FIA REGION I

ROAD PATROL TRAINING FOR EXCELLENCE 2023 Slovenia

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CHARGING ELECTRIC VEHICLE, 17-10-23

CHARGING ELECTRIC VEHICLE

EV (electric vehicle)

The EV will not charge. What do you do?

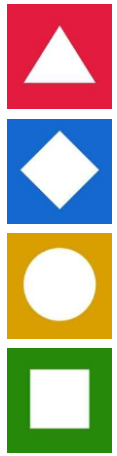
- Check Vehicle
- Check Charging station (mode 3)
- Check Charging Cable
- Check Charge Card

CHARGING ELECTRIC VEHICLE

Normal charging process. How does it work?

QUESTION

How many charging modes are available in Europe



two

one

four

three

DIFFERENT CHARGING MODES

- Mode 1

AC 230V
1 phase
10A
max 2,5KW

- Mode 2

AC 230V
1 phase
12A
max 3,5KW

- Mode 3

AC 230V
1-phase
16A
max 3,5KW

till

AC 230V
3-phase
32A
max 22KW

- Mode 4

DC 500V
300A
max 350KW

DIFFERENT CONNECTORS MODE 3

Type 1

Type 2

QUESTION

Which of these charging mode(s) are direct current?

- Mode 1, 2 and 3
- Mode 2 and 4
- Mode 3 and 4
- Mode 4

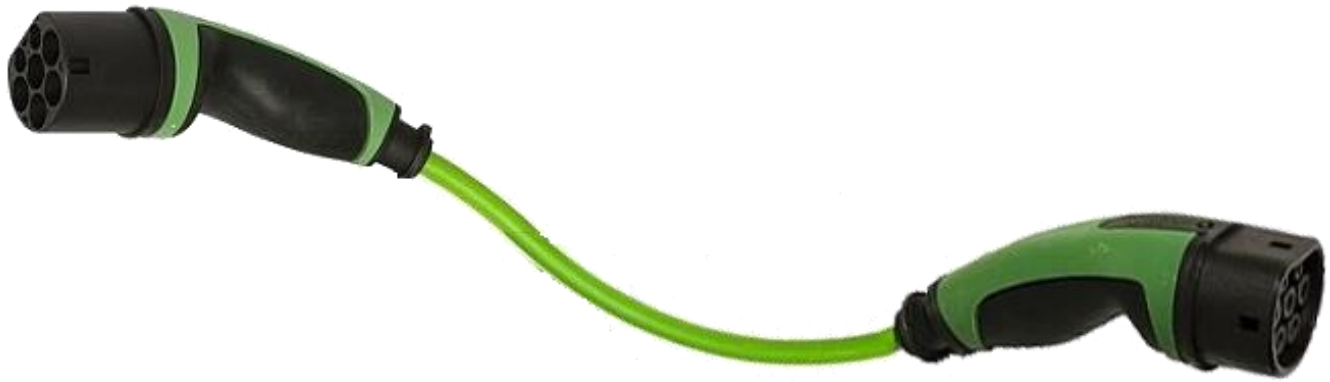
QUESTION

How to check the charging cable, there must be;

- Resistance between CP and Earth
- Continuity between phase 1 and 2
- Continuity between CP and PP
- Resistance between PP and Earth

CHECK CABLE

- Check Cable
- Check Charge Card
- Check Charging station (mode 3)
- Check Vehicle

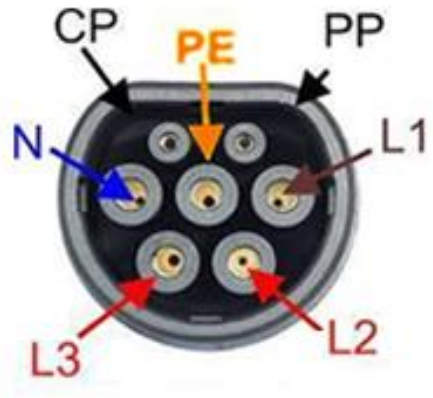


CHARGING CABLE

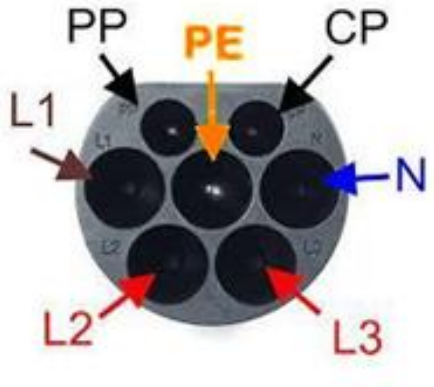
Charging mode 3, socket type 2

- Charging Cable 1 or 3 phase charging
- 13A, 20A, 32A, 64A AC charging
- Type 2 male socket vehicle

