PULSAR MAX

Charger Checklist

Technician:		**Date:**	
Customer:		**Serial Number:**	
Address:		**Charger version (SW):**	
Vehicle:			

1. Provide Photos

*Provide photos of the charger, include a clear photo of the inside of the charger both **cover** and **body, and EV gun.***

2. Wallbox Checks

2.1 Is the status LED on? *Check electric installation and Molex, also if there is any LED on inside.*

☐ Yes ☐ No

2.2 What is the color of the status LED? *Check section 5.4 of the annex.*

☐ Yellow ☐ Green ☐ Blue ☐ Orange ☐ Turquoise ☐ Red ☐ Blinking ☐ LED Off

2.3 Is it possible to synchronize with myWallbox app?

☐ Yes ☐ No

2.4 Does the charger appear on nearby devices?

Check in the Bluetooth settings of the mobile (Android) or BLE Scanner 4.0 App (Apple).

☐ Yes ☐ No Name:

2.5 Is the charger connected to the Internet?

☐ WiFi ☐ No

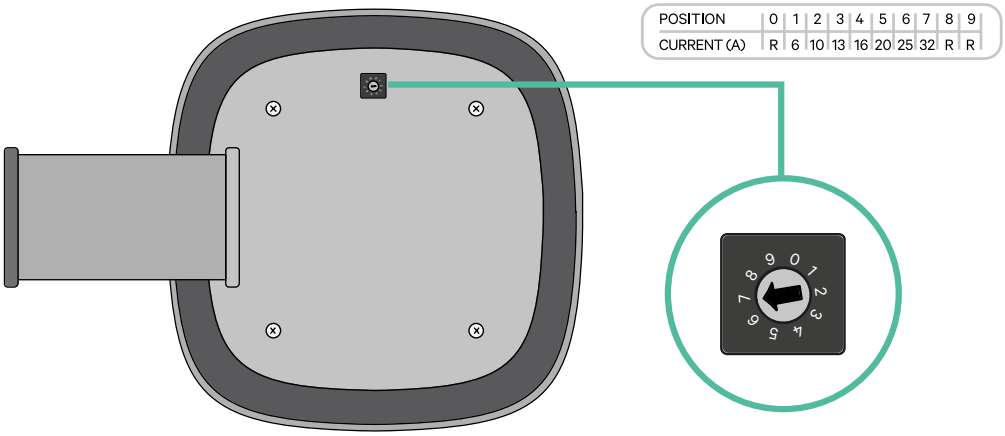
2.6 Is the charger making any noise or buzzing?

☐ Yes ☐ No

2.7 In what position is the current selector?

Indicate the position between 0 and 9.

POSITION	0	1	2	3	4	5	6	7	8	9
CURRENT (A)	R	6	10	13	16	20	25	32	R	R



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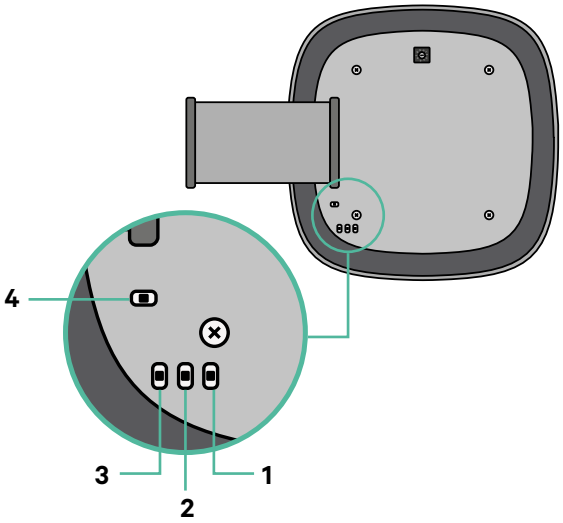
2.8 In which state are the LEDs on the Carrier (CR)?

