

User Manual for Wallbox G3



Beyond Charging

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither IES Synergy nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use IES Synergy software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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1. Safety notes

Notice

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger hazard statements indicates that an electrical hazard exists, which result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result** in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result** in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by IES Synergy for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

2. About the manual

Purpose of this manual

Technical documentation is an integral part of a product. Until it is disposed of, always keep the technical documentation close to the unit at hand, as it contains important information. Provide technical documentation to the person concerned if you sell, assign or lend the product.

This guide aims to provide informations needed for the use of the charging station IES Wallbox G3. This guide must be read in integrality with others related documents. This guide is intended for users of the charging stations.

Document scope

This guide concerns the following charging station :

- Art/N : WBG3 3PN Charger
- Art/N : WBG3 3P Charger
- Art/N : WBG3 1PN Charger
- Art/N : WBG3 3PN Charger with power metering

Related documents

Document title	Reference
Installation Manual	DIM016055-EN
User Manual	DUM016055-EN
Service Manual	DMM016055-EN

User comments

We invite you to write us to communicate any inaccuracies or omissions, or to make general comments or suggestions regarding the quality of this manual.

3. General Safety instructions

NOTICE

SAVE THIS MANUAL



- To ensure proper and safe operation, please read these user instructions carefully and keep them for future reference.
- This manual contains important instructions for the DC quick charger that shall be followed during installation, operation and maintenance of the unit.
- This equipment shall be installed, adjusted, and serviced by qualified electrical personnel familiar with the construction and operation of this type of equipment and associated hazards.

Failure to follow these instructions may result in death, serious injury or equipment damage.

⚠ DANGER



RISK OF ELECTRIC SHOCK, INJURY, AND/OR BURNING

- Only qualified, trained and authorized people will repair, replace or adjust this equipment.
- Make sure the AC input breaker is OFF and measures 0V before the breaker.
- Do not use this product if the cables (input or output) are frayed, have damaged insulation or any other signs of damage.
- Do not use this product if the enclosure or the EV connectors are broken, cracked, opened or show any other indication of damage.
- This equipment employs parts, such as switches and relays, that tend to produce arcs or sparks and therefore, when used in a garage, locate in a room or enclosure provided for the purpose or not less than 500mm (18 inches) above the floor.

Failure to follow these instructions will result in death or serious injury

⚠ WARNING



RISK OF DAMAGE TO THE TERMINAL

- Do not use this product if the cables (input or output) are frayed, have damaged insulation or any other signs of damage.
- Do not use this product if the enclosure or the Electrical Vehicle Supply Equipment (EVSE) connectors are broken, cracked, opened or shows any other indication of damage.
- Do not use a cord extension set or second cable assembly in addition to the cable assembly for the connection of the EV to the EVSE.

Failure to follow these instructions can cause damage.