CHARGING CABLE MODE 3 TYPE 2



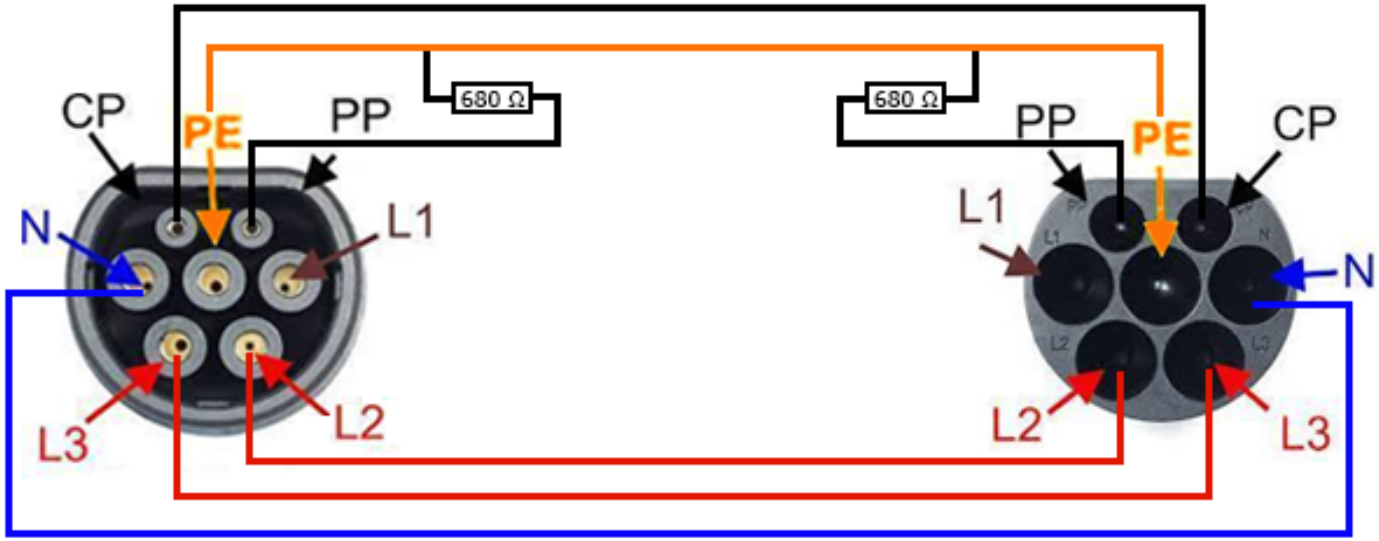
Vehicle



Charge station

- L1 ,L2 en L3 is alternating current
- N Neutral
- PE Protective Earth
- PP Plug Present or Proximity Pilot
- CP Control Pilot

CHARGE CABLE MODE 3 TYPE 2



Current	PP Resistor
13 A	1500 Ω
20 A	680 Ω
32 A	220 Ω
63 A	100 Ω

Note: CP connector!

CHECK CHARGING STATION

- Check Cable
- Check Charge Card
- Check Charging station (mode 3)
- Check Vehicle