	Blinking	Fix	Off
1 LD301	☐	☐	☐
2 LD302	☐	☐	☐
3 LD303	☐	☐	☐
4 Power	☐	☐	☐



LED Clues

1 LD301: Communication RPi-MCU
2 LD302: Error LED. If blinking, count the blinks and record a video for 1 minute.
3 LD303: Hearbeat
4 Power: Power ON

(Review section 5.5 of the Annex).

2.9 In which position are the switches on the Carrier (CR)?

	T	NT
PWR SHR	☐	☐
PWR BOOST	☐	☐

3. Electric Installation

Single-Phase	☐	IT	☐	MCB (A)	
Bi-Phase	☐	TT/TN	☐	RCD (Type)	
Three-Phase	☐			Other	

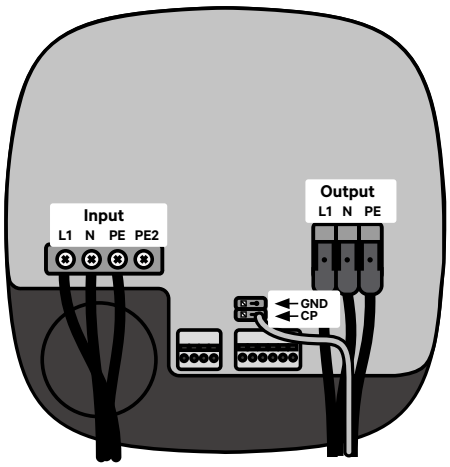
3.1 Earth resistance of the charger installation:
(Some EV car models do not accept more than 150 Ohm).

Ohm

3.2 **Voltage measurements on the charger.** *Review section 5.2 and 5.3 of the annex.*
The measurements in 3.2.1, 3.2.2, 3.2.3 and 3.2.4 must be carried out **with power supply** to the charger!
Review section 5.3 of the annex.

3.2.1 Measurements on the power supply of the charger.
Option 1: Sinlge-phase charger

N-PE (Vac)	
N-L1 (Vac)	
PE-L1 (Vac)	
CP-PE (Vdc)	



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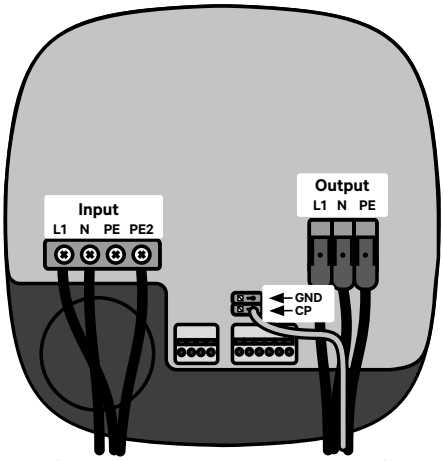
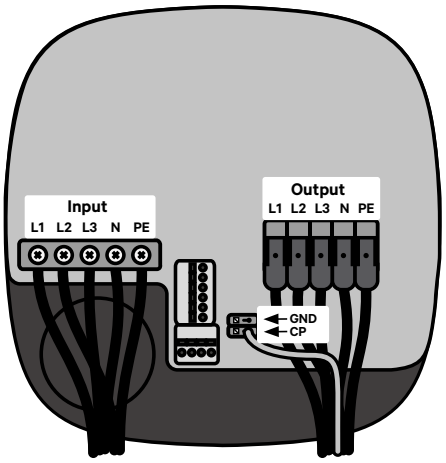
3.2.2 Measurements on the power supply of the charger.
Option 2: UK Single-phase charger (UK only)

N-PE2 (Vac)	
N-L1 (Vac)	
PE2-L1 (Vac)	
CP-PE2 (Vdc)	



