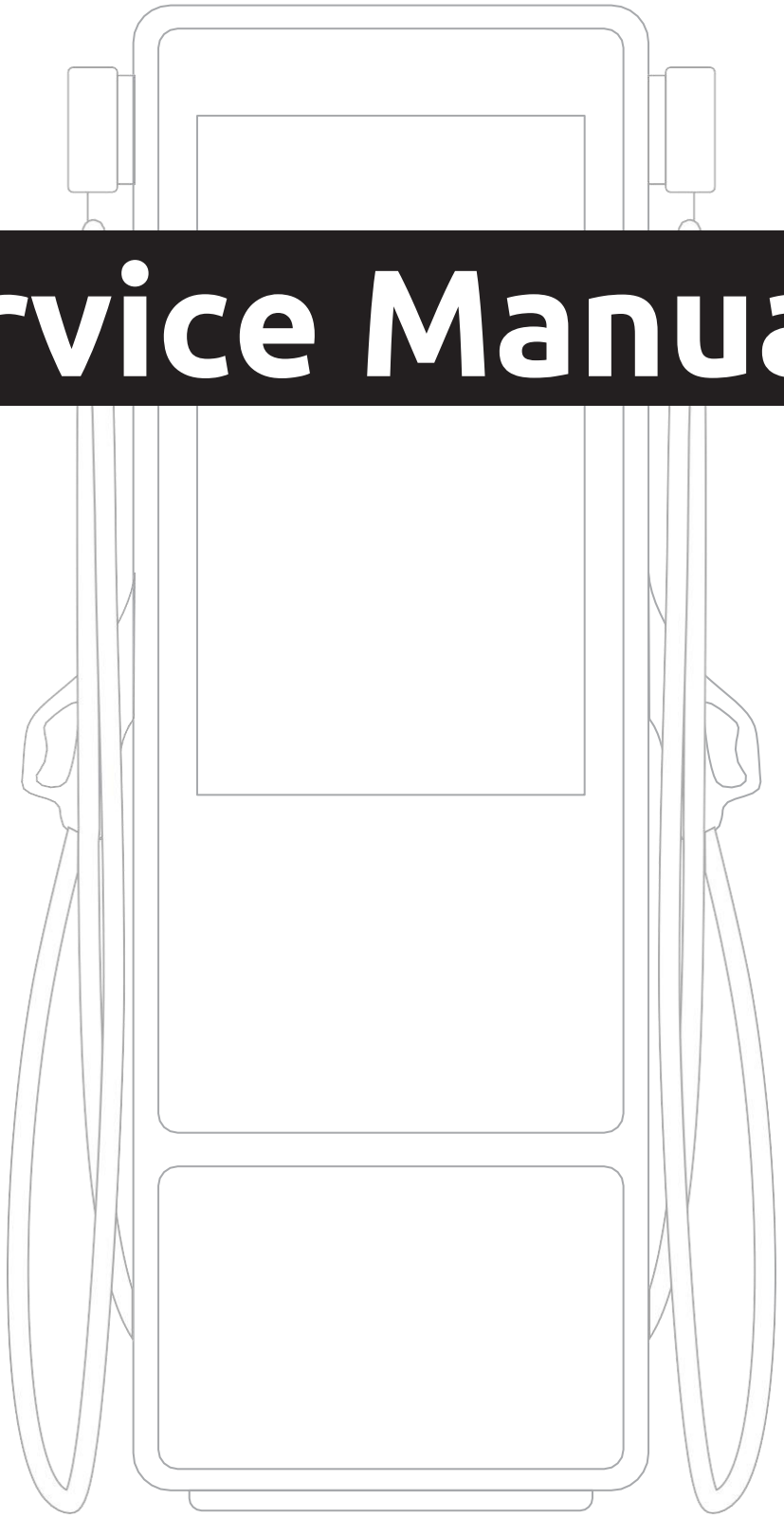
blueberry

Service Manual



PRODUCT DOCUMENTATION 1.0

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. SAFETY 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.

The user must under no circumstances make any changes to the blueberry charging station 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.