NOTICE



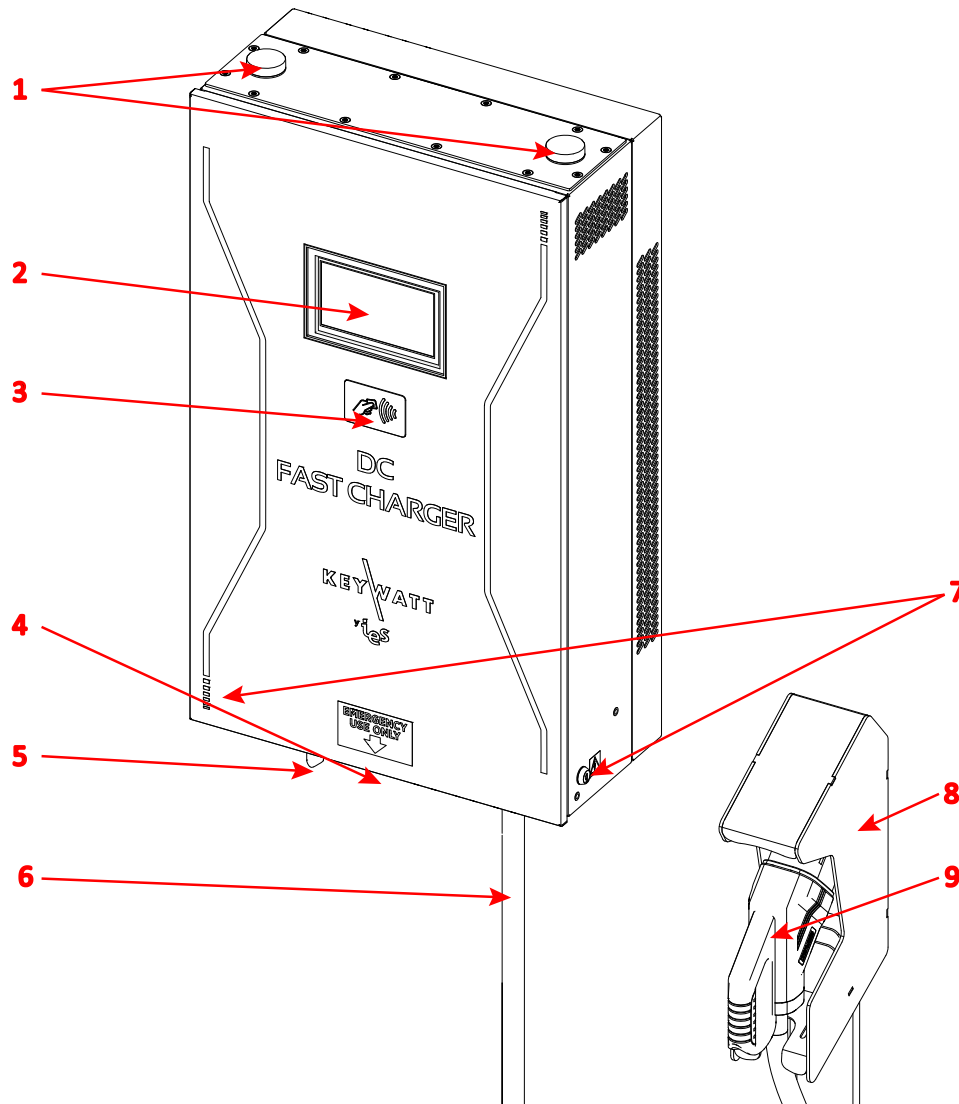
READ THIS MANUAL

- The locking key, supplied with unit, should be kept in a secure and known location by an individual that has read and understands the content of this manual.
- Do not open the front cover at any time while input power is present.
- Do not operate the unit while the cabinet door is opened or unlocked.

Failure to follow these instructions may result in death, serious injury or equipment damage.

4. Overview

External view



Position	Description
1	Antennas
2	7" touchscreen display
3	RFID reader
4	Emergency Stop button
5	Input cable
6	Output cable
7	Key locker
8	Connector holster
9	Output DC coupler

Note: May change depending on version or technical modification

5. Specification

Main supply

The charging station can be connected to several mains supplies as detailed on following tables.

3-phase P1/P2/P3 + N + GND 3x380-480V_{AC}

Mains supplies 3-phase P1/P2/P3 + N + GND 3x380-480V _{AC} (24kW)			
Mains 3-phase voltage range	V _{AC}	380-480 V _{AC}	± 10%
Earthed electrical system	TT or TN		
Frequency range	f	50/60 Hz	± 10%
Nominal input current	I _{AC}	40-32A	Nom
Maximum input current	I _{AC}	45A	Max
Power Factor	PF	0,99	Nom
Efficiency	η	95 %	Nom
Harmonic current @ nominal network voltage	THDi	< 13 %	Max

3- phase P1/P2/P3 + GND 3x208-240V_{AC}

Mains supplies 3- phase P1/P2/P3+GND 3x208-240V _{AC} (24kW)			
Mains 3-phase voltage range	V _{AC}	208-240 V _{AC}	± 10%
Earthed electrical system	TT, TN or IT		
Frequency range	f	50/60 Hz	± 10%
Nominal Input current	I _{AC}	72-63A	Nom
Maximum Input current	I _{AC}	80A	Max
Power Factor	PF	0,99	Nom
Efficiency	η	95 %	Nom
Harmonic current @ nominal network voltage	THDi	< 13 %	Max

Single-phase P + N + GND 1x220-240V_{AC}

Mains supply single-phase P + N + GND 1x220-240V _{AC} (24kW)			
Mains single-phase voltage range	V _{AC}	220-240 V _{AC}	± 10%
Earthed electrical system	TT or TN		
Frequency range	f	50/60 Hz	± 10%
Nominal Input current	I _{AC}	123-112A	Nom
Maximum Input current	I _{AC}	140A	Max
Power Factor	PF	0,99	Nom
Efficiency	η	95 %	Nom
Harmonic current @ nominal network voltage	THDi	< 13 %	Max

3-phase P1/P2/P3 + N + GND 3x380-400V_{AC} with power metering⁽¹⁾

Mains supplies 3-phase P1/P2/P3 + N + GND 3x380-400V _{AC} (24kW) with power metering ⁽¹⁾			
Mains 3-phase voltage range	V _{AC}	380-400 V _{AC}	± 10%
Earthed electrical system	TT or TN		
Frequency range	f	50/60 Hz	± 10%
Nominal input current	I _{AC}	40-32A	Nom
Maximum input current	I _{AC}	45A	Max

Mains supplies 3-phase P1/P2/P3 + N + GND 3x380-400V_{AC} (24kW) with power metering⁽¹⁾

Power Factor	PF	0,99	Nom
Efficiency	η	95 %	Nom
Harmonic current @ nominal network voltage	THDi	< 13 %	Max