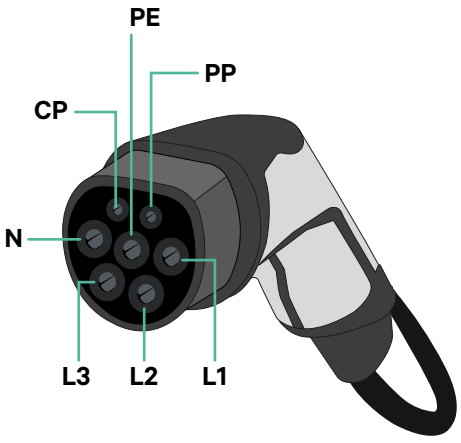
3.2.3 Measurements on the power supply of the charger.
Option 3: Three-phase charger

N-PE (Vac)	
N-L1 (Vac)	
N-L2 (Vac)	
N-L3 (Vac)	
PE-L1 (Vac)	
PE-L2 (Vac)	
PE-L3 (Vac)	
CP-PE (Vdc)	



3.2.4 EV gun measures
Review section 5.2 of the annex)

N-PE (Vac)	
N-L1 (Vac)	
N-L2 (Vac)	
N-L3 (Vac)	
PE-L1 (Vac)	
PE-L2 (Vac)	
PE-L3 (Vac)	
CP-PE (Vdc)	



3.3 **Continuity measurements on the charger.**

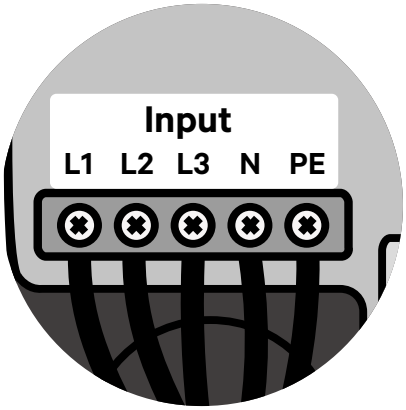
The measurements in 3.3.1 and 3.3.2 and 3.3.3 must be carried out **without power supply** to the charger!

(Review section 5.1. and 5.2 of the Annex).

3.3.1 Verification of relays, must be measured between the supply connections and the terminals of the hose output. There must be no continuity in the lines, only on the ground (PE).

Continuity L1 input - L1 output:	☐ Yes	☐ No
Continuity L2 input - L2 output:	☐ Yes	☐ No
Continuity L3 input - L3 output:	☐ Yes	☐ No
Continuity N input - N output:	☐ Yes	☐ No
Continuity PE input - PE output:	☐ Yes	☐ No

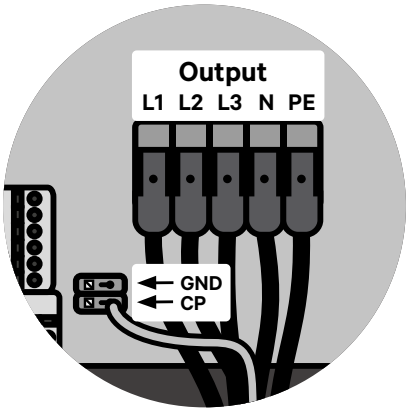
Input



3.3.2 EV gun cable continuity: should be measured between the EV gun pins and the hose output terminals:

Continuity L1 EVg - L1 output:	☐ Yes	☐ No
Continuity L2 EVg - L2 output:	☐ Yes	☐ No
Continuity L3 EVg - L3 output:	☐ Yes	☐ No
Continuity N EVg - N output:	☐ Yes	☐ No
Continuity PE EVg - PE output:	☐ Yes	☐ No
Continuity CP EVg - CP output:	☐ Yes	☐ No

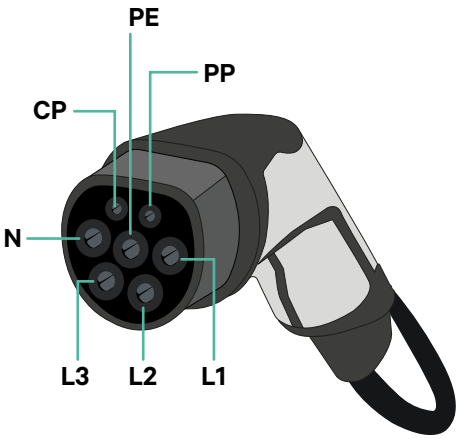
Output



3.3.3 Check output connections, HV-board. Only in cases of no continuity of the EV gun or no 12Vcc in the CP or with or in cases of intermittent charges.