CHARGING STATIONS MODE 3

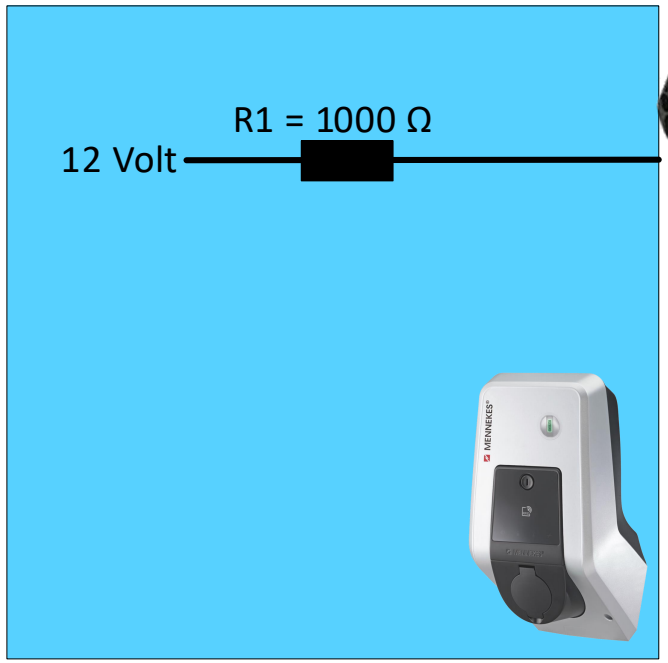
CHECK CHARGING STATION

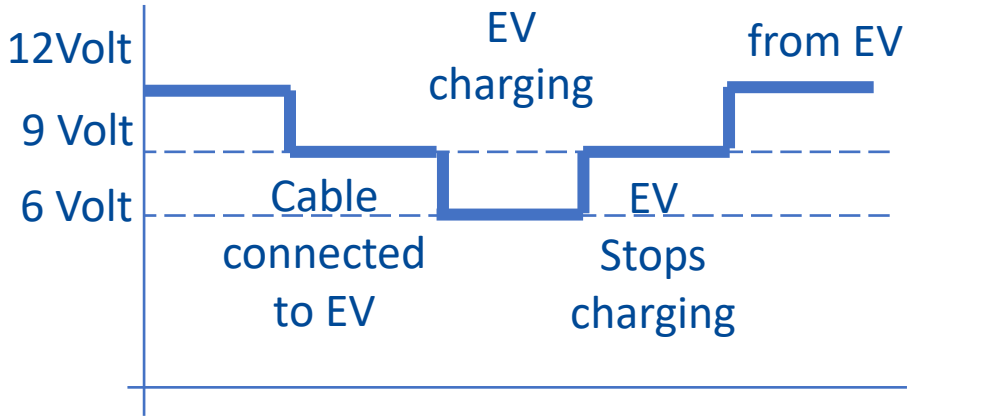
- Use another charge card
- Visual inspection
- Is the charge station powered?
- Checking indicator lights
- Cable locked?
- Measuring 12 Volt on CP connection (after the charge card has been presented)

CP COMMUNICATION

Charging station

Electric vehicle





QUESTION

While working on the **outside** of the charge station, is there a risk of electrocution?

- Yes, after using the charge card (activation of relays)
- No, because the charging Voltage is to low
- Yes, there is always a chance of injuries
- No, only when the system is damaged or exposed

CHECK ELECTRIC VEHICLE

- Check Cable
- Check Charge Card
- Check Charging station (mode 3)
- Check Vehicle

CHECK ELECTRIC VEHICLE

- Vehicle Ready (with no cable connected)
  - 12V available
- Notify socket connected on dashboard
- Charge Timer
- Order of connecting the charging cable (charging station first)
- Lock servo socket working
- Fuses

QUESTION

Choose the right ‘Ready’ indicator (pick 2)

▲

●

◆

■

QUESTION

Which component is responsible for letting the car know there is a cable connected?

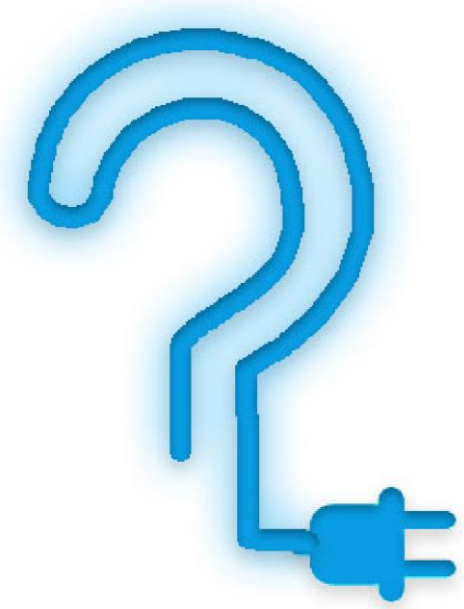
▲

◆

●

■

QUESTIONS



EXPLAINING PRATICAL TASK

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THANK YOU