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

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. 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. START-UP

3.1. Commissioning

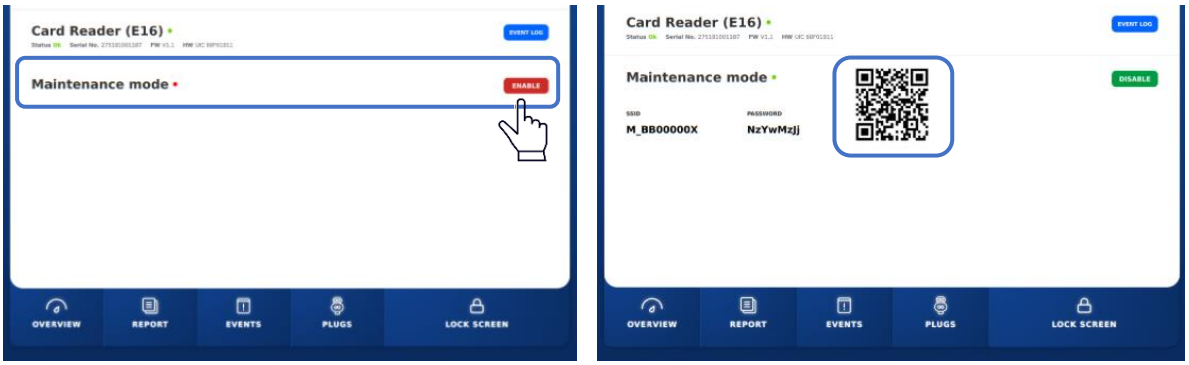
PLEASE NOTE!
Before performing the next steps, please make sure that the switch disconnector and all the circuit breakers of the equipment are switched on and make sure that you have the username and password needed to sign in the maintenance tool.

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:

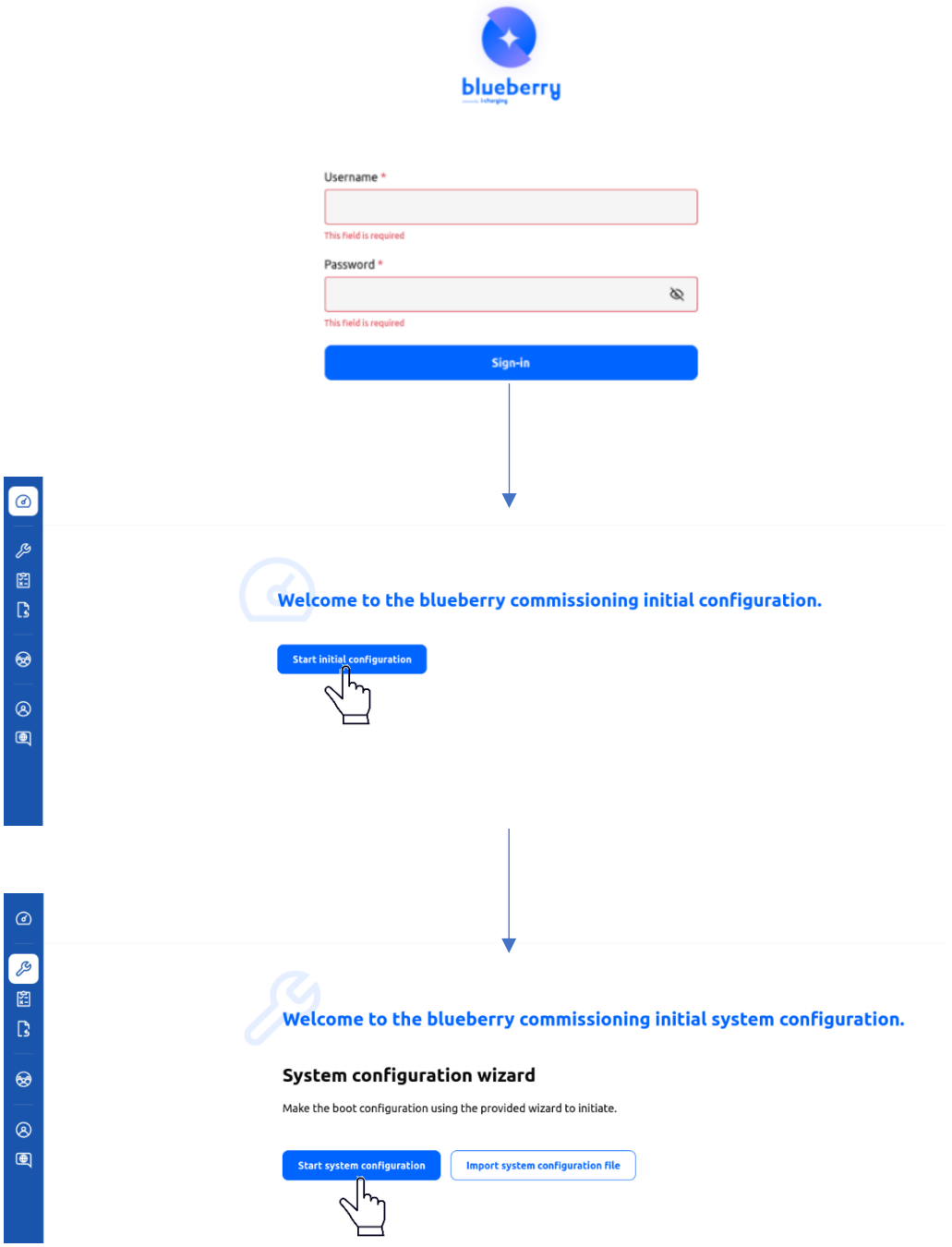
1 - Connecting an ethernet cable to the router, on LAN2 or LAN3, and access the url http://192.168.2.100
(Please consult the product Installation Manual for router position on the equipment)

