Undervoltage	14
DC Overcurrent	15
PP Lost	16
CP Lost	17
Found Error	18
Output high voltage at start of charging	19
Output high current at start of charging	20
EV RESS Temperature Inhibit	21
EV shift position	22
EV battery incompatible	23
EV RESS Malfunction	24
Current Diff	25
Authentication timeout	26
Parameter Discovery timeout	27
Cable Check timeout	28
Precharge timeout	29
Stop Charge timeout	31
Malfunction on measurements	32
EV Fault or Permission Error	33
Power Supply OFF	34
Malfunction on Latch circuit	36
DC Undercurrent	41
Circuit Breaker OFF	42
Comms Failed	43
Configuration Failed	44
Failed	45
OverUsage	46
Fatal Error	47
Current Limit Reached	48
Command and feedback mismatch on Tray X	49
Controller Triggered	50
Over humidity	51
DC Voltage Fault	52
Inverter Overcurrent	53
Inverter PWM Saturation	54

Error	ID
DC PFC HVDCP Overvoltage	55
DC PFC HVDCP Unbalance	56
DC LLC HVDCS Overvoltage	57
DC LLC Converter Fault	58
DC Buck DC DC Converter	59
DC Buck DC DC Short Circuit	60
DC Buck dc Output Voltage High	61
Inverter Soft Charge Fault	62
Inverter Start Up Fail	63
Temperature Sensor Fault	64
Fan Fault	65
FAN Not Connected	66
Calibration Fault	67
EEPROM Fault	68
Module Not In Place	69
Temperature Fault	70
Unrecoverable Error	73
Hardware Fault	74
Timeout Voltage DC	75
SFO Error	76
Discharge Fail/DC Relay Welded	77
High Voltage Relay	79
Ev Stop Charge	80
CC1 Lost	81