Technical specification

Internal AC input protection

Inrush current limitation per phase	$I_{INRUSH LIMIT}$	$< 3 \times I_{AC}$	Max
Rated Current Fuse (per module)	I_{BREAK} Rating	80A	typ
Breaking capacity of fuses	I_{BREAK} Capacity	80 000A	Max
Max earth leakage current	$I_{LEAKAGE}$	< 3,5 mA	Max
Emergency button connection	Yes		
Overvoltage (IEC60664-1)	OV III		
Insulation protection Class (IEC60664-1)	Class I		

Internal DC Output

Output voltage	V_{DC_max}	530 V _{DC}	Max
	V_{DC_min}	150 V _{DC}	Min
Output current	I_{DC_max}	65A ⁽²⁾⁽³⁾	Max
	I_{DC_min}	1,5A	Min
Max Output Power	P_{OUT}	24kW	Max
Output connector (charging station side)	Permanent mounting		
Car Plug coupler	COMBO 2 or CHAdeMO		
Output cable length	-	4	Meters

Internal DC output protection

Hardware and software short circuit protection	Yes		
Software and Hardware over voltage protection	adjustable	+10% max	
Over temperature protection	-	70	°C
Reverse polarity protection	Yes		
DC output Contactor	Yes (2 poles)		
Rated Current Fuse (output)	I_{FUSE}	125	A
Galvanic isolation	$V_{input / output}$	5200	V _{DC}
Max time for DC line discharge < 60V	$T_{<60V}$	1	s

Embedded Insulation device

Response time (tan)	< 3sec. for asymmetrical fault < 62sec. for symmetrical fault		
Self test time	At power on and every 60s during charge		
Internal resistance Ri of the measuring circuit	1.5Mohms permanent 750Kohms continuous measurement 300Kohms during simultaneous switching measurement		
Measurement method	Continuous and switching measurement resistor method		
Measuring current Im	< 1,4mA at RF=0		
Measurement range (Ran)	20Kohms...300Kohms		
Relative uncertainty	±15%		

Embedded Insulation device	
Line L+/L- Voltage (Un)	DC 150V...530V
System leakage capacity Ce	≤ 1μF : response value (Ran) and time (tan) are not guaranteed for capacity above 1μF
Parallelization	⚠ Warning: Do not connect the insulation monitor device (IMD) in parallel !! Response value (Ran) and time (tan) are not guaranteed.

General & dimensions			
External dimensions (mm)	H x W x D	860 x 507 x 250 mm	
Weight (without cable, or bracket)	kg	66kg	Max
Type of installation	Mounting on a wall or on a pedestal with proper fixation point		
Fixation points	8 screws for wall mounting		
Protection type (EN60529)	IP	IP54	
Cooling systems	Heatsink with forced air flow by fans IP55 without air filter		
Noise (1m, all direction)	Db(A)	65dba (1m)	

Climatic & Environment constraints			
Operating temperature (with derating)	-25°C to +55°C ⁽⁴⁾		
Storage temperature	-25°C to +60°C		
Relative humidity	RH	10% to 95%	
Installation altitude	Alt	2 000m	Max

Norms & standards	
EC Low voltage EC directive (LVD)	2014/35/EU
EC Electromagnetic Directive (EMC)	2014/30/EU
Radio Equipment Directive (RED)	2014/53/EU
Electric vehicle conductive charging system part 1 General requirement	IEC 61851-1
Electric vehicle conductive charging system part 23 DC Electric vehicle charging station	IEC 61851-23
EMC requirement for OFF board electric vehicle charging system	IEC 61851-21-2
Insulation Monitor Device (IMD)	IEC 61557-1 & IEC 61557-8
RoHS	2015/863/EU
Declaration of conformity CE ⁽⁵⁾	Yes

⁽¹⁾ EC approval pending.

⁽²⁾ Max output current will be adapted versus maximum carrying current of the vehicle plug.

⁽³⁾ Output current can be even reduced with the power derating versus temperature.

⁽⁴⁾ Potential derating above 35°C.