(Review section 5.2 of the Annex).

Is the L1 properly connected?	☐ Yes	☐ No
Is the L2 properly connected?	☐ Yes	☐ No
Is the L3 properly connected?	☐ Yes	☐ No
Is the N properly connected?	☐ Yes	☐ No
Is the PE properly connected?	☐ Yes	☐ No
Is the CP properly connected?	☐ Yes	☐ No



3.4 More details of the place of installation (eg, it is at the end of the line, there is heavy machinery nearby, it is located in an industrial area, ...)

4. Resume

4.1 Spare part needed?

- ☐ COVER
- ☐ Ev Gun
- ☐ Complete Unit
- ☐ PCB HV&PS
- ☐ PLAIN CABLE
- ☐ Plastics

4.2 Fault description:

If any doubts, please contact us.

Thank you.

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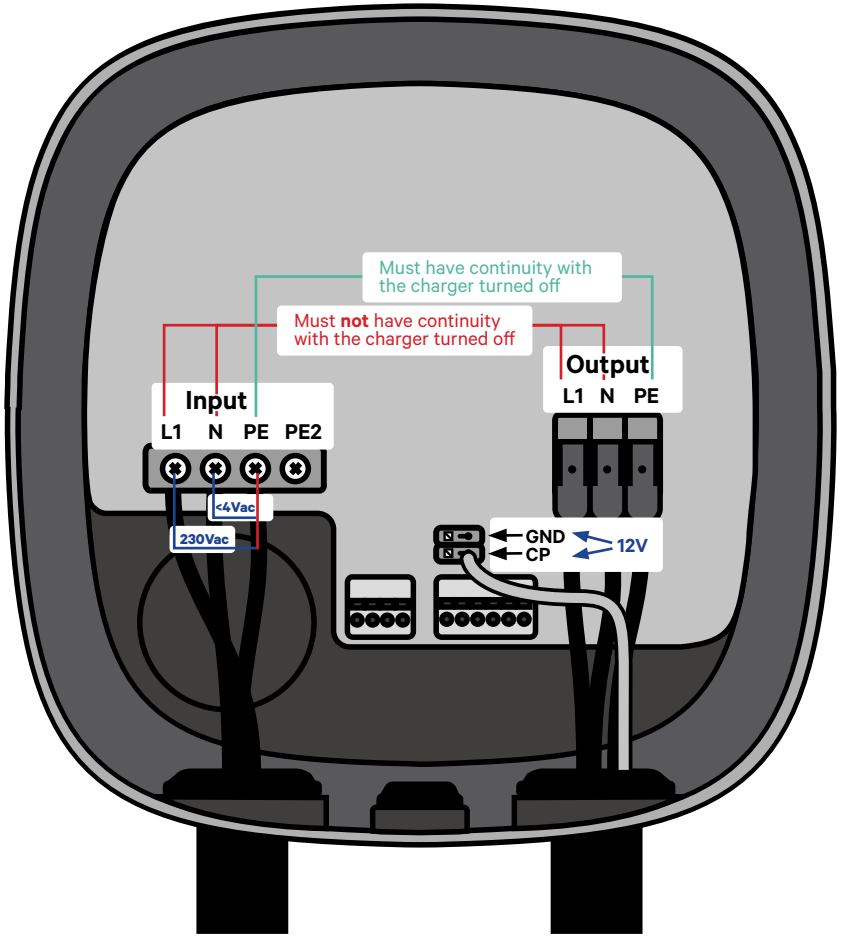
Troubleshooting Annex

