MADIC
industries

PULSE 50

AC/DC CHARGER

CONTENTS

❯ GENERAL

SAVE THESE INSTRUCTIONS: when using electric products, basic precautions should always be followed, including the following. This manual contains important instructions for model PULSE 50 that shall be followed during installation, operation and maintenance of the unit.

a) Read all the instructions before using this product.
b) This device should be supervised when used around children.
c) Do not put fingers into the electric vehicle connector.
d) Do not use this product if the flexible power cord or EV cable is frayed, has broken insulation, or any other signs of damage.
e) Do not use this product if the enclosure or the EV connector is broken, cracked, open or shows any other indication of damage.

Warnings

The information contained in this document may be modified without notice. Consequently, the photos contained herein are non-contractual. They may not necessarily show the model that you own. However, any differences are sufficiently small for them to illustrate the different points.

Purpose

This document describes the procedures and contains the recommendations required to:

- install
- commission
- operate
- and conduct preventive maintenance and repairs.

Applicable standards

This equipment for charging electric vehicles complies with the following directives and standards:

- NF EN 61851-1:2012 Système de charge conductive pour véhicules électriques (*Electric vehicle conductive charging system*).
- NF EN 61851-22:2002 Système de charge conductive pour véhicules électriques - Partie 22: Borne de charge conductive en courant alternatif pour véhicules électriques (*Electric vehicle conductive charging system. A.C. electric vehicle charging station.*)
- NF C15-100 Sécurité des installations électriques (French electrical installation safety standard)
- CE certification

Its installation must comply with:

- NF C15-100, installations électriques (French electrical installation safety standard)

Storage conditions

The following storage conditions should be complied with:

- Storage temperature range: +10°C to +30°C,
- Relative humidity range: < 60 % RH,

By precaution, the equipment should be protected from heat and humidity prior to any installation.

A charging station installed on site and powered off may collect an important quantity of internal condensation. It is mandatory to keep the station powered on permanently, MADIC industries declines any responsibility in case of damage due to the non-respect of this requirement.

Documents included

The following documents are dispatched from the factory with the terminal:

- This technical manual
- A wiring diagram

Warnings and precautions

Waste electrical and electronic equipment (WEEE)

In accordance with French Decree 2005-829 of July 20th 2005 related to the composition of electrical and electronic equipment and the disposal of waste from them, the following points must be taken into account:

For equipment not covered by the aforementioned Decree and as required by French environmental law, it is up to the WEEE's owner to ensure its disposal or have it disposed of.

For equipment covered by the aforementioned Decree, article 18 specifies the obligations related to organising, paying for WEEE removal and disposal as:

- Purchaser is responsible for products are manufactured under its brand or for components or sub-assemblies that are intended to be assembled by purchaser to create a finished product intended for sale.

- In all other cases, liability is wholly transferred to Purchaser who specifically accepts responsibility for all obligations without having any right to make a claim on Vendor. In this respect, Purchaser agrees to ensure that the EEE that are sold are collected, treated and recycled in accordance with applicable regulations and with any information provided by Vendor as specified in articles 20 and 21 of the aforementioned Decree.

Purchaser agrees to transmit the above WEEE obligations to its own clients who should in turn, when not the end user, transmit them to their successive clients through to the end user. Purchaser is liable to Vendor for ensuring that the successive purchasers comply with the WEEE obligations relating to organising, paying for WEEE removal and disposal or recycling irrespective of whether the obligations have been transmitted to third parties.

In the event that Purchaser breaches this requirement, such as a failure by the end user, Purchaser warrants Vendor against any consequences that may arise from third party or government claims and from any harm that Vendor may suffer.

Purchaser will pay any penal fines under article 25 of the aforementioned Decree and any civil damages determined against the Vendor. Generally, Purchaser will compensate Vendor for any losses caused by its failure or those of the end user.

IMPORTANT SAFETY RECOMMENDATIONS

Electrical safety

- Installation, commissioning and maintenance must be carried out by someone who is aware of the risks involved and who has a level B1, B2 or BC electrician certificate in accordance with the UTE C18-510 standard. All work with the power connected must be done by someone who has a level B1T, B2T or BC electrician certificate in accordance with the UTE C18-510 standard.

- The person must be trained in installing this type of equipment and must comply with all the precautions specified herein and those related to installing electrical equipment.

- The electrical connection must comply with the NF C 15-100 standard.

- The general circuit breaker for the terminal must be locked in the off position before any intervention on the electrical equipment.

GROUNDING INSTRUCTIONS: this product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

WARNING: improper connection of the equipment grounding conductor is able to result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded.

All interventions on electrical parts must be made by an authorized person. Some edges may be sharp inside the equipment, it is recommended to use gloves.

WARNING: lethal voltages may remain even after the equipment is powered off, especially inside the charger. For safety raisons, you must wait 5 minutes after powering off the device before any operation inside it.

Tool and personal protective equipment inventory

Personal protective equipment (PPE)

- Hard hat, anti-electrical spark face guard and anti-electrical arc gloves.

Definition of responsibilities

The equipment must be installed, used and maintained in accordance with the instructions contained herein. When necessary, some installation stages are numbered and must be done in the indicated order.

Installers, project managers, owners and operators must comply with all precautions, warnings and recommendations contained herein.
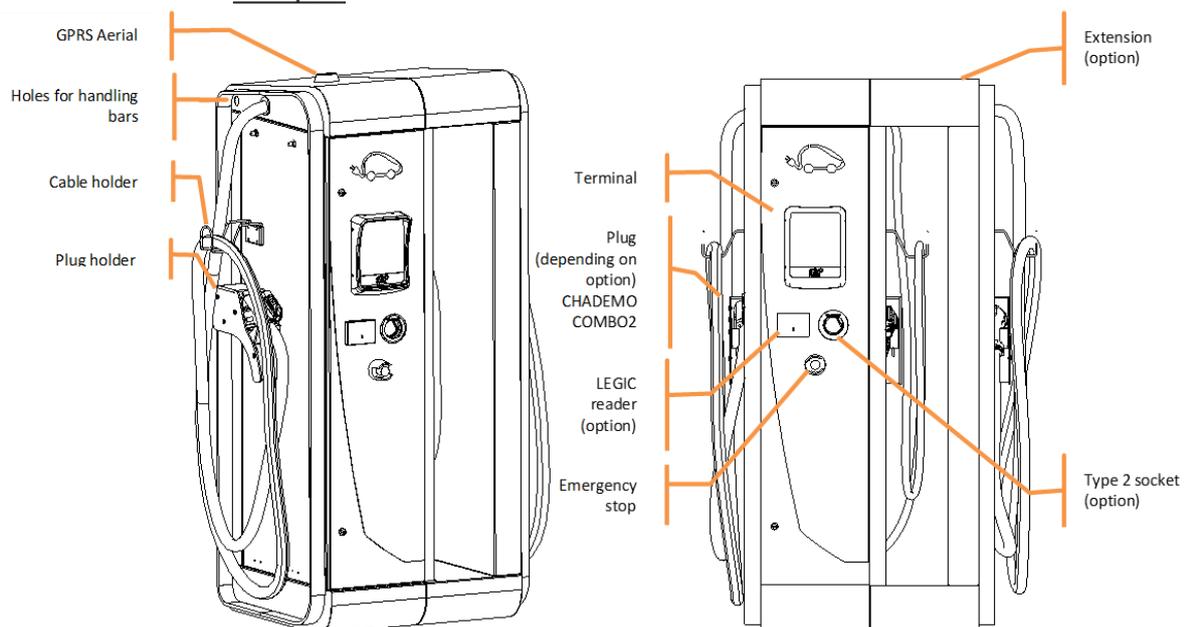
If this is not the case, MADIC industries does not guarantee that the equipment will work correctly and the equipment's guarantee becomes invalid.

❯ GENERAL DESCRIPTION

Description

Main Charger CHAdeMO /CCS | Extension Type 2

PULSE Terminal IHM

Emergency stop

CHAdéMO DC 50kW

CCS COMBO DC 50kW

T2 AC 43kW

Description

GPRS Aerial

Holes for handling bars

Cable holder

Plug holder

Extension (option)

Terminal

Plug (depending on option) CHADEMO COMBO2

LEGIC reader (option)

Emergency stop

Type 2 socket (option)
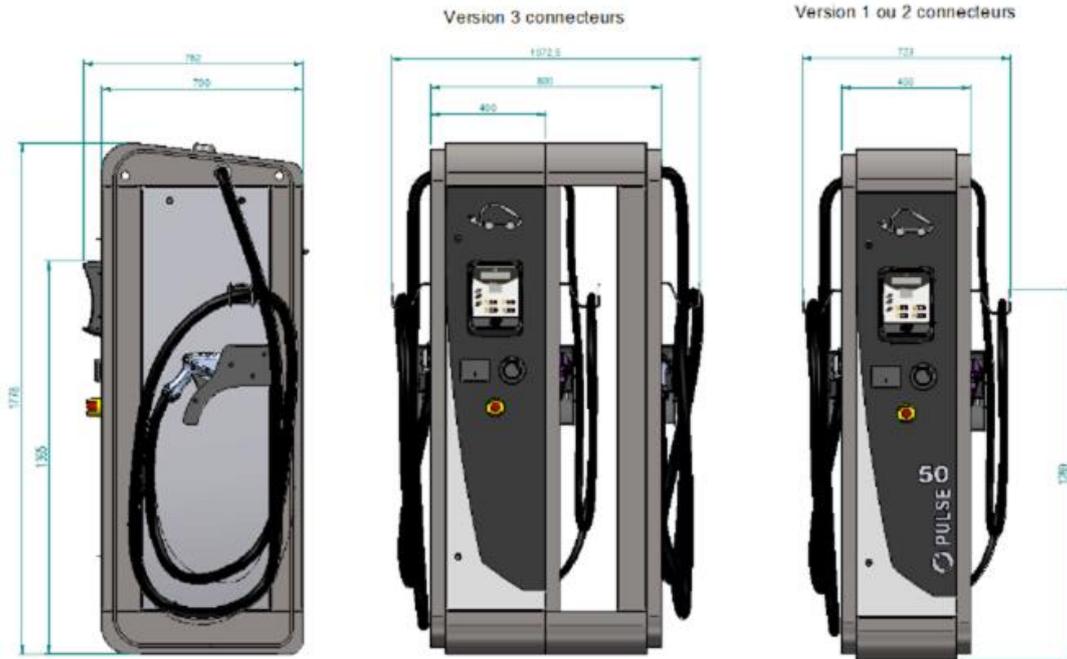
Features

Input voltage (nominal)		400 V three phase AC ± 10%
Input current (Maximum)		80 A
Output voltage (nominal)	CHADEMO plug	485 V DC
	COMBO 2 plug	500 V DC
	T2 plug	400 V three phase AC
	T2 socket	400 V three phase AC
Output current (maximum)	CHADEMO plug	125 A
	COMBO 2 plug	125 A
	T2 plug	63 A
	T2 socket	32 A
Earthing system		TT, TNS
Operating temperature		-30°C to +50 °C
Operating altitude (max)		2000 m
Yield (AC/DC conversion)		95%
Harmonic distortion rate (maximum)		THDu < 5% et THDi < 10 %
Earth leak current (maximum)		3.5 mA
Consumption in idle state	Without heater	250 W
	With heater	1000 W
Protection		30 mA differential circuit breaker and multipole circuit breakers to protect against voltage surges.
Short circuit current capacity of integrated circuit breakers at the input of the charging point	Legrand Schneider	Icc = 10 kA max. short circuit current (kA eff) Icc = 5kA max. short circuit current (kA eff) or Icc =125kA max. short circuit current if protected by external gG fuse upstream of the charging point
Resistance of earth (max)		150 Ω
Emergency stop		EN 60947-5-1, -5-5, EN 60068, EN ISO 1385 compliant with protection against untimely triggering.
Cable lengths: - Extension - Main frame		 5 m 5,2 m
Weight	1 or 2 cables	250 kg
	3 cables	350 kg
Diameter of power supply wires		25 to 70 mm²
User interface		Backlight LCD display 4 key tactile keyboard High luminosity indicator lights
Integrated RFID reader		ISO14443A and ISO14443B compatible
Bar code reader (option)		2D compatible bar code reader
Connections		Integrated 3G router
Communication with vehicle	CHADEMO	CAN bus compliant with CHADEMO 0.9
	COMBO 2	PLC compliant with ISO 15118-1-2-3 / DIN 70121 / J1772 standard
	AC	Mode 3 and simplifier mode 3
Communication with server		OCPP 1.5, OCPP1.6
Life time	Capacitors	250 000 h
	Heater	52 500 h (heater on)
	Relays	1 million cycles
	Fans	50 000 h (only active during charge)

Manufactured before **2016 :**

Version 3 connecteurs
Version 1 ou 2 connecteurs
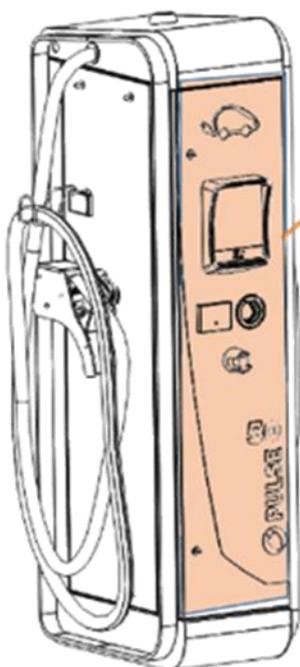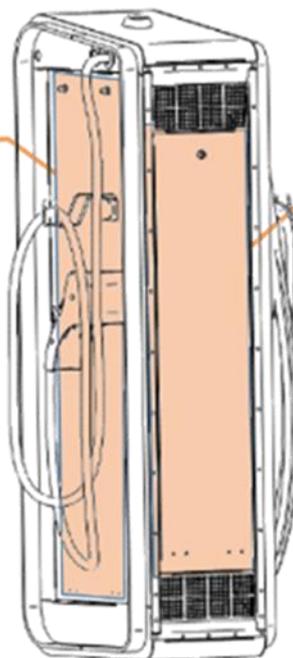