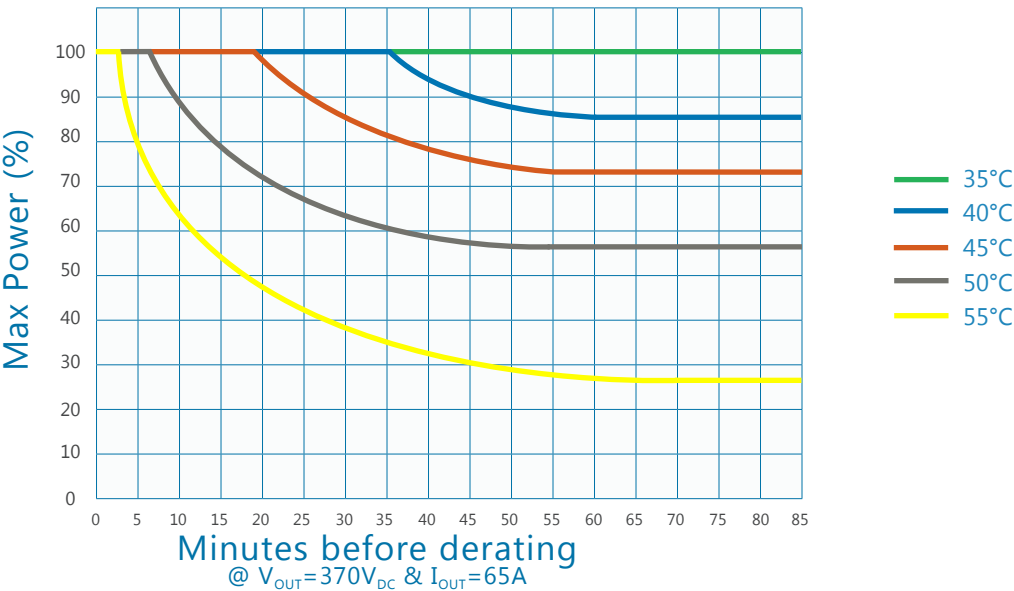
⁽⁵⁾ CE marking affixed on the product attest the conformity of the product with applicable requirements of relevant Community harmonization legislation.

Compliance



Derating

As a direct correlation exists between the current and ambient temperature a derating curve is provided for all charging station.



6. Operating instructions

Start a Vehicle Charge Session

Before starting a charge session:

Ensure the unit is properly assembled in accordance with the assembly instructions before it is used
You must have a RFID Card activated on backend server or being connected to backend App.

1. A) Swipe an activated RFID card once across the card reader
or
B) Remotely start the charge through an application linked to the backend
2. A) The unit will beep once indicating the card swipe was successful
B) Wait for display indication
3. The display will show if the charge has been authorized
4. The display will instruct the user when to plug into the vehicle
5. Plug the coupler firmly into the vehicle. The latch should click
6. Observe the display and charging will begin once the car acknowledges the charger

Stop a Vehicle Charge Session

The charger will automatically stop once charging is completed. Fast charging will occur up to 80% of the vehicle's battery state of charge. The charger will adjust its output according to the demands of the vehicle, ambient temperatures and other factors.

To stop charging before the end of the charging cycle follow these steps :

1. A) With the same card that the session was initiated with, swipe over the card reader
or
B) Remotely stop the charge through an application linked to the backend
2. The display will indicate that the session is ending
3. Once the session has ended the vehicle will unlock the coupler. A click may be heard at the vehicle/coupler
4. Once unlocked, remove it from the vehicle charging inlet
5. Return the coupler to the dock on the charging station

Emergency Stop

In the event of an emergency the Emergency Stop button may be depressed to instantly stop charging.

To emergency stop follow these steps :

1. Depress the emergency stop button below the charger
2. The display will show the text "Error occurred: 0x02 Emergency stop was launched. Please unplug your vehicle and check the emergency button is released."
3. Unplug the coupler from the vehicle

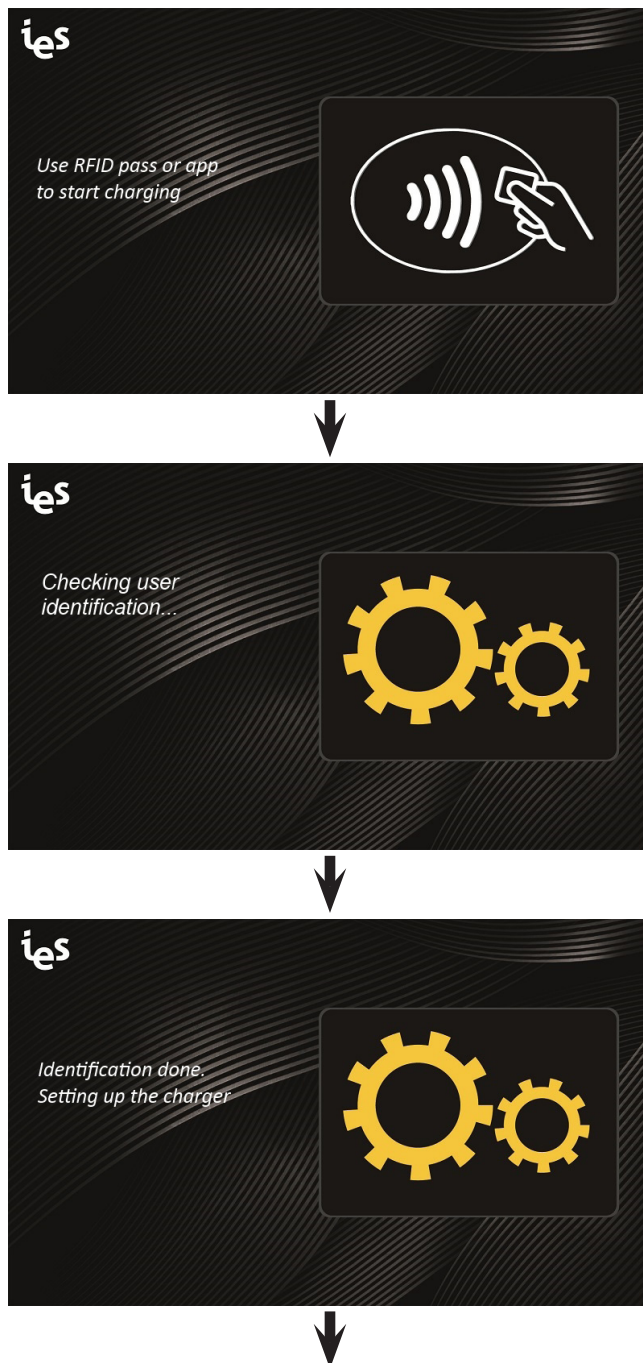
To reset after emergency stop rotate the button clockwise until it pops outward. After a self-test the display will remove the emergency stop message and will be ready for a new session.