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)



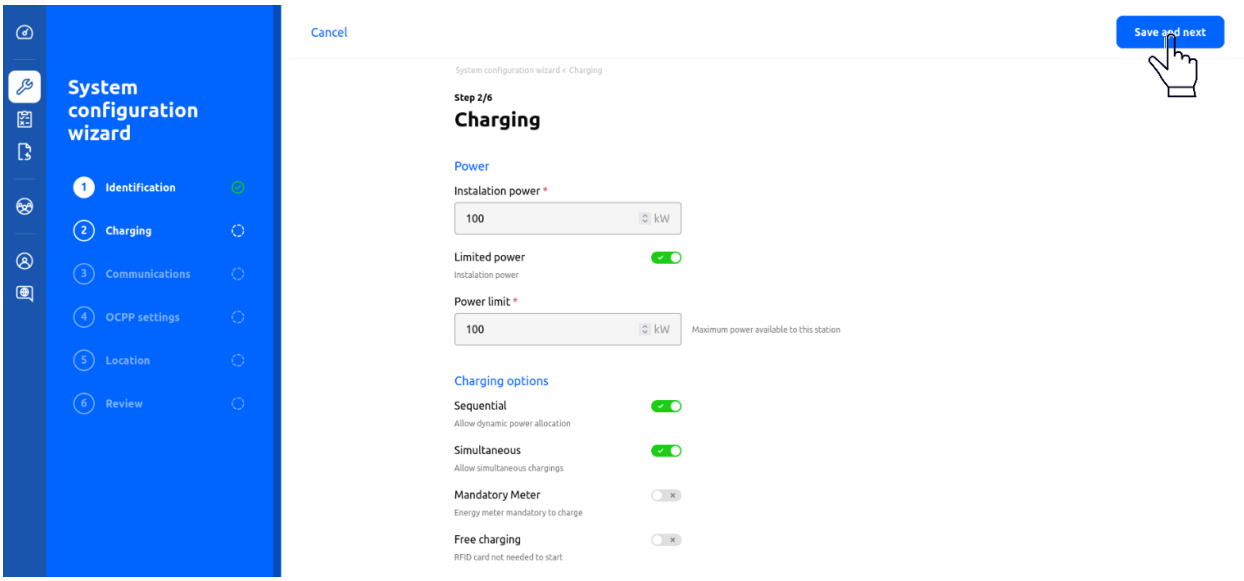
After the sign-in, start the process by pressing the button “Start initial configuration” and then “Start system configuration” in the next page:



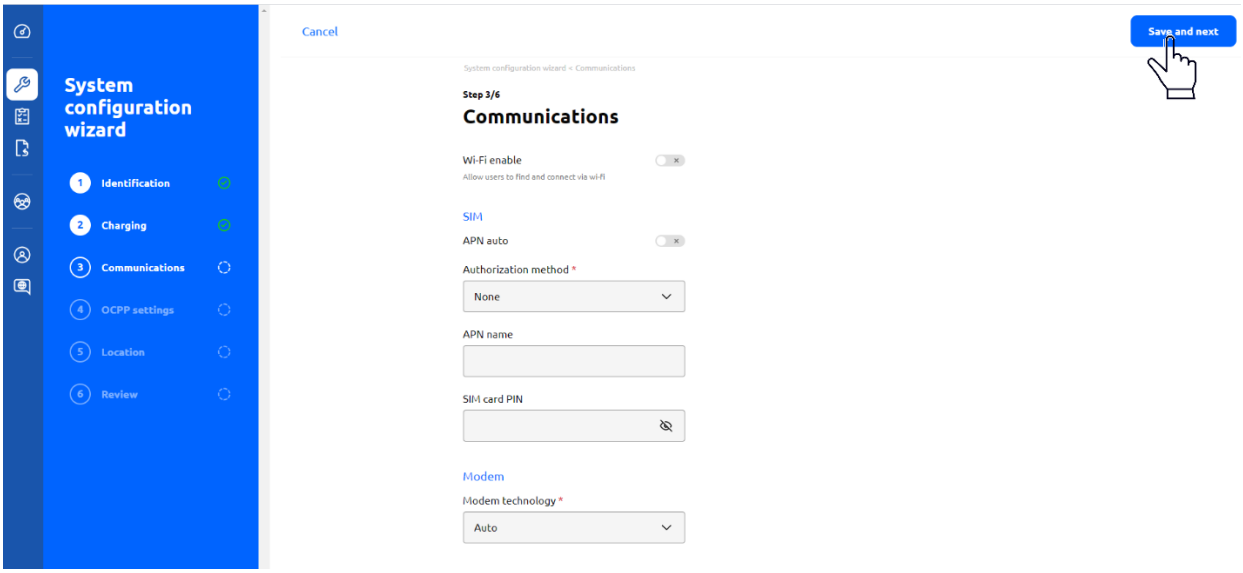
In the next steps, fill in the information that is required:

STEP 1 – blueberry charging station identification

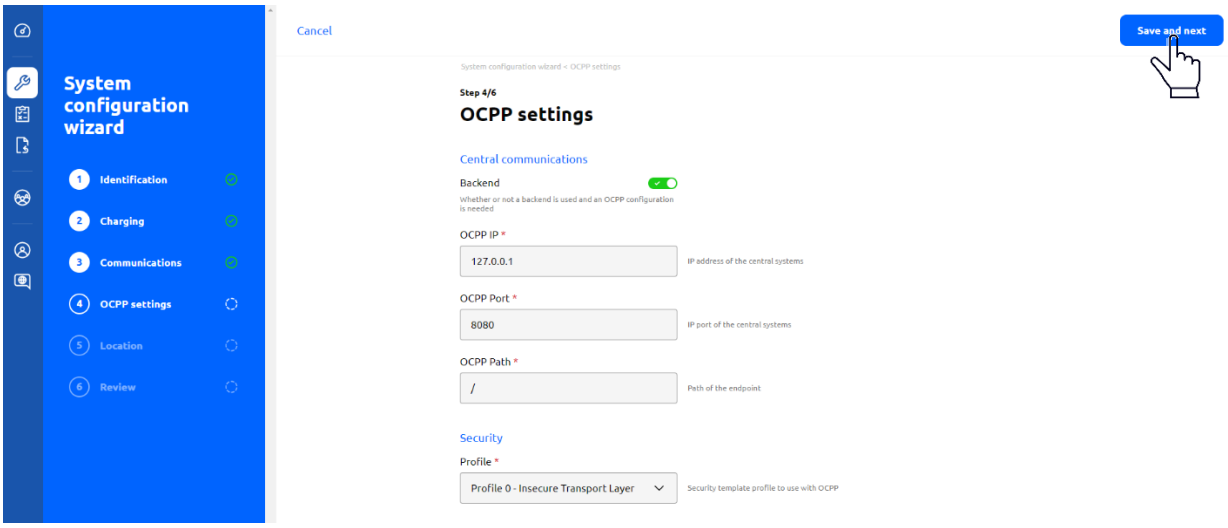
STEP 2 – Power and charging options



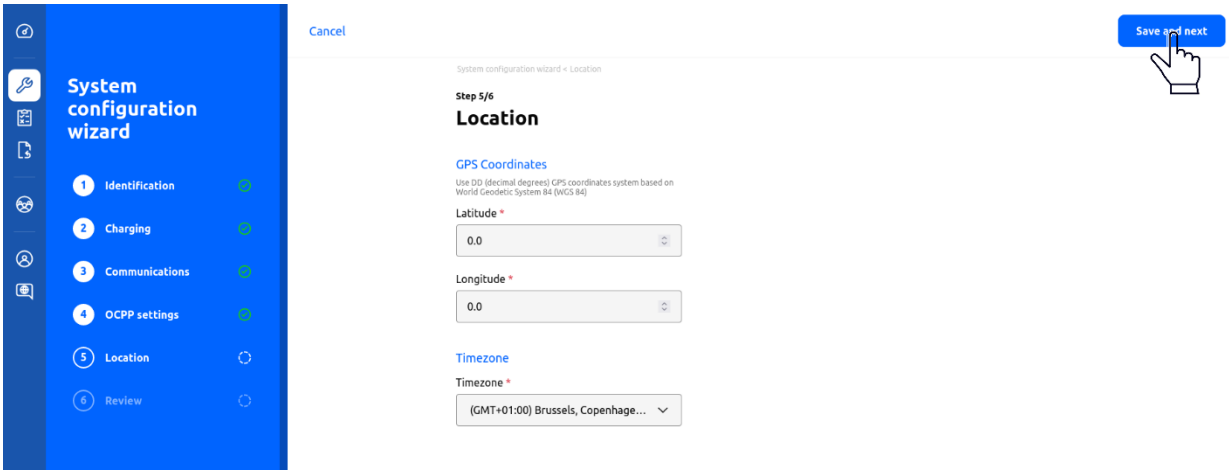
STEP 3 – Communications



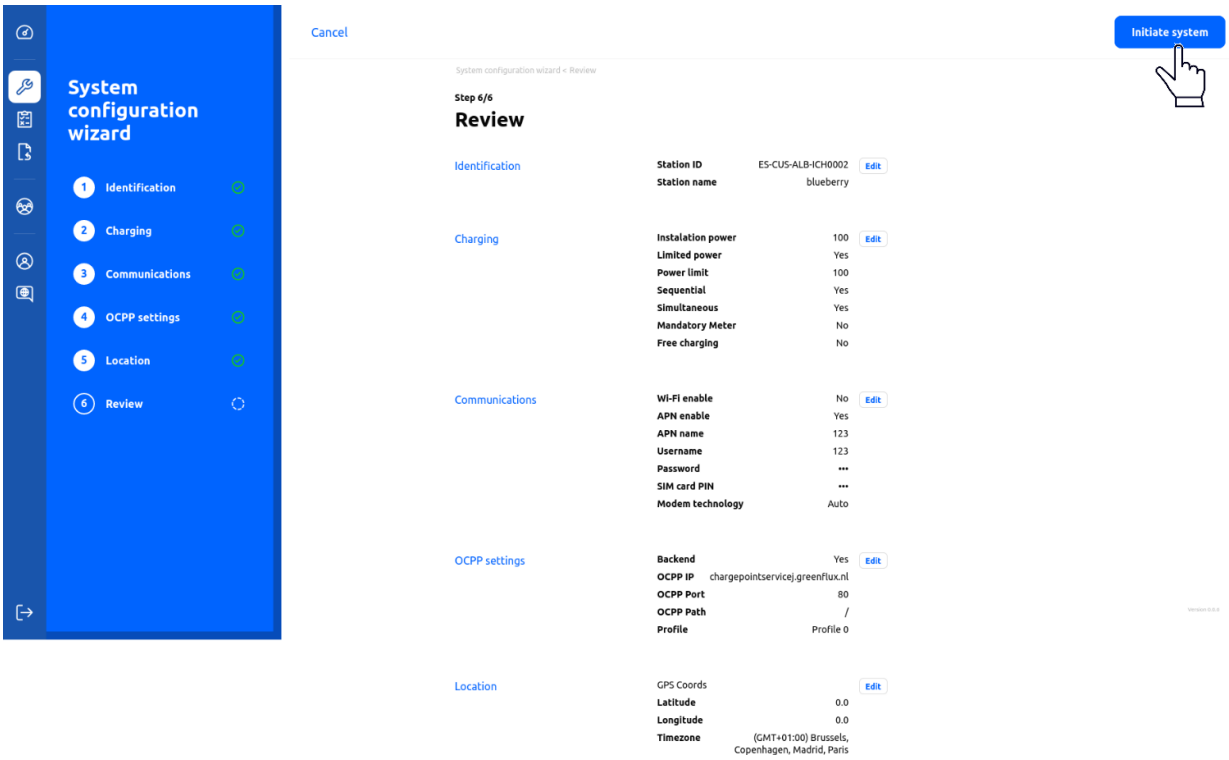