Manufactured since 2016 :
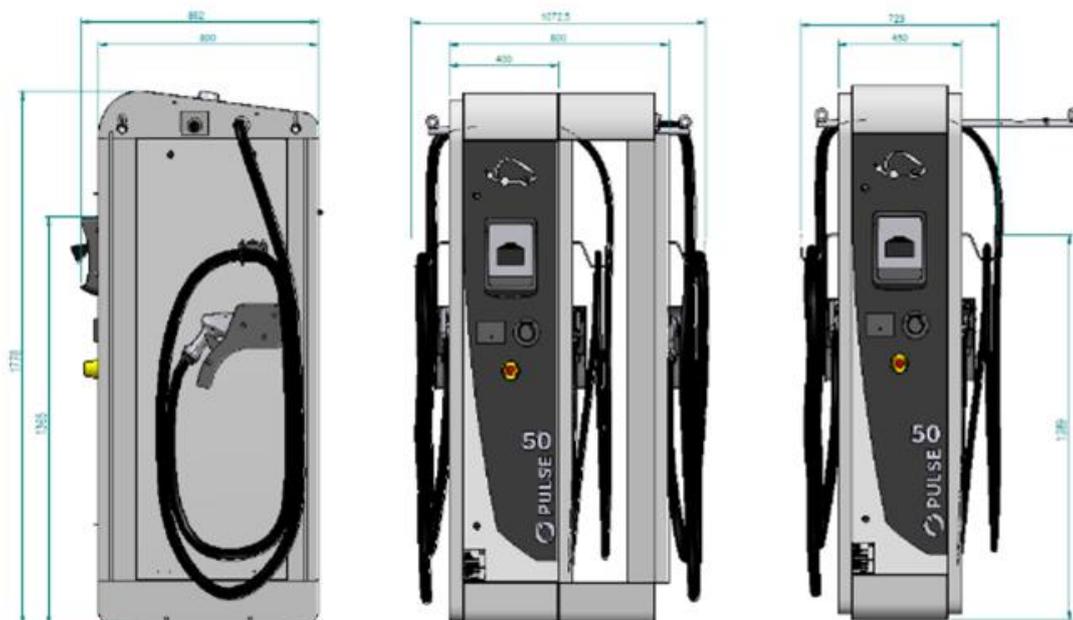
ACCESSIBILITY OF THE DIFFERENT MAINTENANCE AREAS

front door
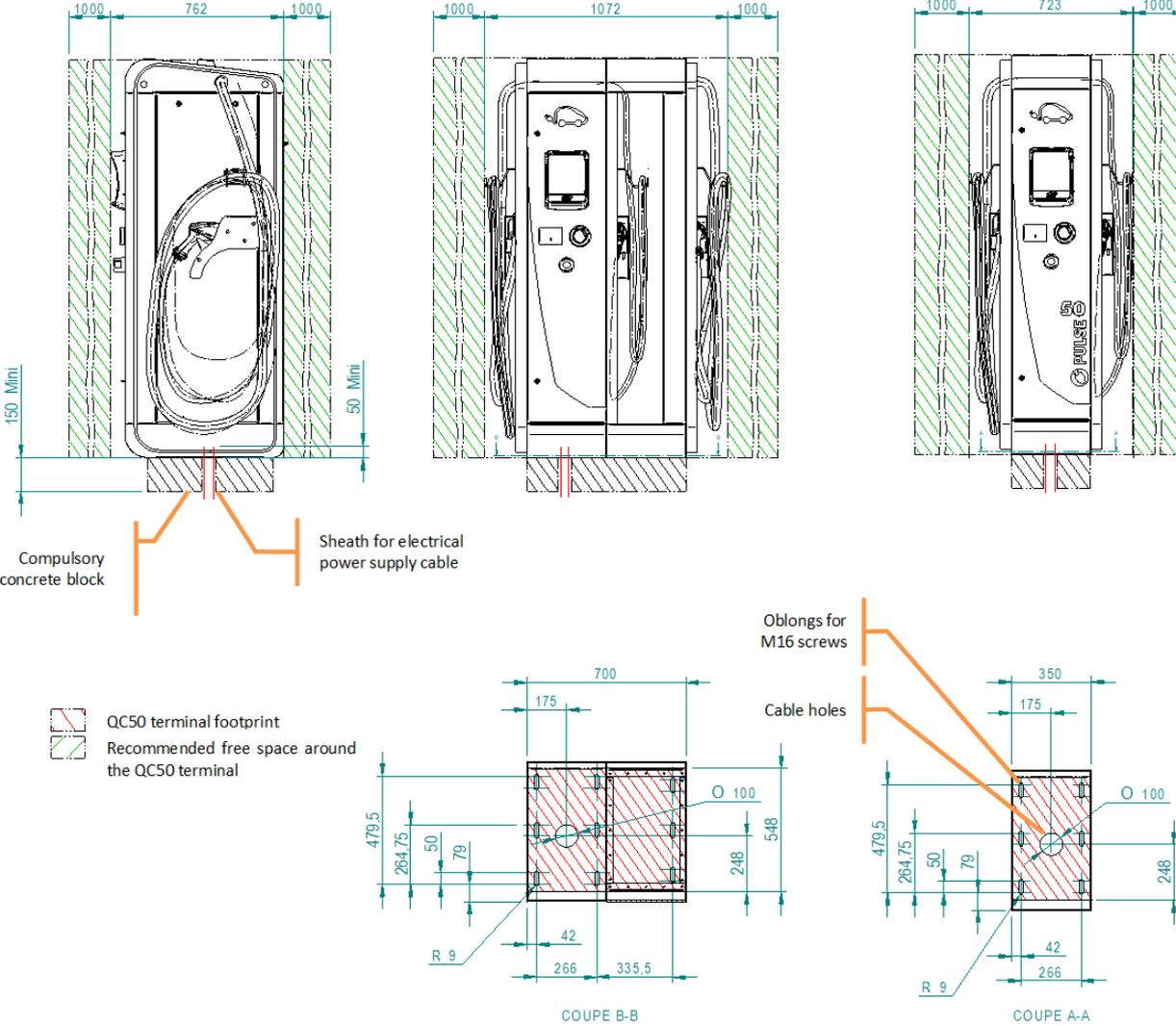access to circuit
breakers

side door
maintenance
access

back door
radiator and fan cleaning

Installation

POSITIONING THE DEVICE

Manufactured before 2016:

150 Mini

50 Mini

Compulsory concrete block

Sheath for electrical power supply cable

QC50 terminal footprint

Recommended free space around the QC50 terminal

Oblongs for M16 screws

Cable holes

COUPE B-B

COUPE A-A

Manufacturer since 2016:

▨	QC50 terminal footprint
▨	Recommended free space around the QC50 terminal
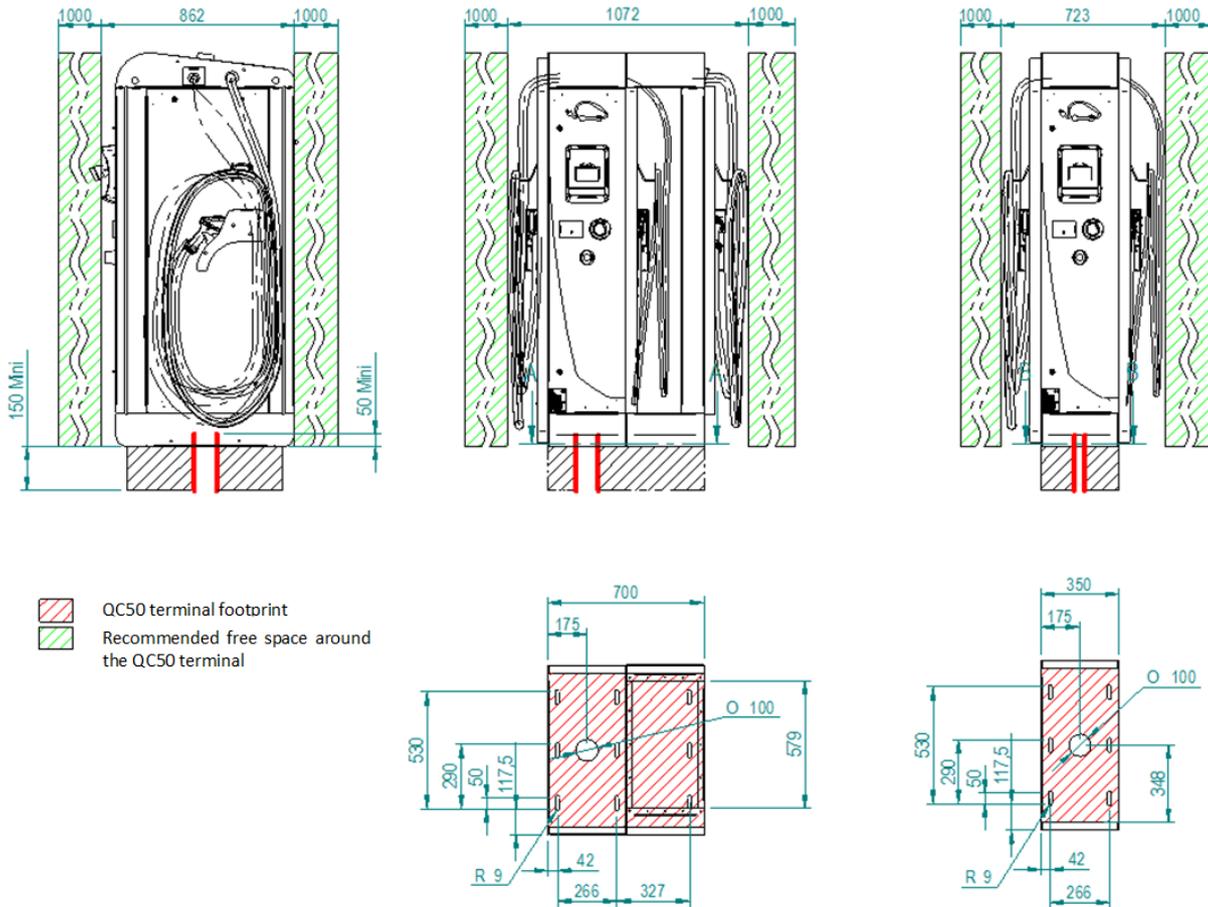
WARNING: this equipment is not intended for installation in an explosive atmosphere (ATEX). If being installed near a garage or service station, the terminal must be installed:
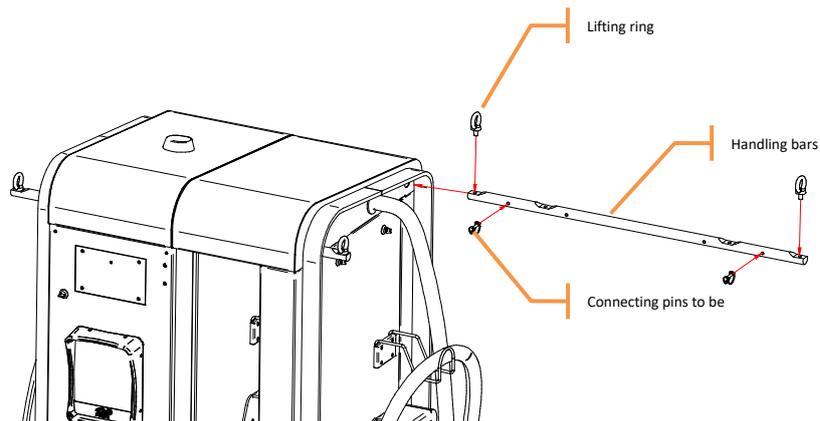
- In Europe, outside ATEX zones 0, 1 and 2 (check the zoning plan for the site).
- In the USA: at least 6 m (20 ft) from the nearest fuel distributor.

As the equipment is very heavy, it must be handled using lifting equipment using the lifting bars that are provided.
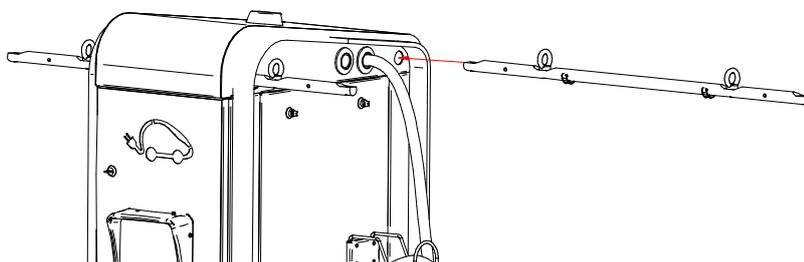
Fitting the handling bars:

- Insert the handling bars.

- Fit the connecting pins.

- screw the lifting rings on.

Lifting ring

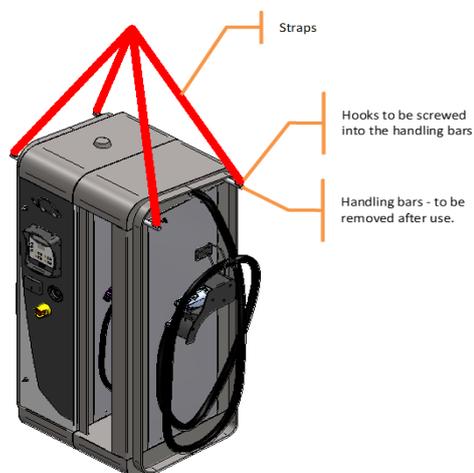Handling bars

Connecting pins to be

3 cable version

2 cable version

Straps are the attached to the rings and used to lift the equipment.

Straps

Hooks to be screwed
into the handling bars

Handling bars - to be
removed after use.

ELECTRICAL CONNECTIONS

The electrical power supply is connected to the five terminals on the lower part of the terminal using a H07RN-F 5G25 or higher cable depending on the length of the connecting cable.

Cable example: TOP CABLE XTREM H07RN-F 5G25

The cable ends must be fitted with M8 crimp type ring connectors adapted to the cable diameter. A suitable crimping tool must be used to tighten these crimp type connectors.

The cables with their connectors are then bolted on to the power supply terminals using H13 nuts and a torque of 6 Nm.

WARNING: carefully check that all metal parts that users can access are earthed.

Protection plate to be removed to connect the power supply to the terminal

Power supply connection terminals
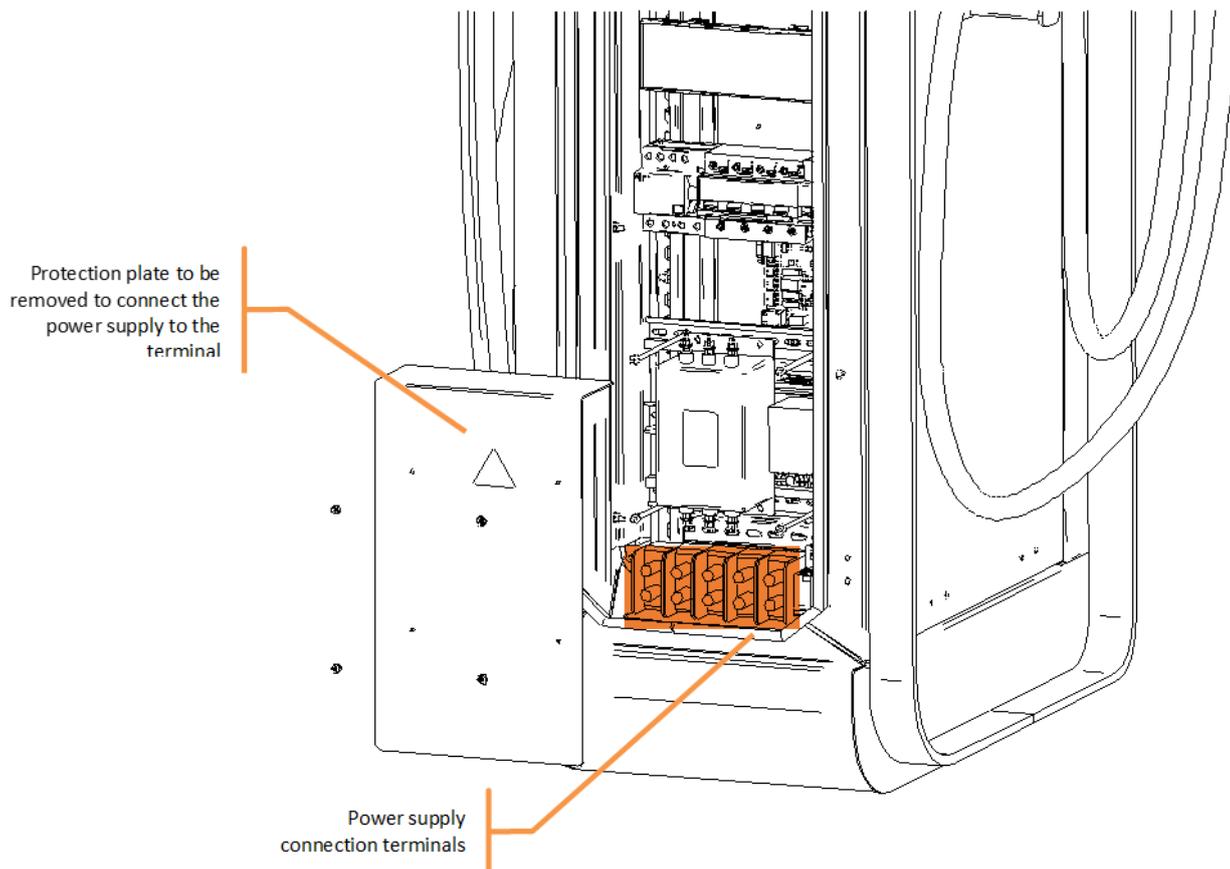
COMMISSIONING

When the power is turned on, turn the controls, power and heater circuit breakers to ON. If the equipment has a T2 socket on its front door, the T2 socket circuit breaker should also be turned to ON.