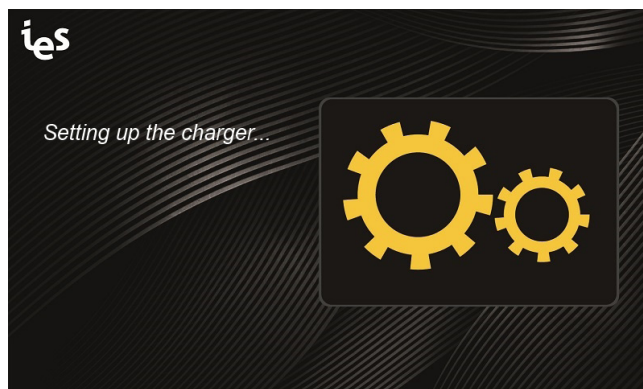
7. Utilization

User identification

The charging station stays in idle mode waiting for the identification of a new user.

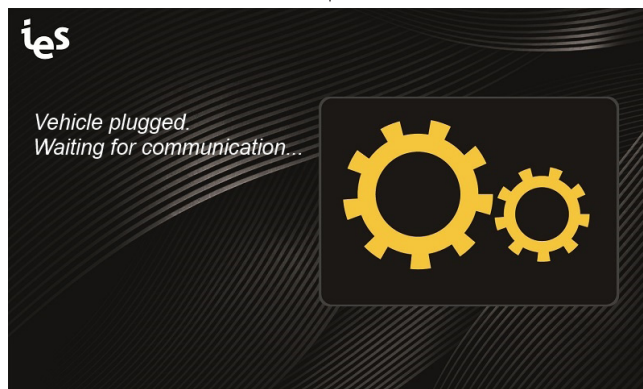
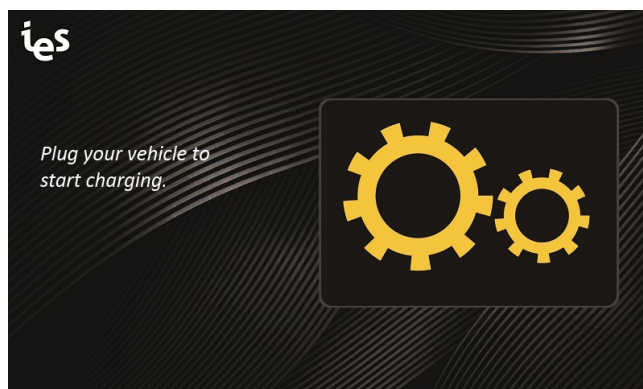
When an user wants to recharge the electrical vehicle, there are 2 ways to identify on the charging station: to swipe an activated RFID card once across the card reader or to remotely start the charge through an application linked to the backend.