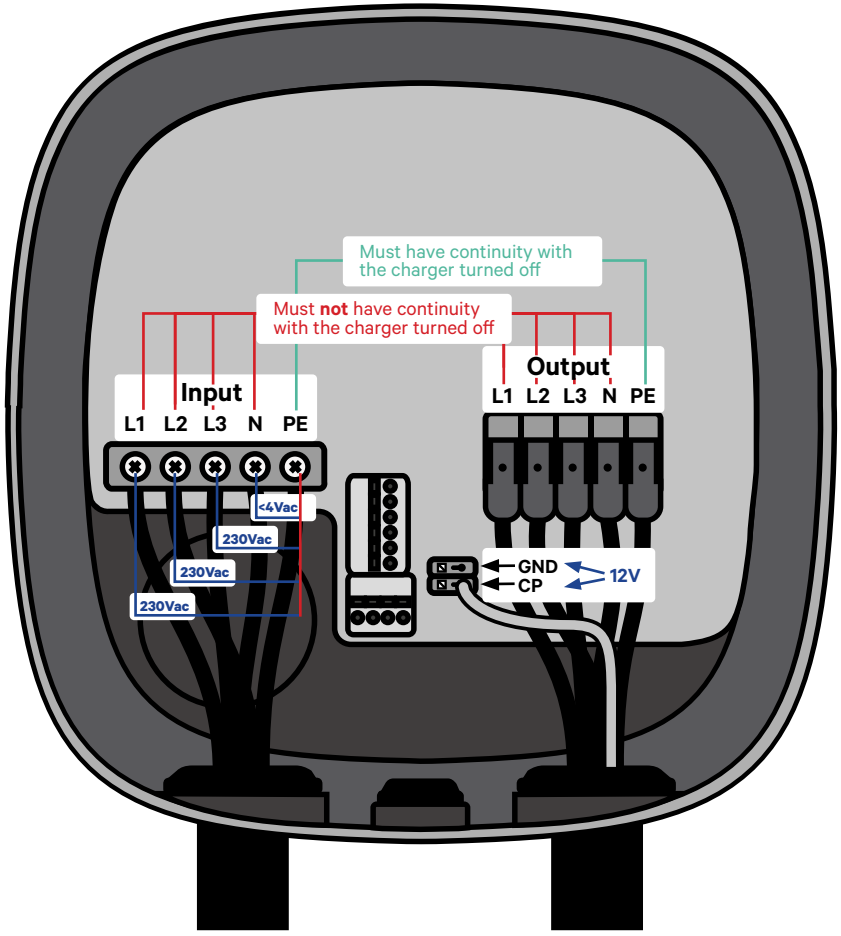
5.1 PCB's wiring

Single-phase charger EU&UK*



*In case of a UK charger the earthing cable needs to be connected to PE2.