The heater should be set to 5°C to prevent the equipment from freezing.
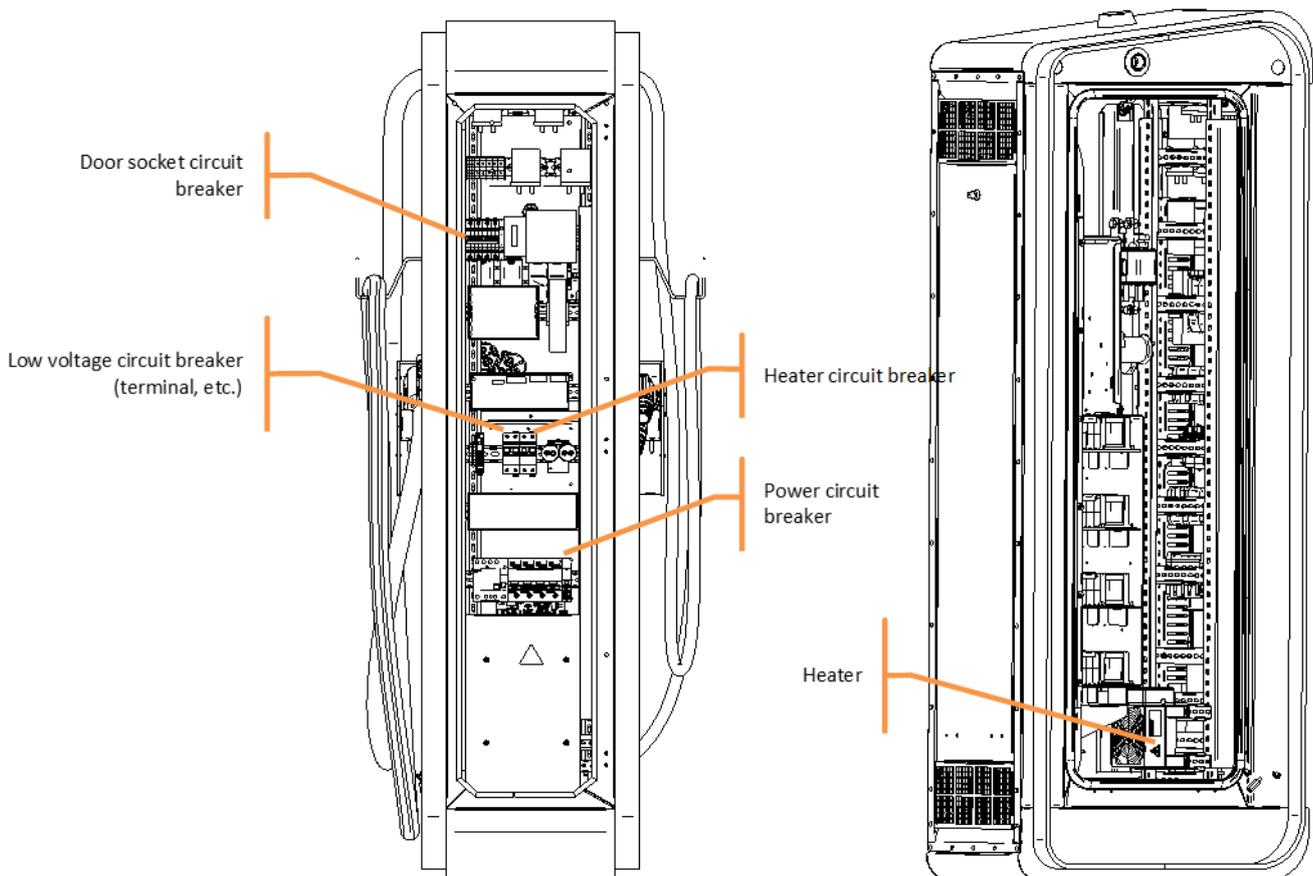
When the power is turned on, the display on the façade should turn on and display a stand-by screen:

PULSE xxx

SELECT A SOCKET
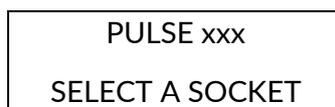
WARNING: never use a cord extension set or a second cable on top of the charging cables attached to the equipment.

CONFIGURATION

The EVSE must be configured according the model and options installed.

A first configuration is made in factory during the tests before delivering the equipment. It is sometimes necessary to change these settings at installation time or during maintenance operations to activate an option or to change the mode of operation.

Changing the settings should be made by a trained operator. MADIC industries is not responsible for any incident, failure or damage caused to or by the device consequent to a change of configuration made by another company.

Access

The DIPSWITCH n°6 (IHM card 17800010 revision A or B) or the push button CONFIG (IHM card 17800010 revision C and more) lets the user get in the configuration menu.
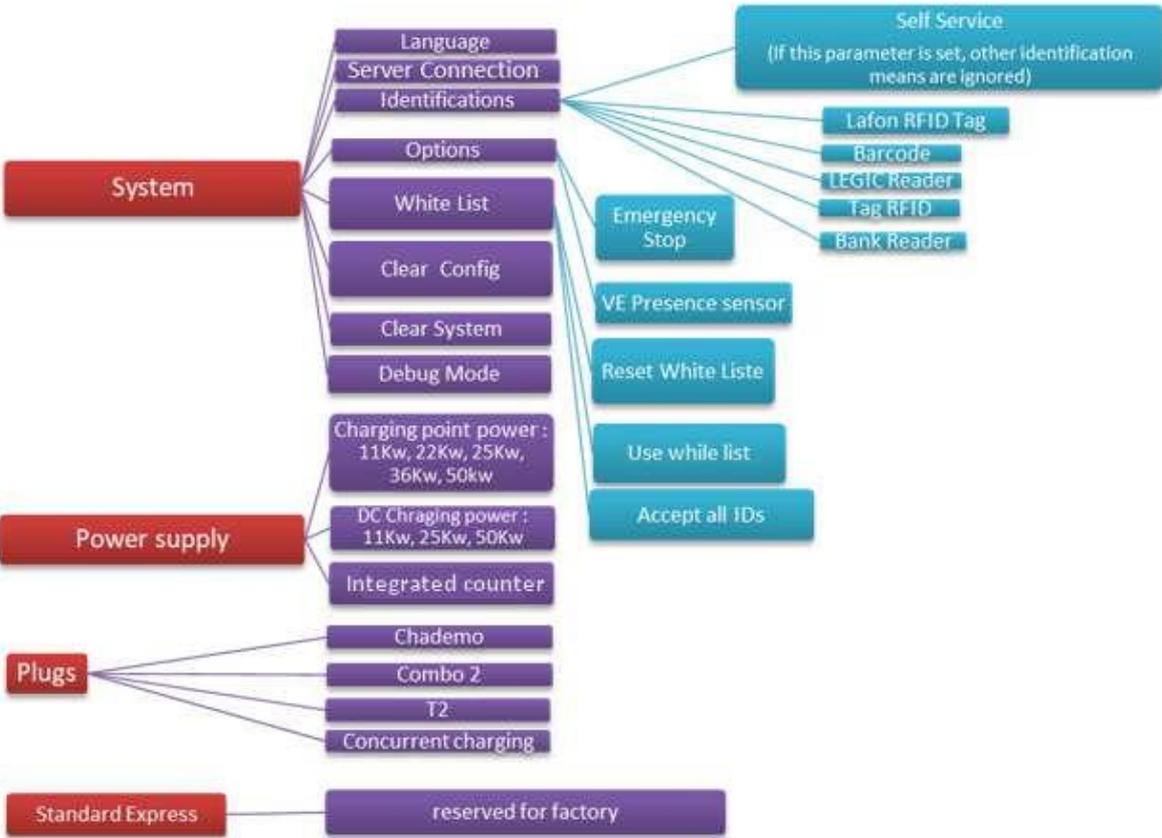
Main menu

The main menu consists in four entries accessible by the touch keys of the terminal. :

- Parameters: full list of settings that can be changed individually
- Unlock tag: lets the user define a new unlock tag
- Diagnostic: displays some internal states of the device and allows making tests
- End/Reset: quit the configuration menu
-

Parameters

Parameters

CHANGING SIM CARD

WARNING: in order to avoid electric shocks, switch off circuit breakers D1 and D2 during these operations.

The equipment incorporates a 3G router that allows it to connect to the internet for operational and maintenance purposes.

Minimum reception levels recommended are:

- **for 2G (GSM/GPRS/EDGE) : RSSI 16, i.e. -81 dBm**
- **for 3G (UMTS/HSPA/HSPA+) : RSSI 14, i.e. -85 dBm**

KORTEX Router
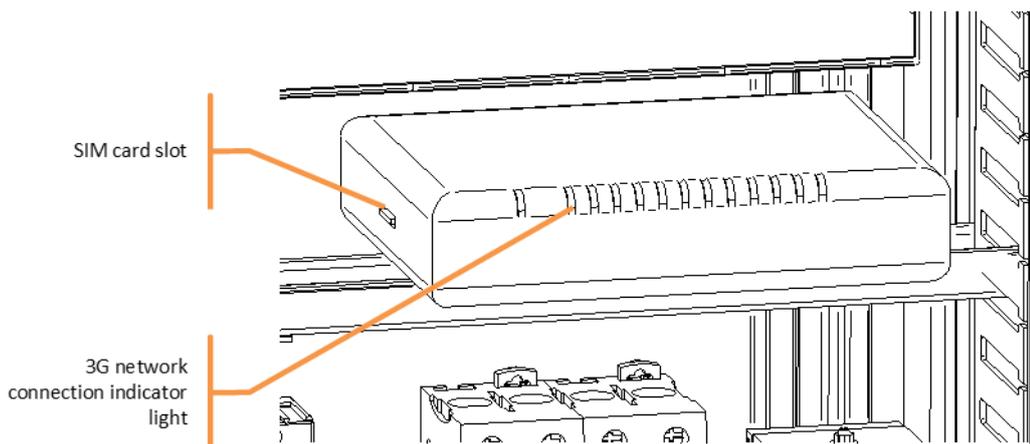
The phone service provider's SIM card must be inserted into the router. The router must be configured with the access parameters provided by the service provider. To change the configuration:

- Connect a laptop to the router using a Ethernet RJ45 cable.
- Use a web browser to connect to http://192.168.8.1. Enter
  'User name': 'Admin':
  'Password': <Empty>

- Click on « save settings » to save.

YIFAN ROUTER

On the front plate of the router is the slot for the SIM card. If you need to change it, please press with a pen or a similar tool to eject the card.

The chip of the SIM must face down.

Check that the router is powered on: blue LED named « POWER » lit.

Configure the network interface card of the LAPTOP as below at the Network and Sharing Center of Windows.
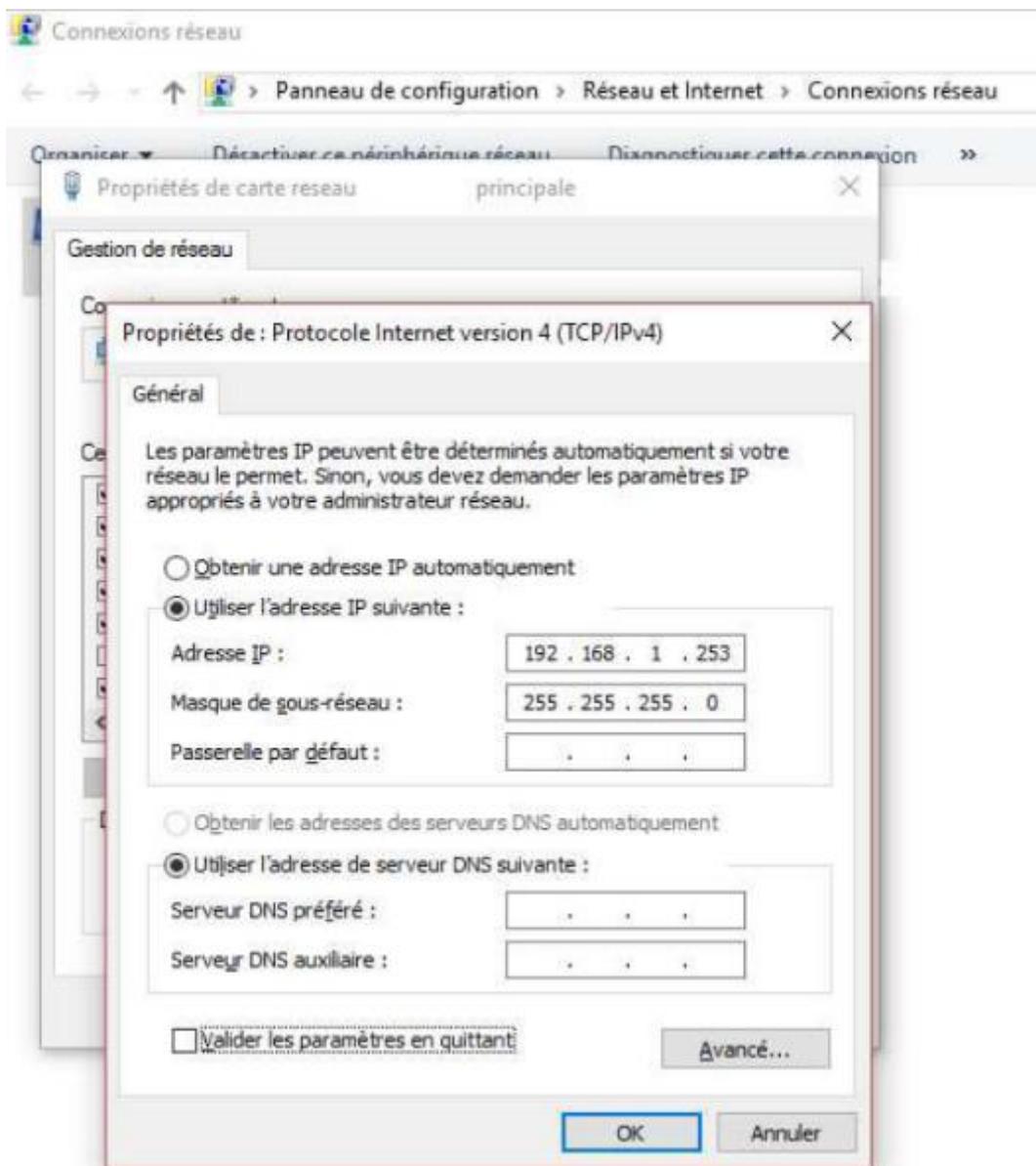
Now connect your LAPTOP to the WAN input of the router.
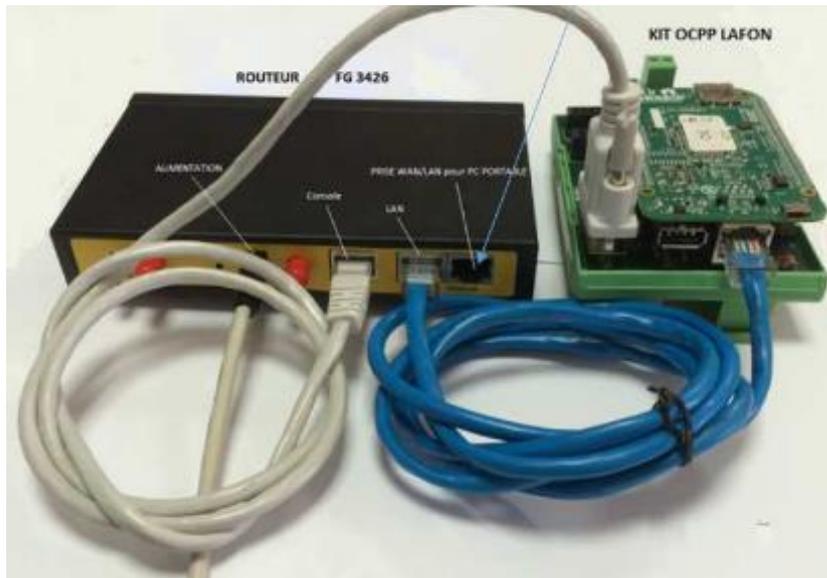
Launch a web browser.