STEP 4 – OCPP Settings



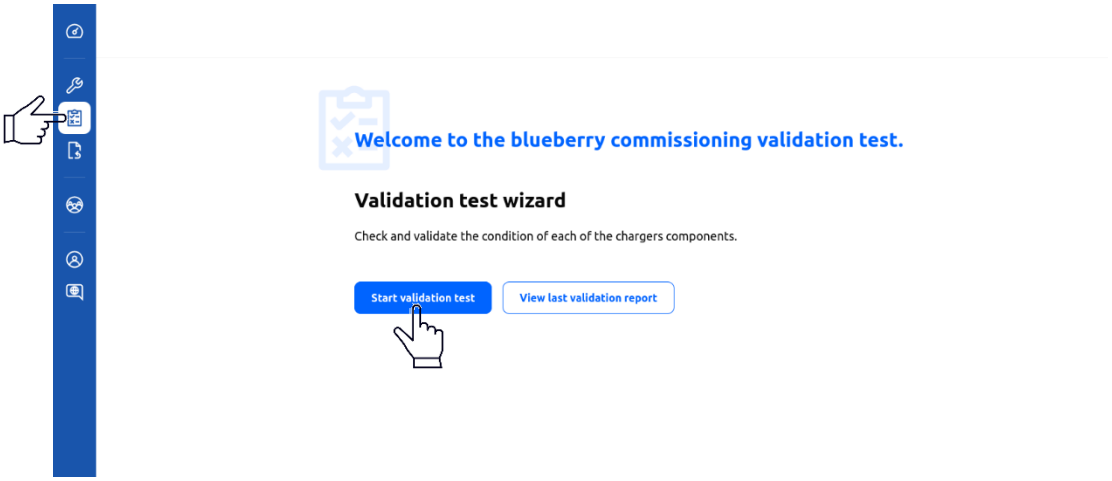
STEP 5 – Location



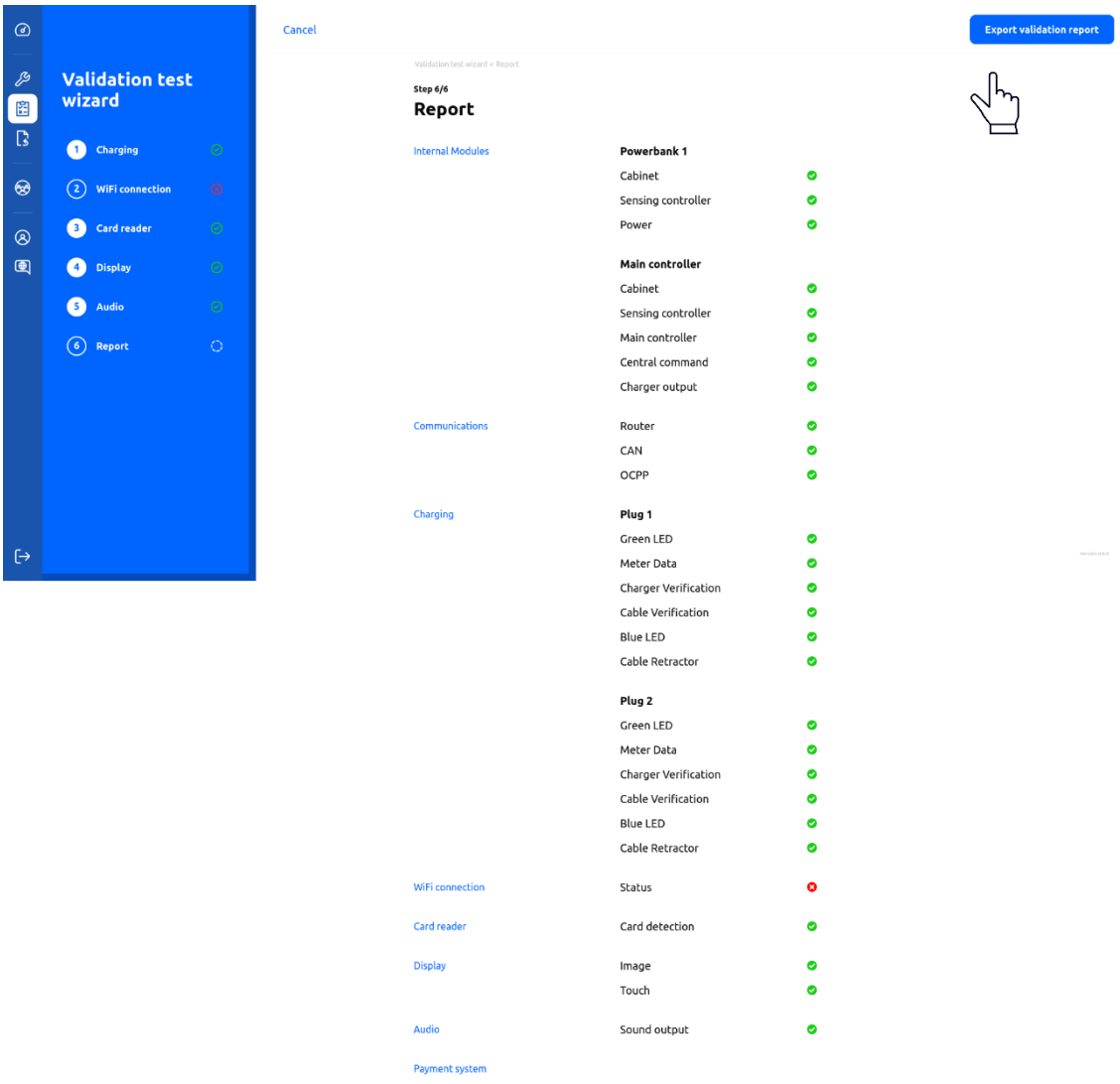
STEP 6 – Review of all configurations that were made in the previous steps and initiate sytem