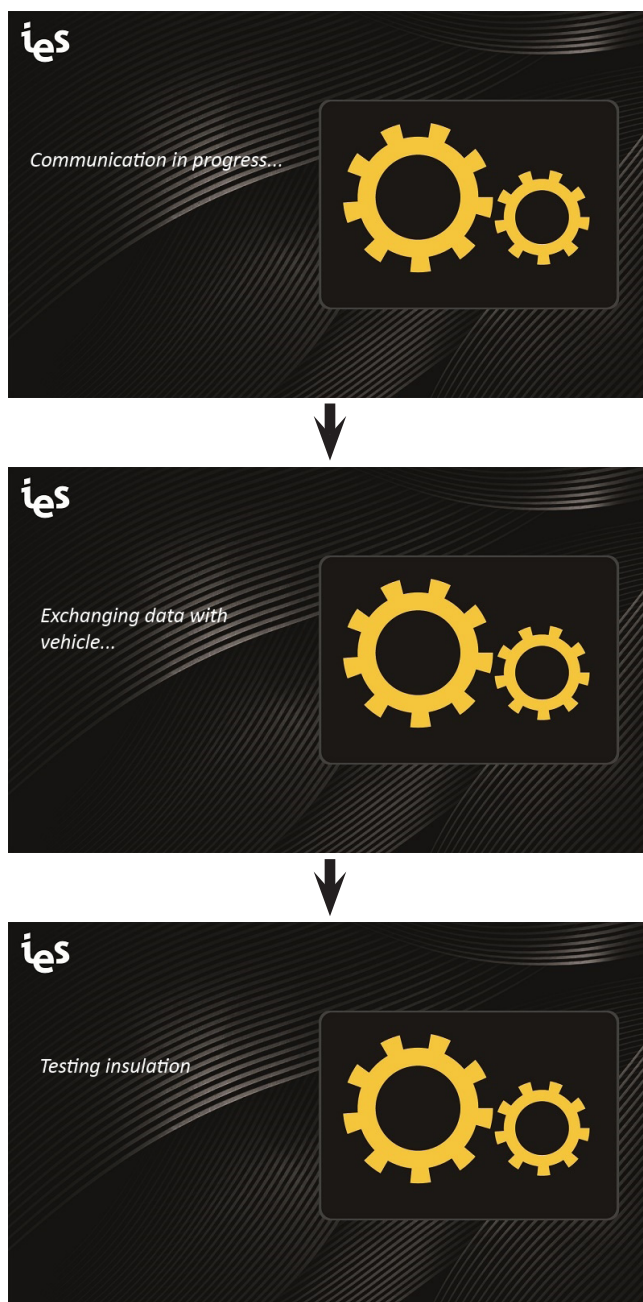
EV connection

The charging station invites the user to connect the EV with the following screen :



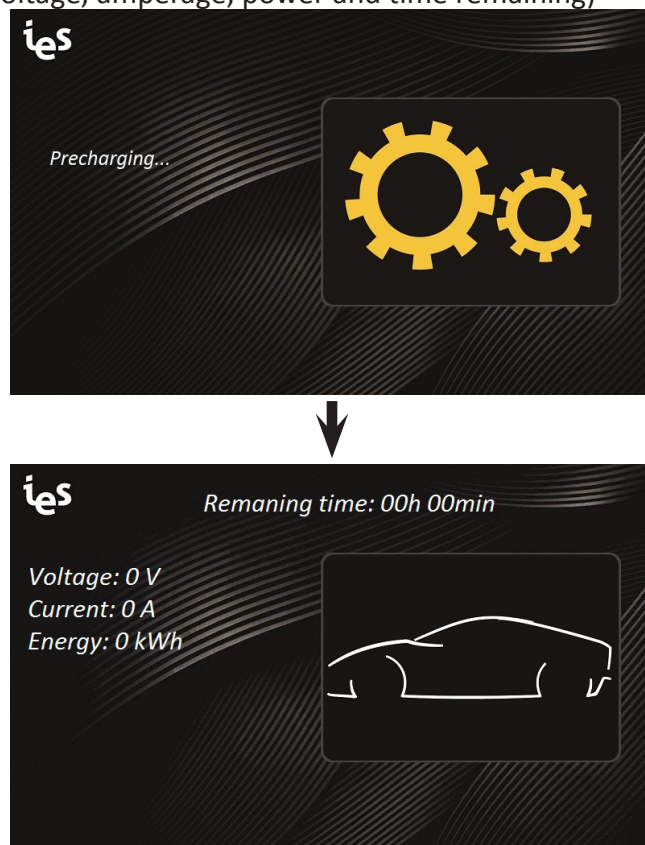
EV communication

Before starting a charge, the charging station communicates with the electrical vehicle to collect information. All these steps are necessary to adapt the charging station parameters to the electrical vehicle.



EV charge

During the charge of the electrical vehicle, the charging station shows on first a precharging message, followed by the charge informations (voltage, amperage, power and time remaining)



End of charge

After completing the charge of the electric vehicle, the charging station performs multiple control steps before disconnecting the vehicle.