Type URL http://192.168.1.1:8080

You will get the home page of the router;

Click Setup and type « lafon » in the filed user and « lafon » in the field password:

When you click Setup, you will get the page:

By default, the APN (Access Point Name, it is an identifier defined by the operator to allow access to the network for a user) is set to « orange.m2m »; **If you change the operator, you must fill in the APN given with the SIM card;** if you don't have it, request it to the supplier of the SIM card.

Sometimes, the APN comes with a user name and a password. With APN orange.m2m, the username is « orange » and the password is « orange »

When the changes are complete, go to the bottom of the page …

...and click « apply settings » :

Then click « save »

At the end, after the router rebooting, the blue LED Online should be lit.

OCPP SETTING

OCPP settings can be configured locally in a CONFIG.CSV file, located in the µSD card of the OCPP kit.

This file may be modified with a text editor. **Be careful however to keep the ANSI encoding of the file**.
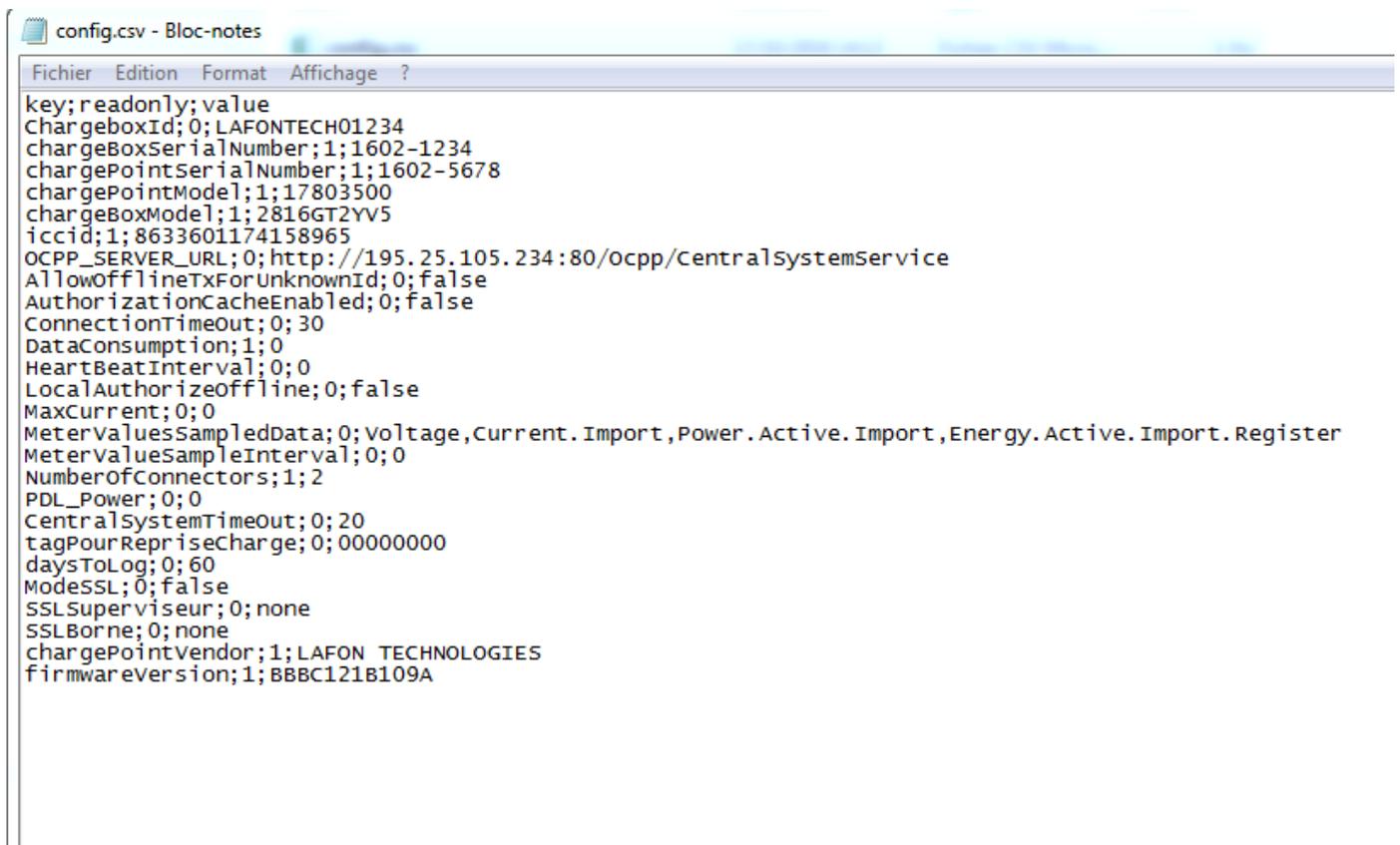
```
config.csv - Bloc-notes
Fichier  Edition  Format  Affichage  ?
key;readonly;value
ChargeboxId;0;LAFONTECH01234
chargeBoxSerialNumber;1;1602-1234
chargePointSerialNumber;1;1602-5678
chargePointModel;1;17803500
chargeBoxModel;1;2816GT2YV5
iccid;1;8633601174158965
OCPP_SERVER_URL;0;http://195.25.105.234:80/Ocpp/CentralSystemService
AllowOfflineTxForUnknownId;0;false
AuthorizationCacheEnabled;0;false
ConnectionTimeOut;0;30
DataConsumption;1;0
HeartBeatInterval;0;0
LocalAuthorizeOffline;0;false
MaxCurrent;0;0
MeterValuesSampledData;0;Voltage,Current.Import,Power.Active.Import,Energy.Active.Import.Register
MeterValueSampleInterval;0;0
NumberOfConnectors;1;2
PDL_Power;0;0
CentralSystemTimeOut;0;20
tagPourRepriseCharge;0;00000000
daysToLog;0;60
ModeSSL;0;false
SSLSuperviseur;0;none
SSLBorne;0;none
chargePointVendor;1;LAFON TECHNOLOGIES
firmwareVersion;1;BBBC121B109A
```

Field	Meaning
firmwareVersion	Software version
chargePointVendor	LAFON TECHNOLOGIES
ChargeboxId	OCPP identifier of the station (chargeBoxIdentity)
chargeBoxSerialNumber	Terminal serial number
chargePointSerialNumber	OCPP kit serial number
chargePointModel	Station product number
chargeBoxModel	Station serial number
Iccid	SIM card number
OCPP_SERVER_URL	URL of the central system (OCPP server)
LibreService	true = the station can be used without reading a tag
AllowOfflineTxForUnknownId	true = if the station is offline, unknown tags are accepted
AuthorizationCacheEnabled	true = activates the OCPP cache, a list of last tags accepted or rejected. If the tag is in the cache, no authorization request is sent to the server.
LocalAuthorizeOffline	true = activates the OCPP white list when the station is offline.
tagPourRepriseCharge	Identifier used in automatic transactions performed after a power cut.
tagPourLibreService	Identifier used in self service transactions sent to the server
NumberOfConnectors	Number of charge points (sides) of the station.
ConnectionTimeOut	Time (seconds) to plug the vehicle after authorization of the charge point.
Switch3Gto2GLevel	Limit (in dBm) to switch from 3G to 2G.
Switch2Gto3GLevel	Limit (in dBm) to switch from 2G to 3G.
Strong2Gto3GRetryInterval	Time (in days) to recalculate 2G/3G switching.
WeakSignal2GLevel	Limit (in dBm) to send a warning message statusNotification, WeakSignal
WeakSignalIntervalAlert	Time (in days) to resend the warning message tatusNotification, WeakSignal
HeartBeatInterval	Period (in seconds) of the HeartBeat message.
daysToLog	Duration (in days) of the diagnostic logs.
OCPP_BORNE_PATH	URL of the station web services (incoming requests)
ModeSSL	true = SSL active on server

SSLSuperviseur	Name of the SSL certificate of the server.
SSLBorne	Name of the SSL certificate of the station.
QC50SimultaneousChargingMode	Simultaneous charging mode option
MaxCurrent	Max. current setting
PDL_Power	Max power setting
LAN_Mode	LAN Mode
LAN_DHCP	LAN DHCP
LAN_StaticIP	Static IP LAN if LAN DHCP = False
LAN_Gateway	Gateway LAN if LAN DHCP = False
LAN_Network	Network address
LAN_DNS1	DNS1 Adress
LAN_DNS2	DNS2 Adress
LAN_PublicAccessPoint	Public address if LAN Mode = TRUE
PortService	IP public network address port
LAN_HTTPProxy	proxy http address
LAN_HTTPSProxy	proxy https address
LAN_FTPProxy	proxy FTP address
MeterValuesSampledData	Meter values sampled data (not modifiable)
MeterValueSampleInterval	Meter values sample interval

All these parameters can be changed remotely by the server using ChangeConfiguration.request.

Features of the OCPP white list (cache) are:

Parameter	Value
Number of identifiers in white list (max)	500
Number of offline transactions (max)	1000

Connexion information to the supervisor

On terminal software versions greater than or equal to version KIPB306A and BBBC310A for the kit OCPP, a visual indication on the display lets you know if the terminal is connected to the supervisor on OCPP

Charger connected to the supervisor
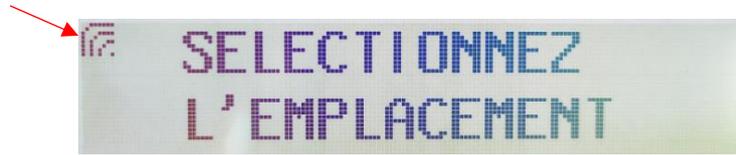
Charger **not** connected to the supervisor

OPERATING MODE FOR CHARGING

Follow these steps to charge an electrical vehicle:

1. Select the plug or socket using the tactile keys referring to the pictogram that corresponds to the vehicles socket.
2. Identify the user (contact-less card, bar code reader, depending on options).
3. Connect the cable linking the terminal to the vehicle.
   a. With cable attached: lift the plug from its support, and just connect it onto the vehicle socket. Hold the plug until it is locked by the vehicle.
   b. With removable cable (T2 socket): connect the cable onto the vehicle side, then insert the plug on the charger side by rotating it and pushing it completely inside the socket.
4. When charging starts, the blue charging indicator light is lit continuously and the display indicates the status of the current charge.
5. Re-identify the user to stop charging and unlock the vehicle connection cable.
6. Disconnect the cable from the vehicle.

Indicator light guide		
	Unlit	Terminal on stand-by
	Flashing yellow	Socket selected, awaiting identification
	Continuous red	No authorisation or socket out of service
	Unlit	Transaction being recorded on server
	Continuous green	Cable connected, parking time being recorded
	Flashing yellow	Awaiting cable connection or disconnection
	Continuous red	Abusive parking
	Unlit	on stand-by
	Flashing blue	Vehicle connected, charging current < 1A
	Continuous blue	Vehicle connected, charging current > 1A
	Continuous red	Charging not possible: control link failure or switch stuck or disjunction or currently downloading
	Flashing red	Non-compliant cable
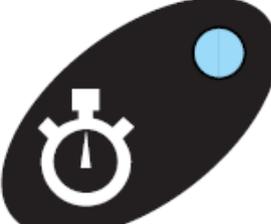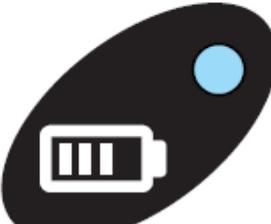
VEHICULE DETECTION

As an option, the charging station may be equipped with a vehicle detector using a current loop. The inductive loop, located around the parking place, let the station detect the presence or the absence of a vehicle.

MID2E-800 (Magnetic AUTOControl)
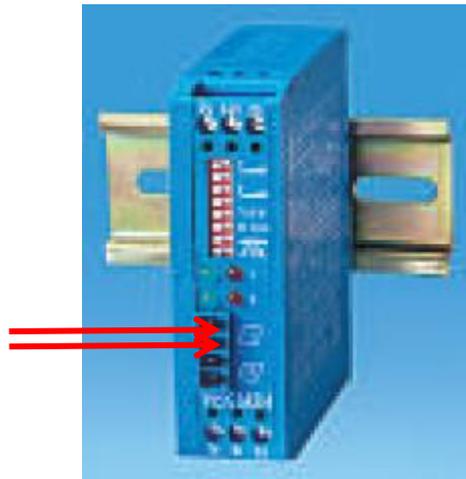
The loop must be connected to the two connectors labelled « loop 1 » on the front face of the detector.