Three-phase charger

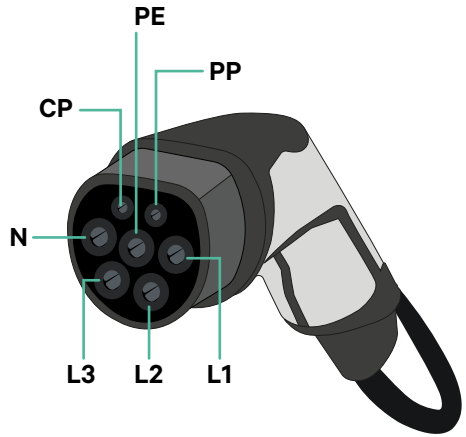


Troubleshooting Annex

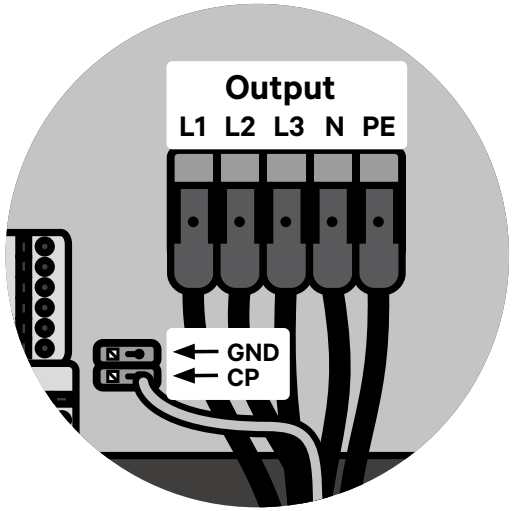
5.2 EV gun measures

Wallbox ON - Car disconnected

Pins	Measures
NEUTRAL - GROUND	0V AC (compulsory for less than 5V)
NEUTRAL - L1	0V AC
NEUTRAL - L2	0V AC
NEUTRAL - L3	0V AC
GROUND - L1	0V AC
GROUND - L2	0V AC
GROUND- L3	0V AC
CP - PE	12V DC



Pins	Continuity EVG to Wallbox (charger OFF)
L1 EVG - L1 OUTPUT	Continuity: Yes
L2 EVG - L2 OUTPUT	Continuity: Yes
L3 EVG - L3 OUTPUT	Continuity: Yes
N EVG - N OUTPUT	Continuity: Yes
PE EVG - PE OUTPUT	Continuity: Yes
CP EVG - CP OUTPUT	Continuity: Yes

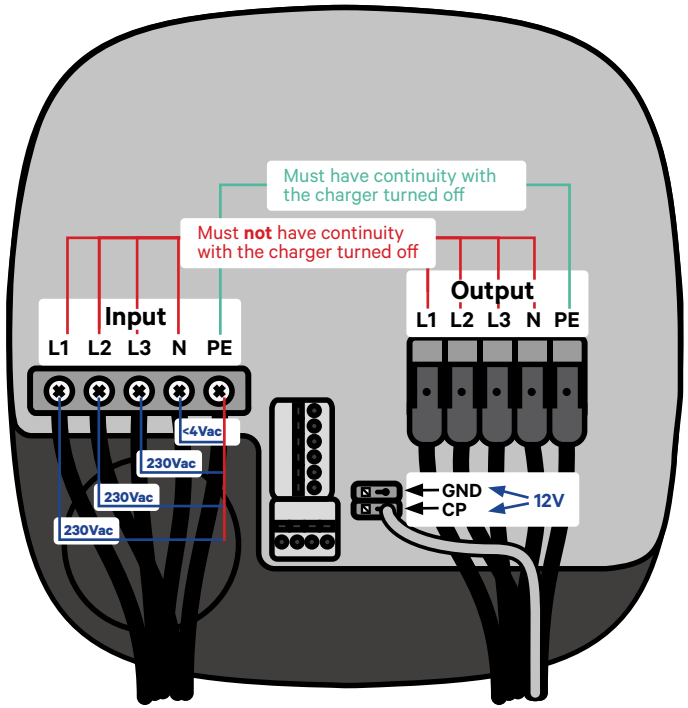


Troubleshooting Annex

5.3 Measurements on the power supply of the charger (Example: Three-phase charger).

Pins	Measures
NEUTRAL - GROUND	0V AC (compulsory for less than 5V)
NEUTRAL - L1	230V AC
NEUTRAL - L2	230V AC
NEUTRAL - L3	230V AC
GROUND - L1	230V AC
GROUND - L2	230V AC
GROUND - L3	230V AC
CP - PE	12V DC

Pins	Continuity (charger OFF)
L1 INPUT - L1 OUTPUT	No
L2 INPUT - L2 OUTPUT	No
L3 INPUT - L3 OUTPUT	No
N INPUT - N OUTPUT	No
PE INPUT - PE OUTPUT	Yes



Troubleshooting Annex

5.4 LED Status

Yellow
The charger is locked, unlock with the App.

Green
No EV is connected to the charger. Charger is ready to use.

Orange
Not connected to MID meter.

Turquoise
Connected charger

Blue
Charger Charging

LED Off
Check electrical installation and MOLEX connector (connecting cable between CR and HV). Also check if any internal LEDs are lit.

Red
Charger in Error Status.