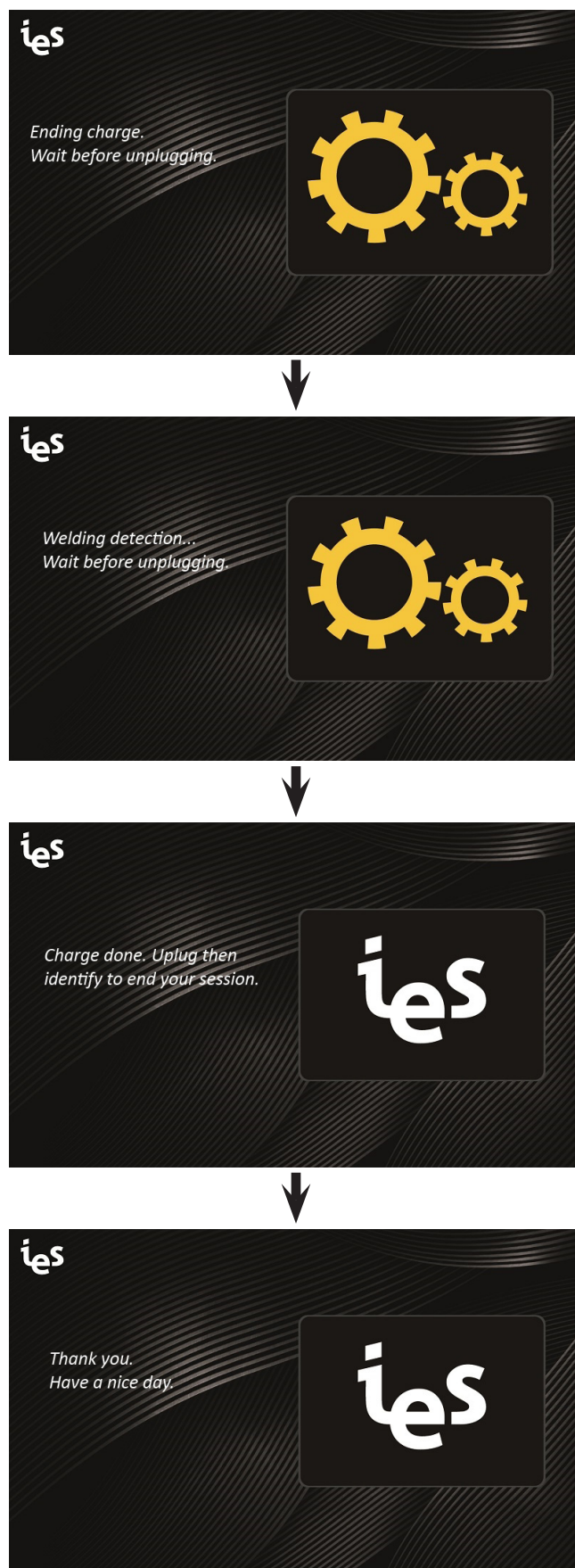
Combined Charging System

When the Combo protocol is used, the user can unplug the vehicle.



CHAdemo

When the CHAdemo protocol is used, the user must identify himself after unplugging his electrical vehicle.

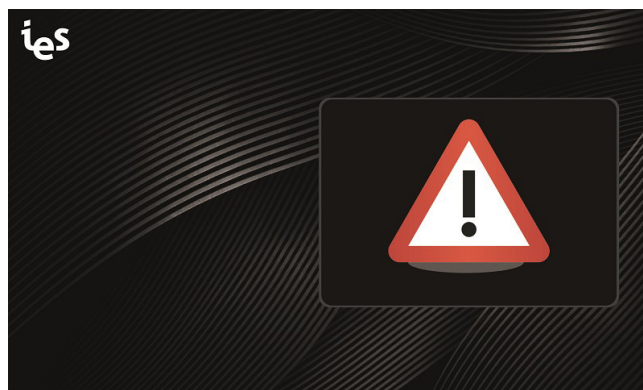


Others messages

Message	Description
Error connecting server. Bootling interrupted ! Please call support.	Message displayed during the startup of the charging station if the backend server reject the connection.
Error connecting to RFID reader. Bootling interrupted ! Please call support.	Message displayed during the startup of the charging station if the RFID module does not work. Please contact support.
Error connecting to Communication Control Unit. Bootling interrupted ! Please call support.	Message displayed during the startup of the charging station if the CCU board does not work. Please contact support.
Charger inoperative. Cannot charge here.	Charger inoperative. Backend server request charger does not accept charge
Charger inoperative. Please unplug your vehicle.	Charger inoperative. Backend server request charger does not accept charge. Unplug the vehicle.
Authorization failed! Please retry identifying.	User rejected by the backend server.
Charger offline. Set up to refuse offline charging.	Charger offline.
Error timeout. Please unplug your vehicle then identify.	Time out, user identified, unplug the vehicle before retrying to identify.
Plug your vehicle to start charging. Vehicle not detected. Retrying... X	ChaDeMo only: User identified, waiting for electrical vehicle connection.
Error: Authorization failed. You cannot stop the charge session.	The charge cannot be interrupted by this user who is not recognized by the backend server.
To stop charging, use your RFID card or your application.	User wants to stop the charge. He should identify himself to be able to switch off the charge and disconnect his vehicle.
Charge done. Wrong RFID pass. Unplug your vehicle.	User not recognized by the backend server.. Charging terminated. Unplug the vehicle.
Charge done. Wrong RFID pass. Unplug your vehicle then identify to end your session.	ChaDeMo only: User not recognized by the backend server.. Charging terminated. Unplug the vehicle.
Station shut down. Please reboot.	Charging station shut down. Please contact support to restart the charging station.
Updating station... Charging not available.	Charging station is being updated. Please wait.
Error updating. DO NOT CHARGE HERE. Wait for correct update.	Error updating. Please contact support for updating the charging station.
Remote reset started... Station will reboot now.	Station is being rebooted.
Station rebooted. Please unplug your vehicle.	CCS only: Station rebooted during a charge. Please unplug and retry to launch the charge.
Warning: insulation failure.	Cable insulation failed. Please contact support.