The detector is set from factory with a configuration suitable for the most common situations. However, if needed, it is possible to adjust the behavior of the module using its DIPSWITCHES :

Dipswitch	Usage
1	Loop 1 sensitivity :
2	<table><tr><td>**1**</td><td>**2**</td><td>**Sensibilité**</td></tr><tr><td>Left</td><td>Left</td><td>Low (0.64% f/F)</td></tr><tr><td>Right</td><td>Left</td><td>Medium – (0.16% f/F)</td></tr><tr><td>Left</td><td>Right</td><td>Medium+ (0.04% f/F)</td></tr><tr><td>Right</td><td>Right</td><td>High (0.01% f/F)</td></tr></table>
3	Loop 2 sensitivity (not used)
4	
5	Loop frequency : Left : 30 kHz Right : 130 kHz Used to avoid interferences between to loops located side by side.
6	Vehicle detection hold time: Left : 5 minutes Right : infinite Do not modify, leave in right position
7	Presence/direction mode
8	Do not modify, leave both switches to the left

MATRIX D 12-24 MF (MATRIX)

Detector Front Face	Detector connector
Power Led Loop led	PIN 1 PIN 2 PIN 3 PIN 4 PIN 5 PIN 6 PIN 7 PIN 8 PIN 9 PIN 10 PIN 11 The loop must be connected between pins 7
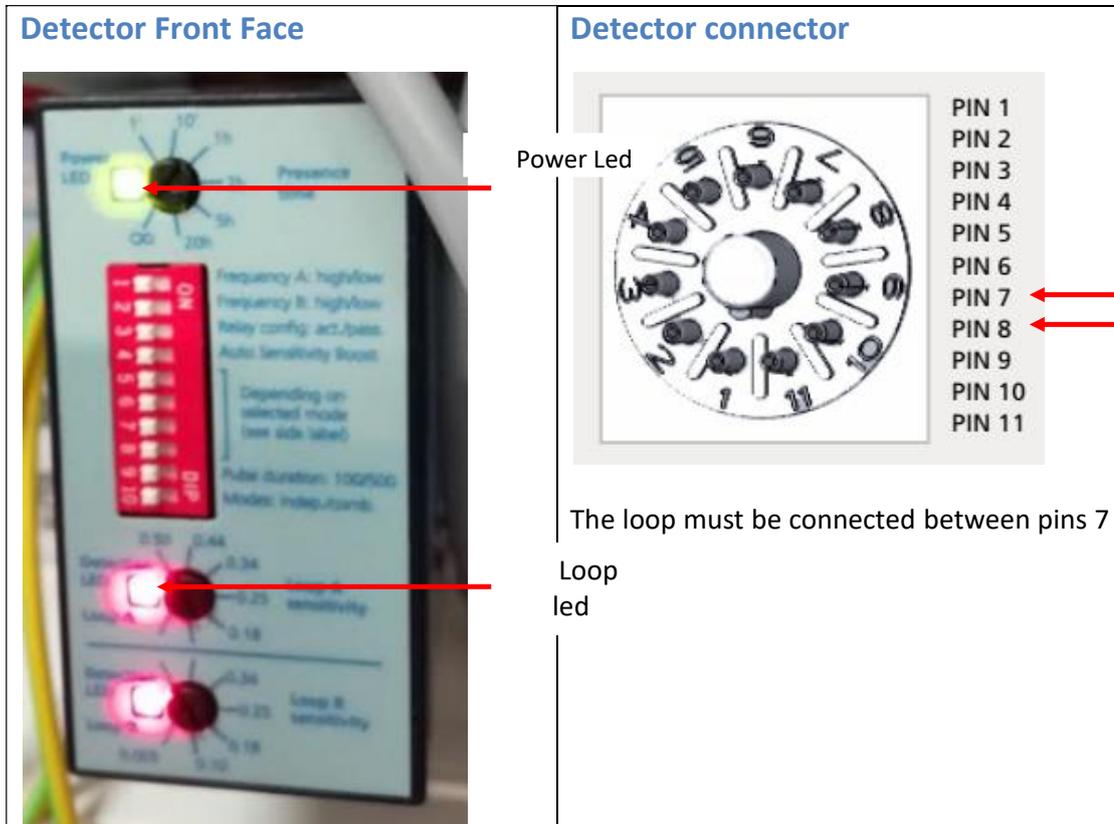
The loop is connected between pins 7 and 8 of the accessible connector after removing detector from its detachable connector.

Factory settings

The detector is set from factory with a configuration suitable for the most common situations.

- All dipswitches on front face are in OFF position.
- The potentiometer Presence Time is set on ∞
- The potentiometer LoopA Sens Adj is set on 0.50

However, if needed, it is possible to adjust the sensibility of the loop using the potentiometer (LoopA Sens Adj).

LEDS status

- The LED power (green) must be ON
- During normal operation, the red LED is ON as long as the loop detects a metal object. If the red LED flashes, it's a failure and it means probably that the loop is open.

VEK MNH2-R24-C (FEIG Electronic)

Position of the dipswitches	Connection of the loop by the installer
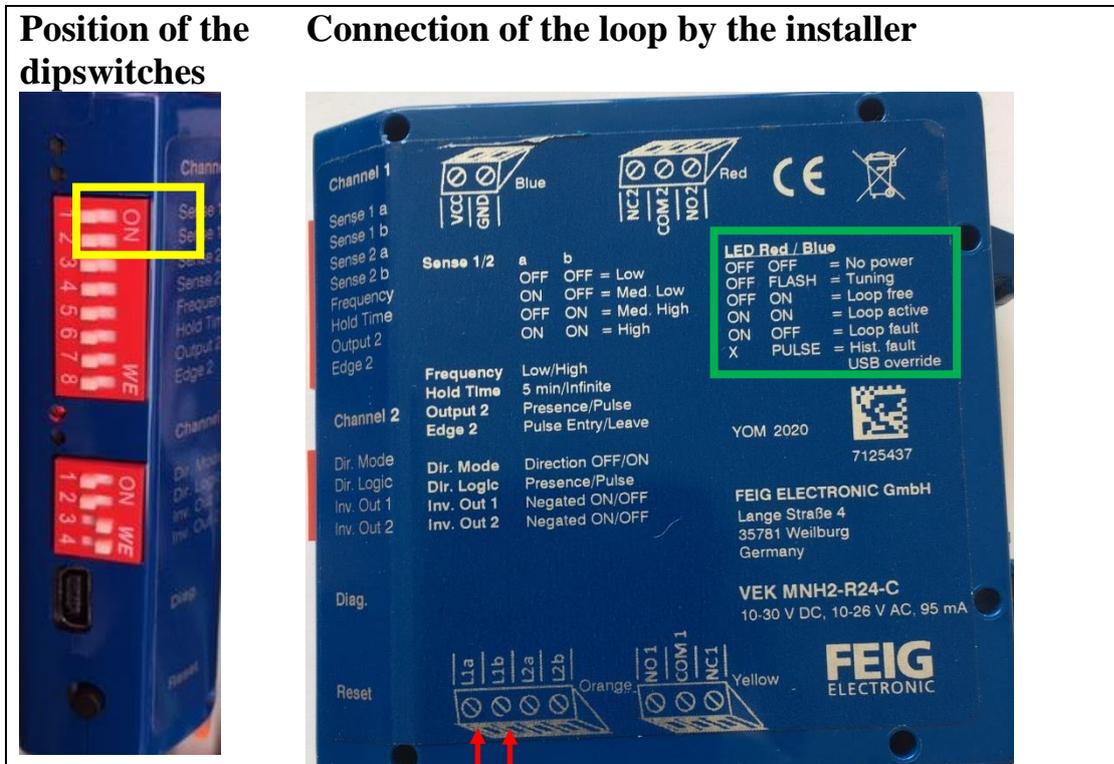
Loop 1

(between L1a & L1b)

Loop 1 corresponds to the parking space for charging point 1. It is connected from below to the orange plug-in connector. Loop 2 is not used.

The detector is set from factory with a configuration suitable for the most common situations. However, if necessary, it is possible to act on the first 2 DIPSWITCH of Channel 1 (framed in yellow) to adjust the operation :

Dipswitch	Utilisation		
1	Loop 1 Sensitivity :		
2	**1**	**2**	**Sensibilité**
	OFF	OFF	Low
	ON	OFF	Middle low
	OFF	ON	Middle high
	ON	ON	High (0.01%)

The meaning of the state of the detector's LEDs is described in the green box

BANK READER

THE QC50 CHARGING STATION CAN BE OPTIONALLY EQUIPPED WITH A CONTACTLESS CARD READER. THIS OPTION CAN EQUIP THE TERMINAL AS SOON AS IT LEAVES THE FACTORY.

IMPORTANT NOTE:

THE READER BANK MUST BE ACTIVATED IN THE TERMINAL TO BE FUNCTIONAL (MENU SYSTEM / IDENTIFICATIONS / READER BANCAIRE)

THE BANKING READERS IS AS FOLLOWS:

Ingenico iUC180B Bank Reader:

FRONT SIDE (USER SIDE VIEW)   BACK SIDE

To work, the CB reader must connect to the Internet.

Simplified diagram of the connection of the Ingenico iUC180B CB reader to the Internet in OCPP1.5

The CB reader iUC180B.is factory set according to these parameters:
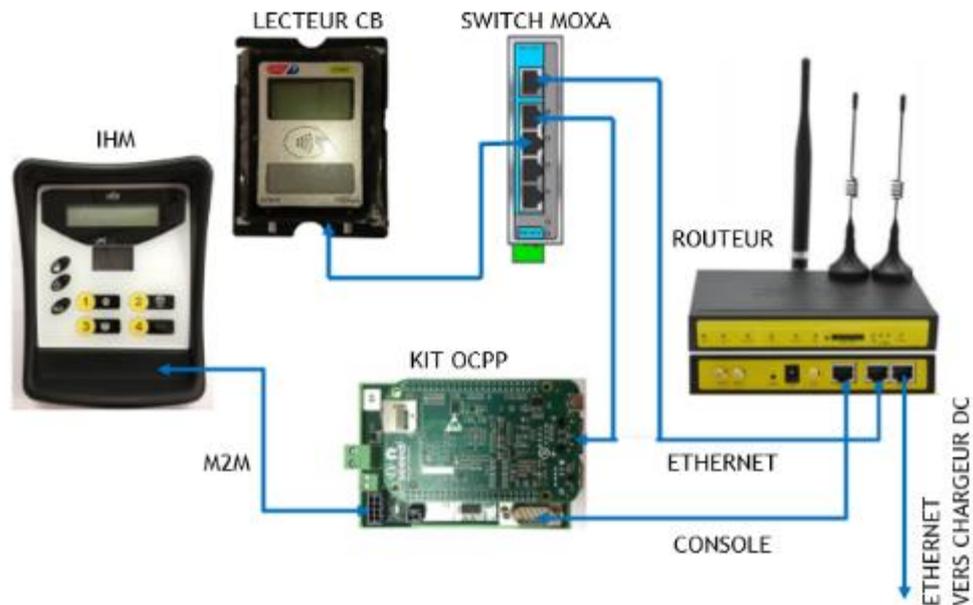
- IP reader: 192.168.1.10

- Gateway: 192.168.1.1

- Axis Primary Server: 10.23.47.60

- Axis server port: 39979 (PKI V3 dual authentication)

- SSL: Yes

- TermNum: 117XXXXX ➜Number assigned by MADIC industries

- IP Server Download: 91.208.214.34

- Server Port Download: 7004

- SSL Download: NO

To be functional it must be initialized with a unique number declared by MADIC industries.

In order to obtain this one, we need the EMV contactless type 1 (ERT45) EMV business contract that the customer has taken out with his bank.

It is necessary to provide its documents to MADIC industries so that it proceeds to its creation.

Once this number is obtained, a configuration and a test are performed at the factory to ensure its proper operation.

When starting the terminal, the reader iUC180B must be in this state:

It is possible to make sure of the connection of the reader to the Ingenico server by means of a ping realized in this way:

1) To enter the reader configuration menu, you must:

* Press the maintenance button (button on the back of the reader) and keep it pressed.

* Wait for the LED to flash red and then release the button.

Information will be displayed on the back screen.

You have to wait for the "hello" display to access the menu.

2) Once in the configuration menu:

* Press "*" to get the menu

- Press 1 to select "1 - APPLIADS"

- Press 1 to select "3 - MAINTENANCE"

- Press 3 to select "3 - PING AXIS"

- Press 1 to select "1 - PING AXIS"

To exit the mode, press the push button for about 3 seconds until the LED turns blue and then goes out.

Check on the front side that the drive is restarting with the date / time display then Hello

Ingenico Self / 2000 CL Bank Reader :

FRONT SIDE (USER SIDE VIEW)   BACK SIDE

Simplified diagram of the connection of the CB SELF / 2000 CL reader to the internet network in OCPP1.6 JSON
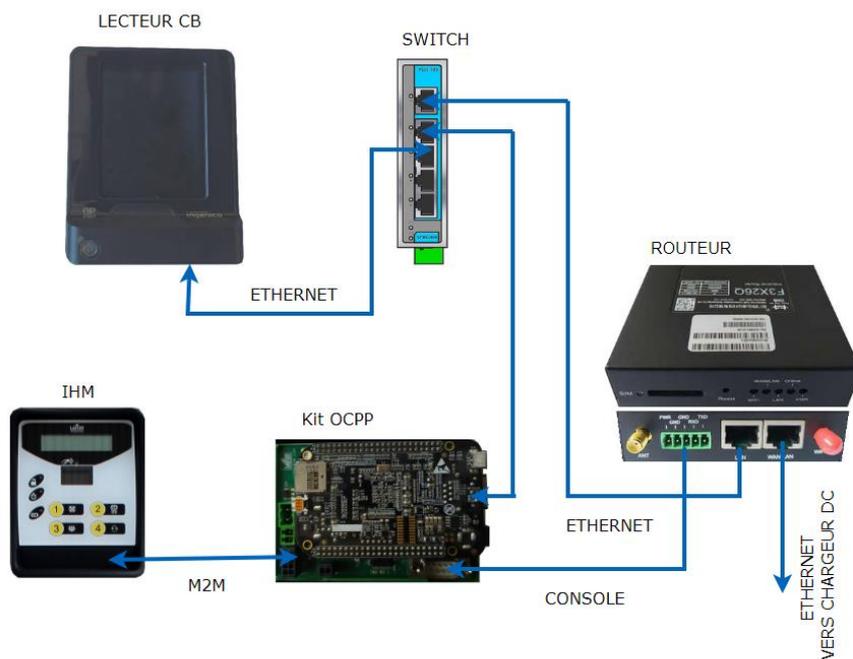
The Ingenico SELF / 2000 CL CB reader is factory configured according to these parameters.:

- IP lecteur : 192.168.1.10
- Passerelle : 192.168.1.1
- **Serveur Axis Primaire : 91.208.214.1**
- **Port serveur Axis : 39879**
- SSL : Oui
- ADS_AX_PO1
- TermNum : 117XXXXX ➜ *Number assigned by MADIC industries*

To be functional it must be initialized with a unique number declared by MADIC industries.