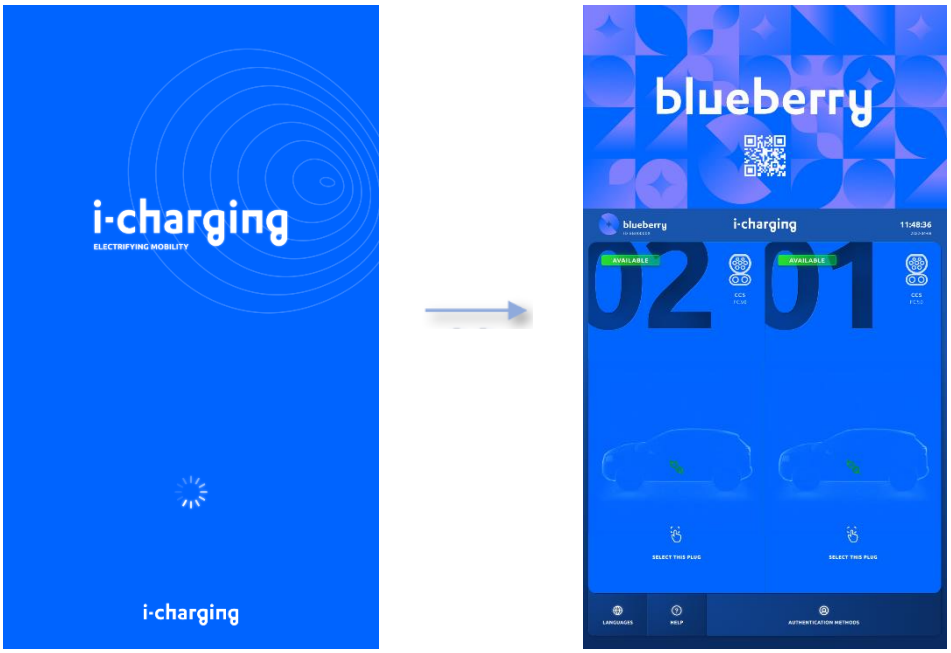
Before initiating the system, a validation test shall be made to guarantee that all components are operating correctly:



Follow the steps and answer to 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.

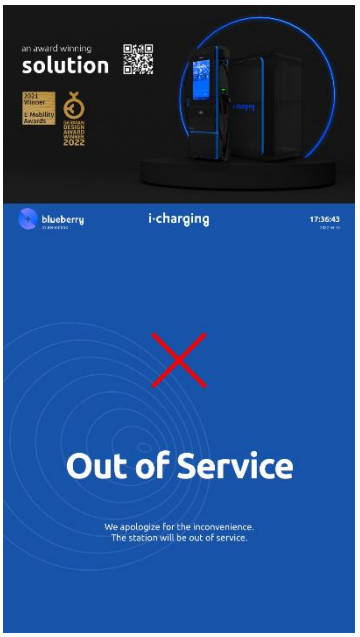


After the initial configuration and if everything is correctly configured, the blueberry charging station will proceed to the initial menu.