Carry out check measurements
(section 3)

Voltage to earth (PE) measurements
(in three-phase installation)

- **L1 =230Vac ± 10%**
- **L2 =230Vac ± 10%**
- **L3 =230Vac ± 10%**
- **N=0Vac (<4Vcc)**

If these measurements are not obtained, the electric installation must be checked.

Checking relays with th charger switched off
(section 2.1.2).

There must be no contuinuty in the lines, only on the ground. Otherwise the High Voltage board will be affected.Contact Service.

EV gun measurements (Section 2.1.3)

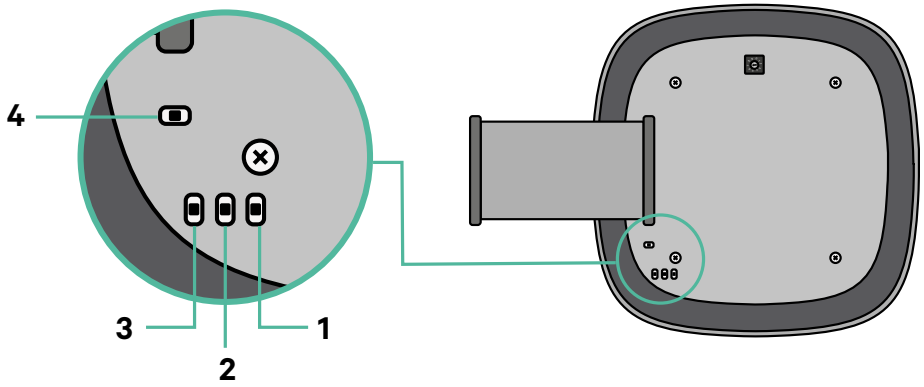
1) Voltage measurements
N - PE > 4 Vac -> Check earth installation
N o PE - L1, L2, L3 ≠ 0Vac -> Perform relay checks (2.1.2)
CP - PE ≠ 12Vcc -> Check Control Pilot cable (with charger off)

2) Continuity measures
If there is no continuity in any of the PINs means that the cable is broken -> Change charger.

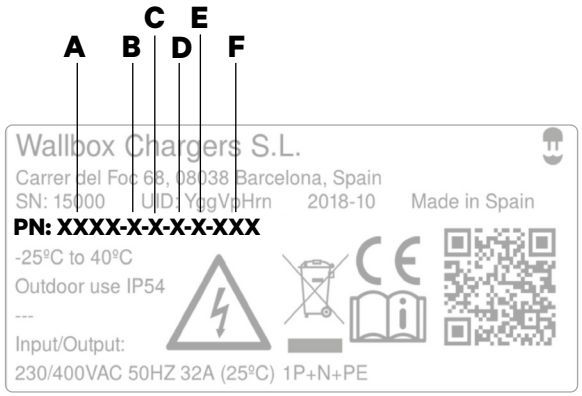
Troubleshooting Annex

5.5 LED Status on the Carrier (CR)

Nº LED	Function	Expected behaviours	Status	Action (if LED reaction is unexpected)
1 LD301	Modbus Comm between RasPi and TMS	Red- very 250ms is ON shortly	If never blinks, there is no Comm between TMS and RasPi last round 30 sec to power on	Make RESTORE + UPDATE. If the incident continues contact Service
2 LD302	Error Control LED	Off	Normally off - if blinking indicates error	If it blinks, make a video where it is possible to count the number of blinks per interval
3 LD303	Heart Beat	Red - Blink every 1s	Alive	Check electrical insallation and MOLEX connector
4 Power	Power	Red - Always ON	If it is not fixed there is a problem with the Power Supply	Check electrical installation and MOLEX connector



5.6 Product Code



	Code	Definition
A Model	PLP2	Pulsar Max
B Cable	0	5 m
	M	7 m
C Connector	1	Type 1
	2	Type 2
D Power	2	7,4 kW
	3	11 kW
	4	22 kW
E Additional Feature	9	Residual Current Detection (DC 6 mA)
	F	Residual Current Detection (DC 6 mA) + Earthing protection
F Custom	XXX	Colours