In order to obtain this one, we need the EMV contactless type 1 (ERT45) EMV business contract that the customer has taken out with his bank.

It is necessary to provide its documents to MADIC industries so that it proceeds to its creation.

Once this number is obtained, a configuration and a test are performed at the factory to ensure its proper operation.

When starting the terminal, the reader SELF/2000 CL must be in this state:

SELF/2000 CL

It is possible to ensure that the reader is connected to the Ingenico server using a ping performed in this way:

1) To enter the configuration menu of the SELF / 2000 CL reader, you must::

- Press the maintenance button (pushbutton on the back of the reader) and keep it pressed during start-up..

Bouton poussoir + led intégrée

Connecteur d'alimentation
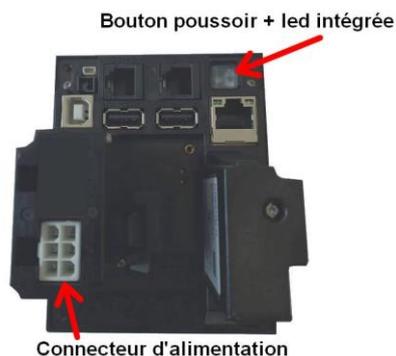
- Wait for the LED to flash red then release the button.
Information will be displayed on the front touch screen.
The reader must reach this display in order to access the menu.

SELF2000_Z0
MAINTENANCE
MODE
2021/12/06

- Press the touch screen on the double circle

SELF2000_Z0
MAINTENANCE
MODE
2021/12/06

- then on the touch screen press Control Panel

- Then press terminal settings

- Then press Means of communication

- Then press Ethernet
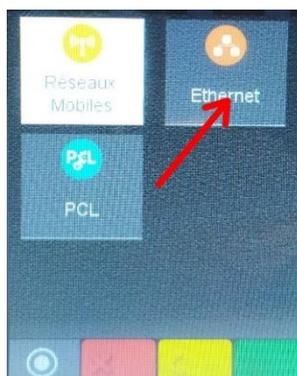
- Then drag the menu options until you reach Ping
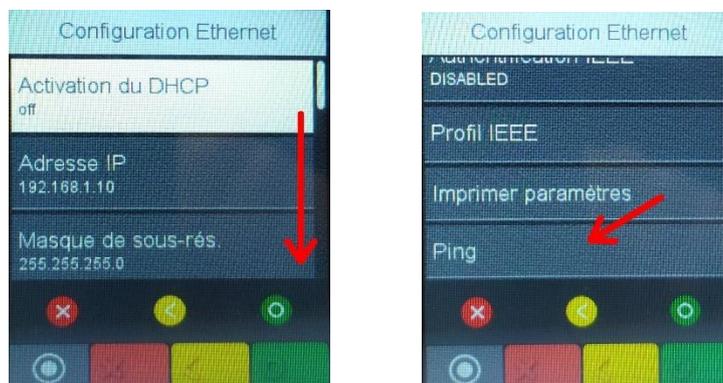
- here you have to modify the IP address to ping and validate with the small green circle
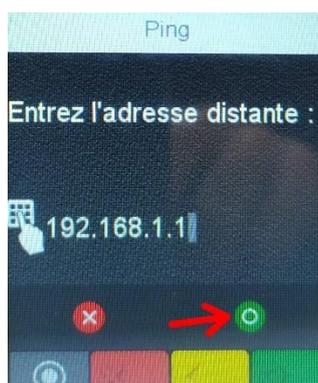
- The ping is executed on the entered IP address

To exit this mode, you must unplug and then re-plug the power supply to the SELF / 2000 CL reader.

PARAMETERING THE CONTACTOR-FREE READER BY THE SUPERVISOR

The supervisor in charge of administering the terminal must enter the following parameters:

- **IDtagBankCard**: value of the identification key for the bank authorization request.

- **ChargePrice** = unit price from 0.01 € to 99.99 € TTC.

- **FreeChargingDuration** = The time in seconds (from 0 to 9999) of effective charge before the charge becomes charged.

- **NumberBankCardReader** = Bank reader number

- **BillingMode** = 0 no CB payment, 1 algorithm 1, etc ....

- **ChargePriceTime =** price in euros per minute of parking.

- **ChargePriceEnergy =** price in euros per kWh delivered to the vehicle.

- **BankCardMaxAmount**: in euro. This parameter allows to vary in time the contactless payment limit which is 20 € by default (some cards already accept 30 €)

- **BankCardMinAmount**: in euro. The minimum payment amount depends on the customer's commercial contract. In the case of volume invoicing, this may imply that the charge is free for a certain period of time

The use of the CB reader iUC180B.on PULSE 50 requires the use of Billing Mode = 128.

The use of the CB reader SELF/2000CL.on PULSE 50 requires the use of Billing Mode = 129.

Definition and example of operation of the reader without contact with parameterization of the algorithm 128 (Billing Mode = 128):

1. Type of payment: Prepayment

2. Amount to be paid = **Fixed** price X (X in euros with 2 decimals allowed example: 2.50 euros) defined by the parameter **ChargePrice**

Note that in this mode the **FreeChargingDuration** parameter is not functional.

In addition each identification of the user via a credit card corresponds to a payment of the price indicated in **ChargePrice**.

In this mode of operation, the payment is effective whether the load can be done or not!

Because the cable is attached to the charger, the user could then stop the load from the vehicle and leave without paying

==Definition and example of operation of the reader without contact with parameterization of the algorithm 129== **(Billing Mode = 129):**

1. Type of payment: Prepayment authorization with the amount entered in the BankCardMaxAmount key. (the price paid cannot exceed this value), then an automatic validation of the payment is carried out at the end of the charge when the vehicle is disconnected.
2. Amount to pay = **ChargePrice** + (**ChargePriceTime** * time in minute) + (**ChargePriceEnergy** * Volume (kWh))

The amount to be paid is limited to the value of these keys :
if the user has a charge time less than the **FreeChargingDuration** key, the payment will not be validated..
If the volume is less than the **FreeChargingEnergy** key, the payment will not be validated..
If the calculated price is lower than the **BankCardMinAmount** key, the payment will not be validated.
If the calculated price is greater than the **BankCardMaxAmount** key, the price will be aligned with the value of this key..

In this operating mode, payment validation is only effective at the end of charging..

It is adjusted according to the keys: **FreeChargingDuration , FreeChargingEnergy,** ChargePriceTime, **ChargePriceEnergy, ChargePrice, BankCardMinAmount, BankCardMaxAmount**

==As a reminder, this Billing Mode = 129 must be used on the QC50 terminal equipped with an Ingenico SELF / 2000 CL CB reader in OCPP 1.6 JSON.==

For example if the following keys have the value: **BankCardMaxAmount** = 20 euros, that **Charge Price** = 5 euros, **ChargePriceTime** = 1 euro and **ChargePriceEnergy** = 0 euro.

When the user arrives at the terminal to initiate a charge, the bank reader displays a pre-authorization request with the value of 20 euros.

If the pre-authorization is accepted, the user is allowed to connect the vehicle.

1st case:
If the user returns after 30 minutes and initiates the charging stop then disconnects the vehicle from the terminal, the payment validation is carried out automatically, the price calculated for the transaction will be:

$$5 + (30 * 1) + ([\text{ volume in kWh }] * 0) = 35 \text{ euros.}$$

In this case, the calculated price is greater than the value of the **BankCardMaxAmount key** of 20 euros. <u>The payment made will therefore be limited to 20 euros</u>.

2nd case:
If the user returns after 10 min the payment will be:

$$5 + (10*1) + ([\text{ volume in kWh }] * 0) = 15 \text{ euros.}$$

The calculated price is lower than the value of the **BankCardMaxAmount** key key of 20 euros. The payment made will therefore be 15 euros.

==Note that payment validation is performed automatically if the vehicle remains connected for more than 24 hours to the value of the **BankCardMaxAmount** key.==

==Definition and example of operation of the reader without contact with parameterization of the algorithm 130 **(Billing Mode = 130)** Not available with CB reader IUC180B:==
1. Type of payment: Prepayment authorization with the amount entered in the BankCardMaxAmount key. (the price paid cannot exceed this value), then an automatic validation of the payment is carried out at the end of the charge when the vehicle is disconnected.
2. Amount to pay = **ChargePriceOption *** time in minutes
   The amount to be paid is limited to the value of these keys :
   - if the user has a charge time less than the **FreeChargingDuration** key, the payment will not be validated.
   - If the volume is less than the **FreeChargingEnergy** key, the payment will not be validated..
   - If the calculated price is lower than the **BankCardMinAmount** key, the payment will not be validated.
   - If the calculated price is greater than the **BankCardMaxAmount** key, the price will be aligned with the value of this key..

   In this operating mode, payment validation is only effective at the end of charging..

3. **chargePriceOption** key is used to determine a rate based on the power supply by the charging station. It is defined like this :

   [power_1 – price_1 ; power_2-price_2 ;.... ;power_n-price_n]
4. Tariff calculation requires activating meter values via **MeterValueSampleInterval** key**.**
5. A calculation is made between two meters values to calculate the maximum average power attributed by the charging station to the vehicule.
6. The charge price will be determined by this calculated power multiplied by the charging time ;

   Exemple :
   The chargePriceOption key is defined like this : [0 – 0.022 ; 10 – 0.044 ; 20 -0.066]

   The user authorizes the charge with the maximum amount defined by **BankCardMaxAmount to 5 euros.**

The user connects the vehicle and charging starts.

The supervisor has activated the meters values via the key **MeterValueSampleInterval = 300 i.e. every 5 minutes.**

First case :

If the charge lasts 60 minutes and the maximum average power calculated between two consecutive meters values is 15 kW, then :

The tariff applied will therefore be 0.044 because the calculated power is > 10 kW and < 20 kW ([0 – 0.022 ; 10 – 0.044 ; 20 - 0.066]

The calculated price will therfore be :

      60*0.044 = 2,64 euros

Second case :

If the charge lasts 120 minutes and the maximum average power calculated between two consecutive meters values is 22 kW, then :

The tariff applied will therefore be 0.066 because the calculated power is > 20 kW ([0 – 0.022 ; 10 – 0.044 ; 20 -0.066]

The calculated price will therfore be :

      120*0.066 = 7,92 euros > in the key **BankCardMaxAmount = 5 euros so the price paid will be 5 euros**

Third case :

If the charge lasts 120 minutes but meters values are not enabled (**MeterValueSampleInterval = 0**), then :

The tariff applied will therefore be 0.022 because the calculated power is undetermined. So, the first value will be selected ([0 – 0.022 ; 10 – 0.044 ; 20 -0.066])

The calculated price will therfore be :

      120*0.022 = 2,64 euros

Explanation of other modes:

Definition and example of operation of the reader without contact with parameterization of the algorithm 1 (Billing Mode = 1):

> 1. Type of payment: Postpayment
>
> 2. Free period from 0 to N (N in seconds) defined by the **FreeChargingDuration parameter**
>
> 3. Amount to be paid = **Fixed** price X (X in euros with 2 decimals allowed example: 2.50 euros) defined by the parameter **ChargePrice**

Thus, if **FreeChargingDuration** = 120 and **ChargePrice** = 2.50, the kiosk will grant a free charge during the first 2 minutes (120 seconds) and will charge the charge at 2.50 euros over 2 minutes.

Definition and example of operation of the contactless reader with parameterization of algorithm 2 (Billing Mode = 2):

> 1. Type of payment: Postpayment
>
> 2. Free period from 0 to N (N in seconds) defined by the **FreeChargingDuration parameter**
>
> 3. Amount to be paid (in euro in truncated proportion) = Volume (kWh) x ChargePrice (Unit price in euros with 2 decimals allowed example: 0.20 euros defined by the parameter **ChargePrice**)

Thus, if **FreeChargingDuration** = 300 and **ChargePrice** = 0.20, the terminal will grant a total free charge during the first 5 minutes (300 seconds) if the charge time has not exceeded 5 minutes. After 5 minutes of charging, **the delivered volume is fully counted since the first second**. Thus, if the delivered volume is 1,687 kWh then the amount invoiced will amount to (1,687 x 0.20) = 0.33 euros (truncated amount).

Definition and exemple of operation of the contactless reader with parameterization of algorithm 3 (Billing Mode = 3):

> 1. Type of payment : Postpayment
> 2. Free period from 0 to N (N en secondes) defined by the **FreeChargingDuration** parameter
> 3. Amount to be paid (in euro in truncated proportion) = ChargePrice + [Volume (kWh) x ChargePriceEnergy] + [Duration (Min) x ChargePriceTime]. Rounding precision is in Wh and second.

==Definition and exemple of operation of the contactless reader with parameterization of algorithm 4 (Billing Mode = 4):==

1. Type of payment : Postpayment
2. Free period from 0 to N (N en secondes) defined by the **FreeChargingEnergy** parameter
3. Amount to be paid (in euro in truncated proportion) = **ChargePriceOption x** duration in minutes

The type of paiement is identical to algorithm 130 but with payment at the end of the charge

Default setting

If these parameters are not known to MADIC industries at the time of shipment, the following settings will be applied by default:

BankCardMaxAmount : 20 € (Maximum amount cashable by the reader)

BankCardMinAmount : 0 € (Minimum amount cashable by the reader according to the cilent's banking contract)

ChargePriceTime : 0€

ChargePriceEnergy : 0€

NumberBankCardReader : the POS number provided by MADIC industries.

BillingMode : 128 (Payment Algorithm - here prepayment)

ChargePrice : 2 (Charge price - here 2 Euros)

FreeChargingDuration : 0 - (Free period in seconds) Not applicable if BillingMode = 128

IDTagBankCard : empty - (Bank IDs are passed as a unique key that always starts with '*')

It is not necessary to carry out more control for its commissioning.

CONCURRENT AC/DC CHARGING

Overview

This concurrent mode has been developed to ensure a maximum use of the station with the less holding time for users.

This way, when a second vehicle arrives at the station, it will be able to charge with the AC or DC part of the station which is not used by the other car.

The power will be fairly shared between the two vehicles according to the maximum power of each standard (typically: 28Kw on CCS and 22kW on AC T2 32A socket).

When any of the two vehicles leaves the station, power is fully given back to the other vehicle.

Please note that this concurrent charging mode is AC/DC only and not DC/DC. Concurrent AC/DC charging mode is available in software versions KIPB**200**A and above.

Charging Station Configuration

To activate or deactivate concurrent charging mode, you just need to set one parameter.

This parameter takes place in menu: "Plugs/Concurrent Charging".Set this parameter to "YES" and concurrent charging will be enabled (see above for details on how to access configuration menus).

MADIC industries Charge Pulse Configuration

When station is supervised with MADIC industries ChargePulse.com, the configuration of the station need to be changed according to this new operating mode.