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.

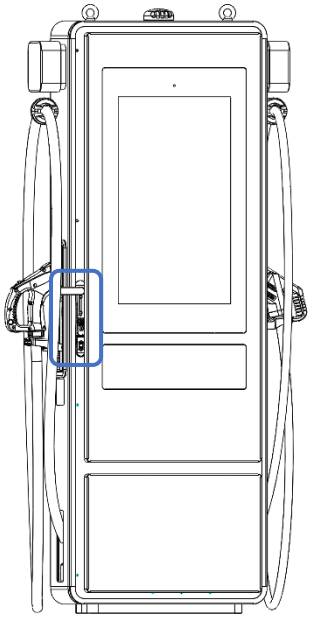
Please refer to Chapter 3.1 troubleshooting to diagnose and correct the error.



3.1. Operator Sealing

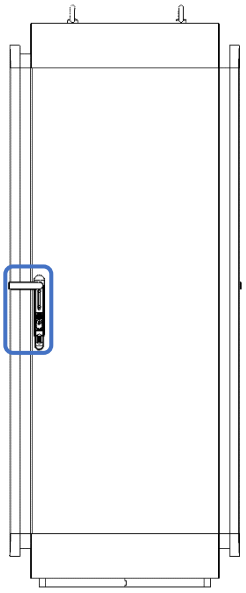
After the commissioning, once the door is closed and the charger is correctly configured, the customer can seal the equipment. For that, a tamper-proof label can be used and shall be placed on half cylinder of the locking system, as shown below.

blueberry/ blueberry PLUS - User Unit



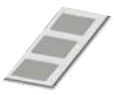
Power Unit (when applicable)

[both sides]

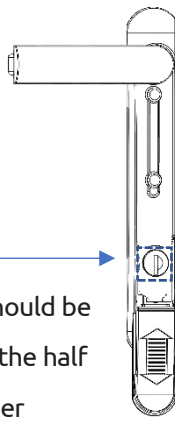


Locking System

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



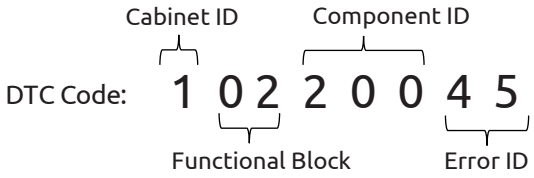
The label should be applied on the half cylinder



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

3.2. 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 n°1, in the functional block n°02, component ID n°200 and the error is identified by the ID n°45.

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

Functional Block Identification:

Functional Block	ID
Cabinet Management	01
Central Management	02
Power	03
Output 1	04
Output 2	05

Component Identification:

Component	ID
Firmware Update	001
Communication	002
Stop Wire	003
Retractor	004
Fast Stop	005
CCS Interface	006
Resistor Code	007
EV	008
Charge Sequence	009
Charging Signals	010
Charging Cable	011
IMD	012
Voltage sensor	013
Current sensor	014
Potentiometer	015
Connector Latch	016
CCS1	017
CCS2	018
CHAdeMO	019
EPO Button	050
Tilt Sensor	051
Door Sensor	052
Fire Sensor	053
Voltage Suppressor	054
Fans	055
Humidity/Temp Sensor Bottom	056
Humidity/Temp Sensor Top	057
Tachometer Top	058
Tachometer Bottom	059
Tachometer Group 1	060
Tachometer Group 2	061
Tachometer Group 3	062
Tachometer Group 4	063
Crimping 1	064
Crimping 2	065
Display	066
Potentiometer 1	067
Potentiometer 2	068
Peripherals	069
Fast Stop 1	070
Fast Stop 2	071
Cabinet	072
Sensing Controller	073
Power Supply	074
Power Module 1	100
Power Module 2	101

Component	ID
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
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
RCD	150
Router	200
Switch	201
Card Reader	202
Payment System	203
Memory	204
CPU	205
OS Disk	206
Data Disk	207
DC Meter	208
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
Undertemperature	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
Start Charge timeout	30
Stop Charge timeout	31
Malfunction on measurements	32
EV Fault or Permission Error	33
Power Supply OFF	34
Warning User Connector Lock Service	35
Malfunction on Latch circuit	36

Error	ID
Sensing triggered	37
CCMD triggered	38
Output triggered	39
Power triggered	40
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
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
Power Limit Fault	71
Thermal Limit Fault	72

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