Errors

The error messages are displayed with a characteristic screen. They are thus easily identifiable by the user. A warning pictogram is displayed along with the error message as shown below.



The table below lists error messages that appear on the screen.

Error	Error resolution
Error occurred: 0x02 - 0x03 - 0x81 Emergency stop. Please unplug your vehicle and release the emergency button.	Emergency stop was initiated. Please unplug your vehicle and release the emergency button.
Error occurred: 0x02 - 0x03 - 0x81 Emergency stop. Please unplug your vehicle and release the emergency button.	Emergency stop was initiated. Please unplug your vehicle and release the emergency button.
Error occurred: 0x0A - 0x86 The charging station is overheating. Please unplug your vehicle and check that no air vent is clogged.	The charging station is overheating. Please unplug your vehicle and check that no air vent is clogged.
Error occurred: 0x0A - 0x86 The charging station is overheating. Please unplug your vehicle, identify and check that no air vent is clogged.	ChaDeMo only : The charging station is overheating. Please unplug your vehicle, identify and check that no air vent is clogged.
Error occurred: 0x51 The connection with the vehicle was lost. Please unplug your vehicle.	The connection with the vehicle was lost. Please unplug your vehicle.
Error occurred: 0x07 - 0x29 - 0x51 The connection with the vehicle was lost. Please unplug then identify.	ChaDeMo only : The connection with the vehicle was lost. Please unplug then identify.
Error occurred: 0x22 - 0x33 The connector cannot lock. Please keep the connector closely leant against your vehicle when plugging, until the charge has started. Please unplug your vehicle.	The connector cannot lock. Please keep the connector closely leant against your vehicle when plugging, until the charge has started. Please unplug your vehicle.
Error occurred: 0x22 The connector cannot lock. Please keep the connector closely leant against your vehicle when plugging, until the charge has started. Please unplug your vehicle then identify.	ChaDeMo only : The connector cannot lock. Please keep the connector closely leant against your vehicle when plugging, until the charge has started. Please unplug your vehicle then identify.
Error occurred: 0x3A Your battery model is incompatible with this charger. Please unplug your vehicle.	Your battery model is incompatible with this charger. Please unplug your vehicle.

Error	Error resolution
Error occurred: 0x11 Your battery model is incompatible with this charger. Please unplug then identify.	ChaDeMo only : Your battery model is incompatible with this charger. Please unplug then identify.
Error occurred: 0x32 Your gear is not in parking position. Please unplug your vehicle and engage gear in parking position.	Your gear is not in parking position. Please unplug your vehicle and engage gear in parking position.
Error occurred: 0x14 Your gear is not in parking position. Please unplug your vehicle, identify and engage gear in parking position.	ChaDeMo only : Your gear is not in parking position. Please unplug your vehicle, identify and engage gear in parking position.
Error occurred: 0x15 Your vehicle raised an error. Please check error message in the vehicle, unplug it then identify.	ChaDeMo only : Your vehicle raised an error. Please check error message in the vehicle, unplug it then identify.
Error occurred: 0x31 Your battery's temperature is too high. Please unplug your vehicle.	Your battery's temperature is too high. Please unplug your vehicle.
Error occurred: 0x19 Your battery's temperature is too high. Please unplug your vehicle then identify.	ChaDeMo only : Your battery's temperature is too high. Please unplug your vehicle then identify.
Error occurred: 0x46 Connection between screen and charger has been lost. Please unplug your vehicle.	Connection between HMI screen and charger has been lost. Please unplug your vehicle.
Error occurred: 0x46 Connection between screen and charger has been lost. Please unplug your vehicle then identify.	ChaDeMo only : Connection between HMI screen charger has been lost. Please unplug your vehicle then identify.
Error occurred: 0x-- Please unplug your vehicle.	For all other error codes, please refer to maintenance manual.
Error occurred: 0x-- Please unplug then identify to end your session.	ChaDeMo only : For all other error codes, please refer to maintenance manual.

Notes

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Notes

[illegible]

Autochargers.ca

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Ontario, L3R 5V5
1-833-840-4970, 905-660-1171



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