You should set the following charging station description:

- 2 Charging points
- 4 plugs on each charging point :
  - o Chademo
  - o Combo (CCS)
  - o AC T2
  - o AC EF
- Inactive must be checked for the following plugs :
  - o AC T2 on charging point 1
  - o AC EF on charging point 1
  - o Chademo on charging point 2
  - o CCS on charging point 2

| | MY PROFILE | CHARGING STATIONS | CUSTOMERS | CHARGES | USERS | |

Charging station

Fill the form thereafter (* : mandatory field)

🏠	General Information	▼
🔌	Terminal configuration	▼
🔌	Charge points	▼

	Point Number ⇕	Plug number	Type	Charge mode	Inactive plug
☐	Point 1	Plug 1 Plug 2 Plug 3 Plug 4	CHAdeMo CCS 2 Type 2 Schuko E/F	Fast Fast Fast Normal	☐ ☐ ☑ ☑
		Plug 1	CHAdeMo	Fast	☑

❯ MAINTENANCE

Guide Line

CAUTION : Keep the doors closed to avoid unintentional opening. Keep the keys in a safe place.

a)   Caution before maintenance

Capacitors keep a voltage for a while after power is off. Check the voltage of any component you must operate.

b)   Preventive maintenance

Check periodically the equipment. The components to check and the periodicity depend on the environment and the usage. Later in this document a check list for periodical maintenance.

c)   Visual check

1. Look for any unusual noise from the fans, or the power units.

2. Look for any unusual smell, change in materials appearance, rust, etc....

3. It is recommended to keep the equipment free from dirt and dust. Clean it regularly with appropriate procedures.

Check List for preventive maintenance

As a reference, you will find herafter a check list to be used for periodical controls of the equipment.

Item to check	Criteria	Action	Period	
			Every 50 charge	3-6 months
Abnormal noise	Presence of abnormal noise	If the abnormal noise becomes progressively louder, for your convenience, damaged parts should be replaced by a qualified technician. If the noise becomes suddenly loud, power off the equipment immediately and have the damage parts checked by a qualified technician.	x	
Check inside the equipment	Abnormal smell, rust, bad appearance	Call your maintenance service.		x
Tightening of power wires	Check that the power wires are tightened correctly	Check correct tightening of screwed and bolted connections, at a torque of 6 N.m		x

Item to check	Criteria	Action	Period	
			Every 50 charge	3-6 months
Residual current device	The terminal's integrated differential circuit breaker must be tested regularly using its test button to check it functions correctly and ensure people's safety.	In case of failure, call your maintenance service.		x
Clean the fans and heat sink	The ventilation slots at the rear of the equipment must be cleaned and freed of any debris or objects that could prevent the free circulation of air in the charger's radiator. If necessary, clean the fans and check that they rotate properly.	Open the rear door. Remove the grates. With an air compressor : - Clean the grates. - Clean the fans - Clean the heat sink Check that the fans rotate properly.		x

Item to check	Criteria	Action	Every 50 charge	3-6 months
Charger cables	Check the presence of abrasion or cracks on the surface of the sheath.	In case of failure, call your maintenance service.	x	
	Check that the wires are not visible.			
	Check that the cables are not twisted or bent.	Replace them properly on their support.	x	
Charger plugs	Check that the connectors are not buckled, cracked, or damaged.	In case of failure, call your maintenance service.	X	
	Clean the parts normally used by the operators, like handles, connectors, etc.	Dampen a soft rag with water, spin-dry it, and wipe the surface of the part.	x	
Plug contacts	Check the presence of water or objects inside the contacts of the plugs.	With an air compressor, remove dust and other dirt. Caution : usage of a brush or a rag may damage the contacts.	x	

30 mA differential circuit breaker

Test button

Protective grill for upper fans

Rear door, radiator and fan access

Protective grill for lower fans

Upper fans

Radiator

Lower fans
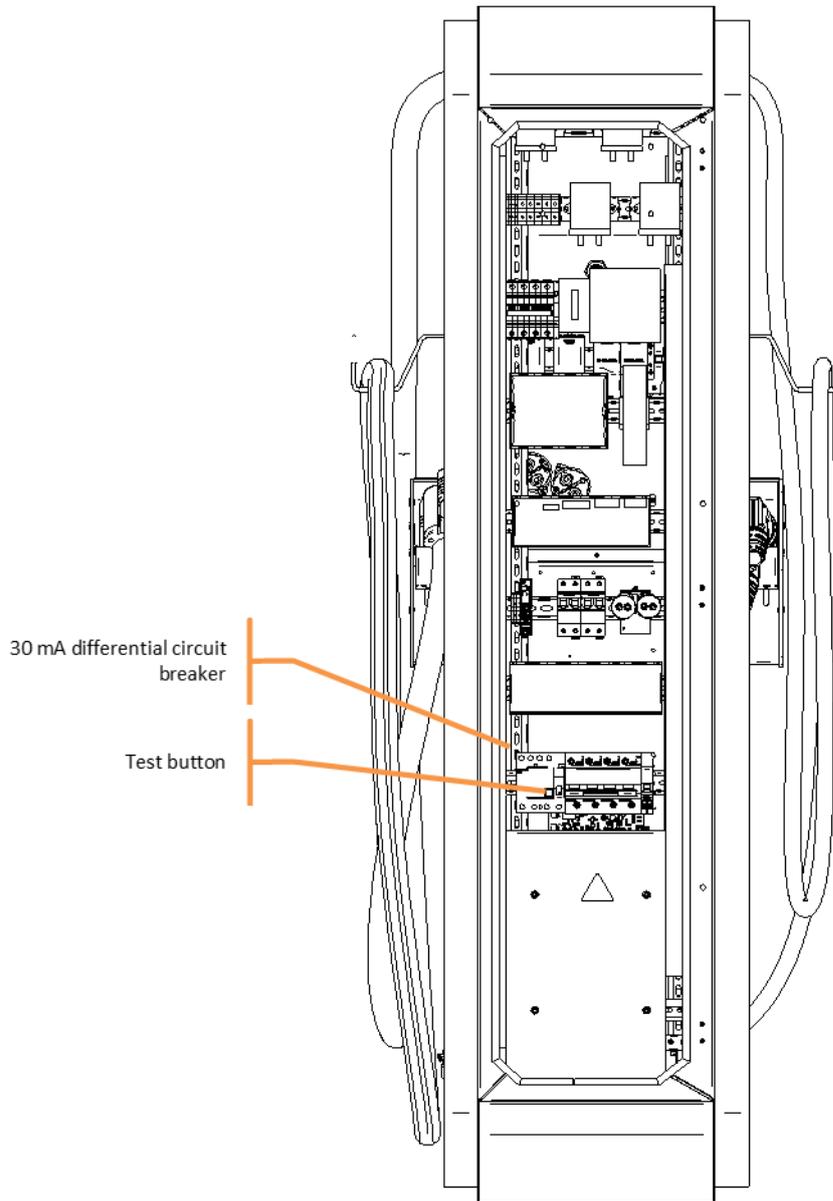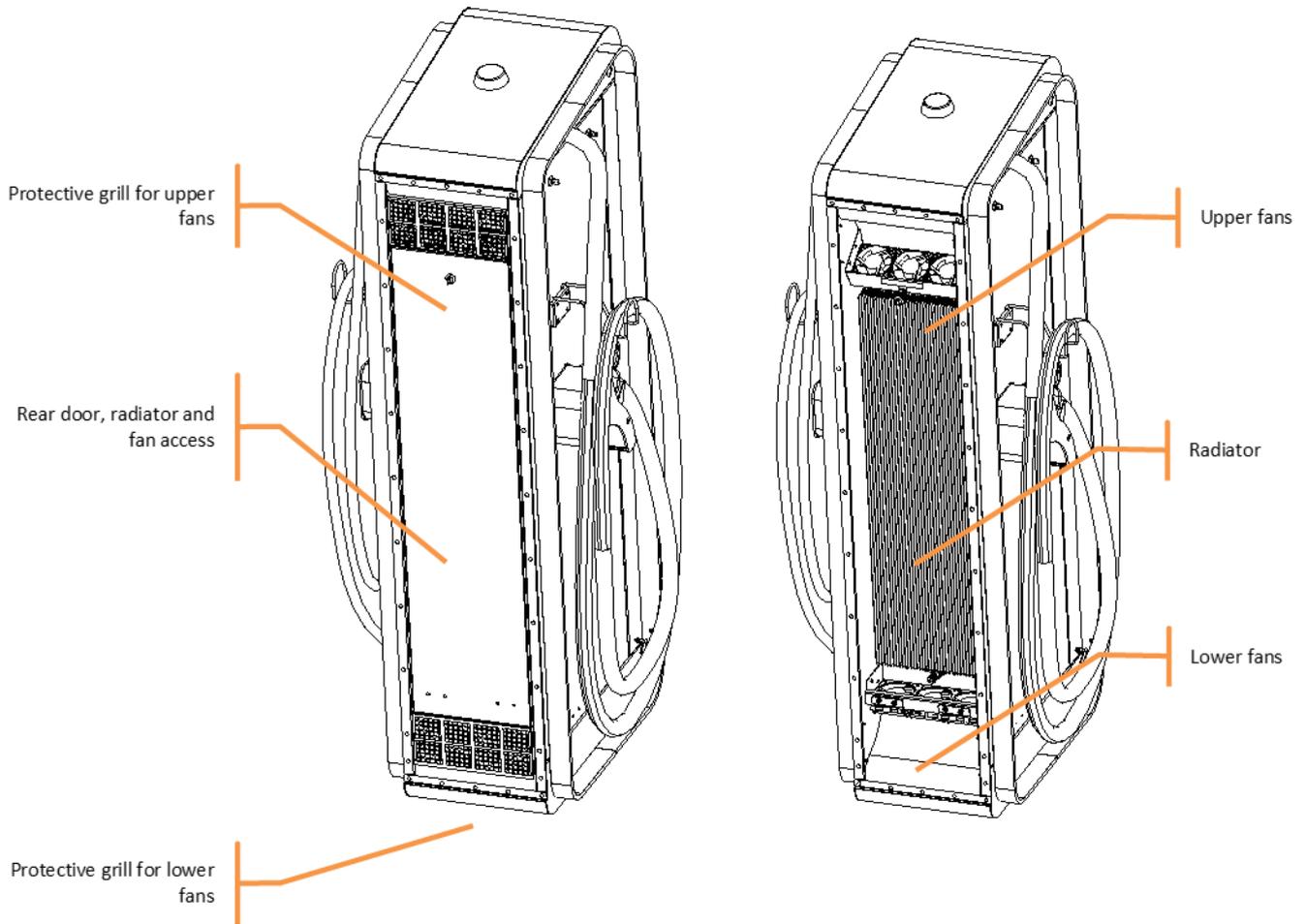
The vents at the rear of the device must be kept free of any debris or objects which may prevent the correct circulation of air in the charger's radiator. If necessary, clean and check the correct rotation of the fans.

Troubleshouting

General principles

In the event of a confirmed breakdown (blown fuse, major dysfunction), the general approach is as follows:

1. Conduct a visual inspection of the equipment's interior looking for disconnected or damaged cables, traces of burning, etc.
2. Check that power connections are tightened.
3. Use a multimeter to check the insulation between the phases and between phases and the earth.
4. Manually press the mobile parts of the contactors and check that there are no short-circuits.

WARNING: the power supply to the charger must be turned off before conducting these tests.

OCPP error codes

If the charger is connected to an OCPP server, an error status may appear in the StatusNotification message, which gives information to help diagnosing failure situations.

In the StatusNotification message, the field vendorId will be "LAFON Technologies", and the field info will give a label in English for the error.

ChargePointErrorCode	vendorErrorCode	Description
GroundFailure	1	Cut off of terminal or charge point
	0x1001	Cut off of AC sockets
	0x1007	Error on the PP pilot line of the mode 3 socket (T2 or T3)
	0x1008	Non-compliant cable error
OverCurrentFailure	6	Vehicle overconsumption problem
	0x1006	Vehicle overconsumption problem
UnderVoltage	0x1009	Insufficient power failure
Mode3Error	0x1005	CP pilot line error on mode 3 socket
OtherError ChargePointErrorCode	0xED	Link error between Pulse controller kit and OCPP kit
	0xEE	End of software download (info)
	0xEF	Corrupt OCPP database
	0x0008	Emergency stop active (in models with emergency stop option)
	0x0009	Socket not mounted
	0x000A	Multiple errors
	0x000B	Surge arrestor default
	0x000C	Inactive socket error
	0x000D	Security card error missing
	0x000E	Error loss of communication with the energy meter
	0x000F	Configuration error at terminal level on the presence of an energy meter
	0x00FD	Out of service error by server
	0x00FE	Software version KO
	2 or 0x1002	Pilot fault error

	3 or 0x1003	Pilot wire short circuit error
	4 or 0x1004	AC contactor stuck
	0x100A	Terminal battery problem
	0x2000	Generic charger error
	0x20F0	Charger is missing
	0x20F1	General charger error
	0x20xx	Charger error in idle state, see above for charger error list
	0x30xx	Charger error during CHADEMO session, see above for charger error list
	0x3101	Error unavailable by COMBO hookup
	0x8001	Attention cable not disconnected
	0x40xx	Charger error during COMBO session, see above for charger error list
	vendorErrorCode	Description

Using CCU Manager

If the breakdown appears to involve a DC charger, the CCU Manager utility is used to obtain a more precise diagnosis of this unit. More information on using CCU Manager is available in the 'CCU Manager User Manual'.

Guide to charger error codes:

Code	Application	Description	Possible Causes
0x00	all	No defect	
0x01	all	The PSU card does not respond or is faulty	- there is no 24V power supply - the RJ45 cable is not connected - the PSU or CCU card is defective
0x02	all	External emergency stop	- the emergency stop button has been pressed

0x03	all	Internal emergency stop.	- the PSU has requested an emergency stop using a digital communication
0x04	all	Abnormal voltage detected on the power module output or on the charger output when the power is turned on	- defective relay - vehicle connected - can occur if re-booted during charging: the capacitors have not had time to discharge and it immediately provides the voltage that was applied during charging
0x05	all	Incoherent voltage before and after the output relays	- the relays are dysfunctional or their control cables are incorrectly connected
0x06	CHADEMO	Corrupt CAN data	
0x07	CHADEMO	No CAN data received	- the vehicle is not properly connected or is faulty - the vehicle has been disconnected whilst charging
0x08	all	Short-circuit Occurs when the following conditions are satisfied: Output voltage is less than 30V and output current is greater than 5A.	- the output voltage metering circuit is disconnected - on a resistance simulation bench: The value for the applied resistance is too weak to start charging
0x09	all	Excessive voltage The output voltage exceeds the charger's or the vehicle's voltage limit	- open output circuit (relays open, disconnected cable...) - incorrectly calibrated metering circuit - on a resistance simulation bench: incorrect charging resistance value for the required current
0x0A	all	Charger overheating	- defective fans - obstruction of air inlet or outlet
0x0B	all	Excessive voltage The output current exceeds the charger's or the vehicle's current limit	
0x0C	all	Identical to code 0x01	
0x0D	all	Overlong PSU mode change	- defective PSU card
0x0E	all	The PSU has an incoherent status	- defective PSU card
0x0F	all	Abnormal internal charger voltage when power is turned on	- can occur if re-booted during charging: the capacitors have not had time to discharge and it immediately provides the voltage that was applied during charging
0x10	CHADEMO	Defective CHADEMO plug locking system (abnormal current measured in solenoid)	- damaged CHADEMO cable - defective locking system - defective CCU card

0x11	CHADEMO	Incompatibility of connected vehicle battery (voltage / current exceeds tolerances)	
0x12	CHADEMO	Defective vehicle function	
0x13	CHADEMO	Stop request made by vehicle	
0x14	CHADEMO	Incorrect vehicle gear lever position	- the vehicle's gear lever is not in Park
0x15	CHADEMO	Other vehicle defect	- examine the vehicle
0x16	CHADEMO	The output voltage exceeds the vehicle's maximum	
0x17	CHADEMO	The output voltage is exceptionally low	
0x18	CHADEMO	The difference between the voltage measured by the charger and that measured by the vehicle is excessive OR The difference between the current supplied by the charger and the current requested by the vehicle is excessive	- defective ammeter - incorrect ammeter calibration - poor contact (defective relay, defective connector...) - defective power or network module (it is no longer possible to supply the current requested by the vehicle)
0x19	CHADEMO	Vehicle battery overheating	
0x1A	CHADEMO	The difference between the voltage measured by the charger and that measured by the vehicle is excessive	- defective voltmeter - incorrect voltmeter calibration - poor contact (defective relay, defective connector...)
0x1B	all	Insulation problem: leaking between DC + or - or earth Can occur during an insulation test before or during charging	
0x1C	CHADEMO	Charger side error in charging sequence	
0x1D	CHADEMO	The vehicles voltage limit has been reached	
0x1E	COMBO	Charger stop requested by user	
0x1F	COMBO	Charger or vehicle power limit exceeded	
0x20	COMBO	Poor control wire status in the current sequence	
0x21	COMBO	Not used	
0x22	COMBO	The vehicle is not locked onto the plug	- the connector has not been pressed home
0x23	COMBO	Poor control wire status during charge	- COMBO plug disconnected - disrupted control signal (check surrounding equipment or that control wire is correctly connected inside the charger)
0x24	COMBO	Not used	
0x25	COMBO	The vehicle is not ready to be charged (vehicle side fault)	

0x26	COMBO	The 'BULK' charge level has been reached	
0x27	COMBO	The maximum charge level has been reached	
0x28	all	No power module is available for charging OR Excess voltage problem (the power modules turn themselves off when they detect excess voltage)	- no rectified voltage at module input: defective input contactor or fuses or circuit breaker - see also causes of error 0x09
0x29	CHADEMO	Problem with initialising digital communication with vehicle: The vehicle does not answer	- vehicle not connected
0x30	COMBO	The vehicle is defective but does not emit an error code	
0x31	COMBO	Error sent by vehicle: the battery is too hot /cold to accept charging	- extreme external temperature - defective vehicle air conditioning
0x32	COMBO	Error sent by vehicle: gear lever position	- the vehicle's gear lever is not in Park
0x33	COMBO	Error sent by vehicle: the vehicle is not able to lock on to the connector	- plug not pressed home
0x34	COMBO	Error sent by vehicle: defective battery	
0x35	COMBO	Error sent by vehicle: the difference between the current supplied by the charger and the current requested by the vehicle is excessive	- defective ammeter - incorrect ammeter calibration - poor contact (defective relay, defective connector...) - defective power or network module (it is no longer possible to supply the current requested by the vehicle)
0x36	COMBO	Error sent by vehicle: voltage outside tolerances The vehicle has stopped charging because it detected that battery voltage was higher or lower than normal operating limits	
0x37	COMBO	Timeout error V2G : no message received	Reception timeout : no message back from the vehicle. PLC communication disturbed
0x38	COMBO	Error sent by vehicle: error reserved by ISO / IEC for future uses	
0x39	COMBO	Error sent by vehicle: error reserved by ISO / IEC for future uses	
0x3A	COMBO	Error sent by vehicle Incompatibility between vehicle and charger	- incompatible voltage/current limits - incompatible software versions
0x3B	COMBO	Loss or failure to establish digital communication	
0x3C	COMBO	SLAC procedure not initiated by vehicle within the required time limit following PWM signal starting	- the vehicle is defective - the cable has not been pressed home

0x3D	COMBO	Initialisation of the CCU card's network module	- defective CCU card - firmware installed in CCU card is incompatible with this version of card
0x3E	COMBO	Error when establishing network link with CPL module	- defective CPL module
0x3F	COMBO	No PLC communication	CCU issue
0x40	CHADEMO	Unsupported vehicle CHADEMO protocol	
0x41	COMBO	Charge authorization not received	Communication with backend issue. User did not authenticate himself.
0x42	COMBO	EVSE waits user unplug EV	
0x43	COMBO	Communication board has closed the session	
0x44	COMBO	Protocol issue.	Upgrade CCU software
0x45	COMBO	Protocol issue.	Upgrade CCU software
0x46	All	Communication timeout	HMI or USB or RS232 or ETHERNET communication interrupted for more than 10 s
0x50	COMBO	Plug is too hot	Connector issue
0x52	COMBO	Proxy pilot not detected or pressed during charge in COMBO1 mode	Proxy pilot wire disconnected
0x53	COMBO	Protocol issue.	Upgrade CCU software
0x54	COMBO	Protocol issue.	Upgrade CCU software
0x55	COMBO	Temperature of the COMBO outlet is not valid	Temperature sensor is failed or not connected
0x56	COMBO	Output voltage between postrelay and prerelay is too high	- Precharge request voltage is more than real battery voltage - Precharge relay stuck
0x80	all	PSU card error without returning specific error code	- the PSU card has entered error mode but the error code was immediately reinitialised
0x81	all	Identical to 0x03	
0x82	all	Communication problem between PSU card and power modules	- defective RJ45 cables linking to modules - defective power modules - defective PSU - defective distribution card (RJ45 connectors)
0x83	all	Communication problem between PSU and CCU cards detected by PSU card	- cabling problem between the cards - CCU software problem - defective PSU card
0x84	all	Identical to 0x28	
0x85	all	Identical to 0x09	
0x86	all	Identical to 0x0A	
0x87	all	Incoherent PSU software internal status	- defective PSU card

0x88	all	Identical to 0x1B	
0x89	all	Identical to 0x09	
0x8A	all	Identical to 0x08	
0x8B	all	Rectified voltage outside tolerances	- defective input contactor - input fuses - input circuit breaker - loss of one or more phases - disrupted or abnormal mains supply
0x8C	all	Over fast rectified voltage variation	- loss of a phase - disrupted or abnormal mains supply
0x8D	all	Excessive internal VRED variation	Line lost or unbalanced
0xA0	all	Error during programming of PSU card or power modules	- defective PSU card or power module
0xB0	all	CCU bootloader failed	CCU to be flashed
0xB1	all	CCU bootloader failed	Bad software version
0xF0	COMBO	Insulation warning	
0xFF	all	Internal error	- defective PSU card

Replacing a power module

Dismantling and re-assembling a V2 power unit

Open the lower door and dismantle the ventilator unit at the bottom	

- Open the side doors and disconnect and unscrew all the connections on the power module	
- Emergency stop line	
- Terminal communication cable and Ethernet cable	

COMBO and CHADEMO communication cable(s) - depending on model	
Disconnect he power supply units	

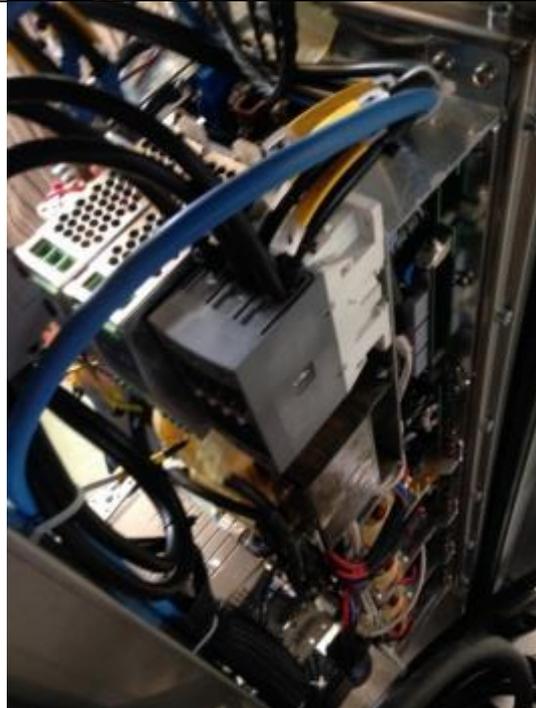|	
Disconnect the power outputs	
Unscrew the screw fixing the radiator to the frame Stabilise the power unit using a load line and remove from the rear. To reassemble, reverse the process.	
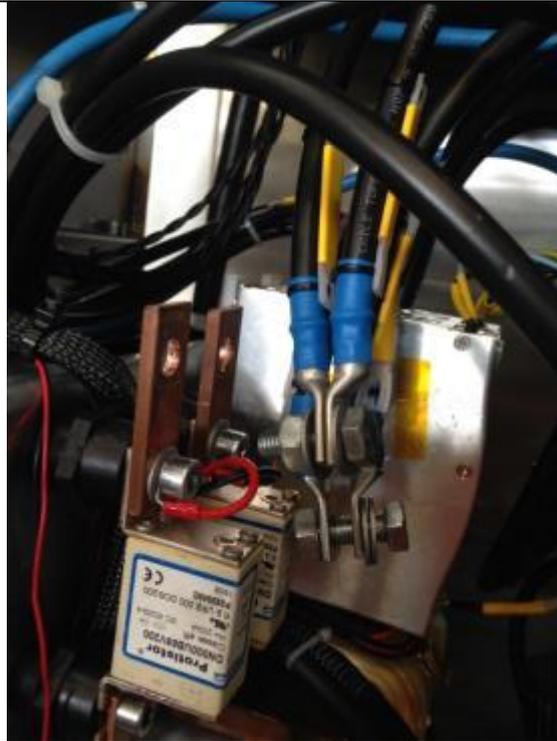
Dismantling and re-assembling a V3 power unit

The V3 power unit consists of four 12.5kW units that are dismantled individually

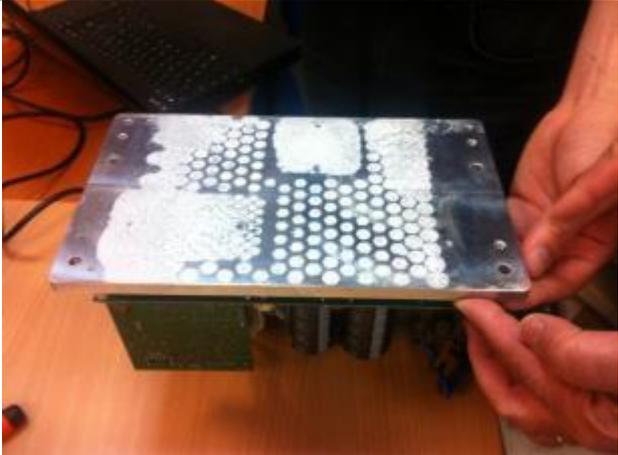|	
Disconnect the Ethernet cable and the black Molex plug then unscrew the module.	
Once all the screws have been removed, a screw is used to separate the unit from its support	

To re-assemble, place the thermal paste on the new module and proceed in the reverse order.	

❭ END OF LIFE

The components must be consigned to companies that are specialised in eliminating and recycling industrial waste, in particular:

- Packaging:

The packaging consists of biodegradable cardboard that can be consigned to companies that recover cellulose.

- Metallic parts:

Metallic parts, whether painted or in stainless steel, can normally be recycled by companies specialised in scrap metal processing in the metal recycling sector.

- Electrical and electronic components:

Components such as the terminal, the LEGIC reader, the electrical sockets and plugs, the circuit breaker, switches and other electrical or electronic parts are considered as electrical and electronic equipment waste and must be eliminated by companies specialised in recycling electronic components.

- Other parts:

Other parts, such as pipes, rubber seals and plastic parts must be consigned to companies specialised in treating industrial waste.

CERTIFICAT CE

Emmanuel OURRY,
Directeur d'Etablissement
/Plant Manager

LAFON TECHNOLOGIES

DOCUMENT REF. :
REF. DOCUMENT : 17801280-A

Bassens, le 19/05/2014

Déclaration de conformité CE
Conformity declaration

PULSE QC 50 : borne de recharge de véhicule électrique
Electric vehicle charging station

Je déclare au nom de la société LAFON, 44 avenue Victor Meunier, 33530 BASSENS, FRANCE, que l'appareil de type PULSE QC 50

Est conforme aux directives européennes :

- **2006/95/CE (Directive Basse Tension)** relative au matériel électrique destiné à être employé dans certaines limites de tension
- **2004/108/CE (Directive CEM)** relative à la compatibilité électromagnétique
- **94/62/CE** relative aux emballages et déchets d'emballage

Et aux normes :

- **NF EN 61851-1:2012** Système de charge conductive pour véhicules électriques
- **NF EN 61851-22:2002** Système de charge conductive pour véhicules électriques - Partie 22: Borne de charge conductive en courant alternatif pour véhicules électriques
- **CEI 61851-23 :2014** Système de charge conductive pour véhicules électriques – Partie 23 : borne de charge en courant continu pour véhicules électriques
- **NF EN 62196-1 :2012** Fiches, socles de prise de courant, prises mobiles et socles de connecteur de véhicule - Charge conductive des véhicules électriques - Partie 1: Règles générales
- **NE EN 62196-2 :2012** Fiches, socles de prise de courant, prises mobiles et socles de connecteur de véhicule - Charge conductive des véhicules électriques - Partie 2: exigences dimensionnelles de compatibilité et d'interchangeabilité pour les appareils à broches et alvéoles pour courant alternatif
- **NFC 15-100** Sécurité des installations électriques

I hereby declare in name of LAFON, 44 Avenue Victor Meunier, 33530 Bassens France, that the equipment model PULSE QC 50

Meets the European Directives:

- **2006/95/EC (Low Voltage Directive)** relating to electrical equipment designed for use within certain voltage limits
- **2004/108/EC (EMC Directive)** relating to electromagnetic compatibility
- **94/62/CE** relating to packaging and packaging waste

And to standards:

- **IEC 61851-1:2010** Electric vehicle conductive charging system - Part 1: General requirements
- **IEC 61851-22:2002** Electric vehicle conductive charging system - Part 22: AC electric vehicle charging station
- **IEC 61851-23:2014** Electric vehicle conductive charging system - Part 23: DC electric vehicle charging station
- **IEC 62196-1:2011** Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements
- **IEC 62196-2:2011** Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories
- **NFC 15-100** Low voltage electric installations

DAQ 1203 K 01/13

ISO 9001 : 2008

ISO 14001 : 2004

Adresse :

Parc d'Aquitaine
1155 avenue Jean-Baptiste Godin
33240 Saint-André-de-Cubzac

Email contact :

contact.industries@madic.com

WWW.GROUPE.MADIC.COM